

Additional Information for 2.3.1 QIM Student centric methods, such as experiential learning, participative learning and problem-solving methodologies are used for enhancing learning experiences

Sample evidence for following methodologies-

Experiential learning

- Lab Experiments: Online open-source simulators/software, Virtual labs
- Hands-on Workshops like UX design, FPGA & ARM: Another approach to Embedded System etc.
- Internships-Internal and External Internships
- Live Projects
- Business Simulations

Individual learning:

- Value-added Assignments/Quizzes/Crosswords
- Online courses: NPTEL/MIT-OCW/Coursera, etc. (Institute has tie-up with edX, Coursera)
- Poster presentation

Participative/collaborative learning:

- Student Seminars
- Webinars on various topics by Eminent personalities
- Mini Projects: "Android Penetration Check", "Wild Animal Tracker" etc.
- Group discussions
- Flipped Classroom
- Various Competitions: Hackathon 2022, Reverse Coding, Hackatronics, IEEE Xtreme -2022, Tantravihar 2022 etc.
- Committee activities: Crossing Perceptions, Voyager-Shark Tank-2023, Robotic Process Automation, E summit- "Embrace global education on your fingertips etc.
- Student Development Program- "Continuum: Strengthening the learning curve"
- Gaming Activities - Kahoot game, Quizlet games, Quizz, Crosswords etc.

Problem based learning:

- Problem Based Learning Experiments
- Case Studies
- Scholarly Term Paper
- Research Paper Review

Subject:	Advanced Networking Technologies
Semester	VII
Academic Year:	2022-23
Software Requirements:	Cisco Packet Tracer, NS2, GNS3
Hardware Requirements:	2GB Ram, 500GB Hard Disk
Theory Faculty In-charge	Pranita Padhye
Practical Faculty In-charge	Pranita Padhye
Laboratory	M-516

Course Outcomes

CO1	Appreciate the need for Wireless networks and study the IEEE 802.11 Standards
CO2	Comprehend the significance of Asynchronous Transfer Mode (ATM).
CO3	Analyze the importance of Optical networking
CO4	Demonstrate knowledge of network design and security
CO5	Understand the concept of multimedia networks

INDEX (PRACTICAL PLAN)

Sr. No.	Experiment Title (Problem Based)	New/ Repeated		COs
1	Implementation of VLAN	R	28/07/2022	CO1, CO4
2	Implementation of Routing Information Protocol (RIP)	R	04/08/2022	CO1, CO3
3	Implementation of Open Shortest Path First (OSPF)	R	11/08/2022	CO1, CO3
4	Implementation of NAT	R	18/08/2022	CO1, CO3, CO4, CO5
5	DHCP, DNS and Web Server	N	25/08/2022	CO1, CO3, CO4, CO5
6	WEP and WPA in wireless Networks	R	08/09/2022	CO1, CO3, CO4, CO5
7	Implementation of Border Gateway Protocol (BGP)	R	15/09/2022	CO1, CO3,
8	Implementation of TELNET	R	22/09/2022	CO1, CO3, CO4, CO5
9	Implementation of SSH	N	29/09/2022	CO1, CO3, CO4, CO5
10	Case Study	N	13/10/2022	CO1, CO2, CO3, CO4, CO5

Signature: Subject In-Charge
Pranita Padhye

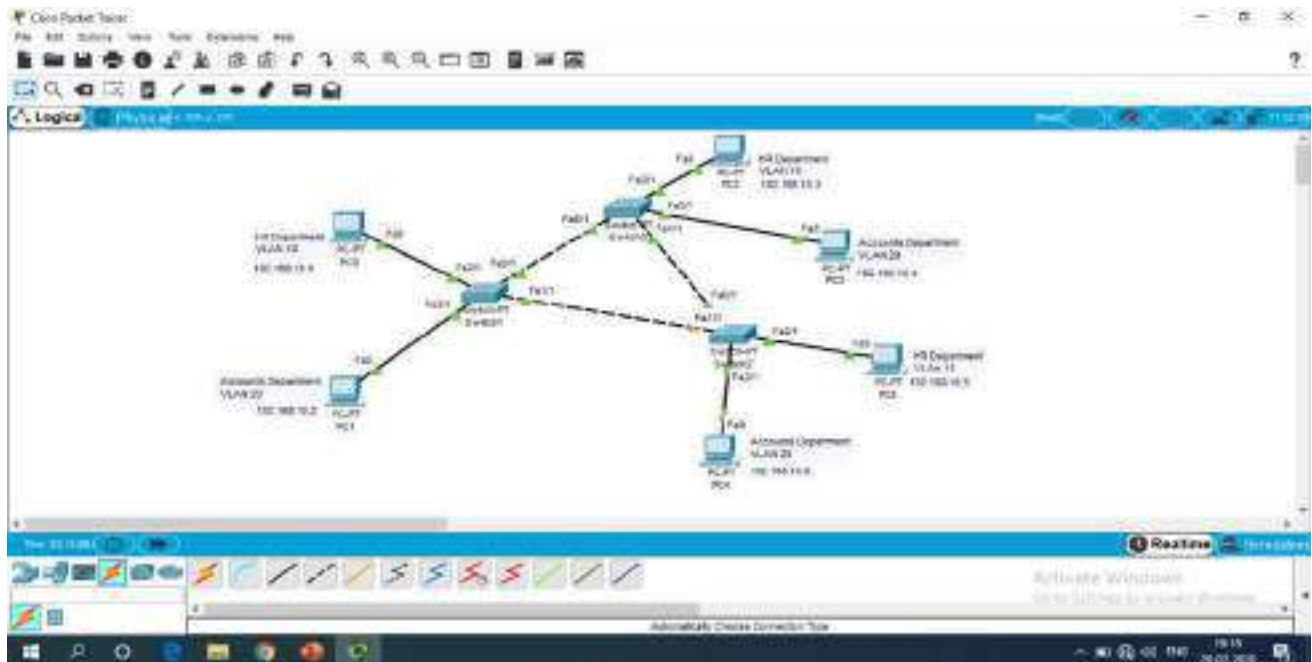
Experiment 1: - Implementation of VLAN

VLAN is a logical grouping of networking devices. When we create VLAN, we break large broadcast domain in smaller broadcast domains. Consider VLAN as a subnet. Same as two different subnets cannot communicate with each other without router, different VLANs also requires router to communicate

Benefits of VLAN

- Solve broadcast problem
- Reduce the size of broadcast domains
- Allow us to add additional layer of security
- Make device management easier
- Allow us to implement the logical grouping of devices by function instead of location

VLAN Trunk Protocol (VTP) is a Cisco proprietary protocol used to share VLAN configuration across the network. Cisco created this protocol to share and synchronize their VLAN information throughout the network. Main goal of VTP is to manage all configured VLANs across the network.



The nodes/devices from the HR department should communicate with each other i.e., PC0, PC2 and PC5 should communicate, So Port fa2/1 of all the switches- should be in same VLAN, suppose VLAN 10, so these ports should be access ports. The nodes/devices from the Accounts department should communicate with each other i.e., PC1, PC3 and PC4 should communicate, So Port fa3/1 of the switches- should be in same VLAN, suppose VLAN 20, so these ports should be access ports.

To configure the mode trunk to all interfaces of the switches that connect to another switch. The commands are:

e.g., office switch1

```
Switch1(config)#Int fa0/1
```

```
Switch1(config-if)# Switchport mode trunk
```

```
Switch1(config-if)# Switchport nonegotiate
```

```
Switch1(config-if)#exit
```

```
Switch1(config)#Int fa0/1
```

```
Switch1(config-if)# Switchport mode trunk
```

```
Switch1(config-if)# Switchport nonegotiate
```

So above commands should be given to the Ports fa0/1, fa1/1 of all the switches.

switchport access vlan [vlan number]

e.g.,

So Ports fa2/1 and fa3/1 of all the switches should be assigned as Access ports

Office 1 Switch

```
Switch1(config)#interface fastEthernet 2/1
```

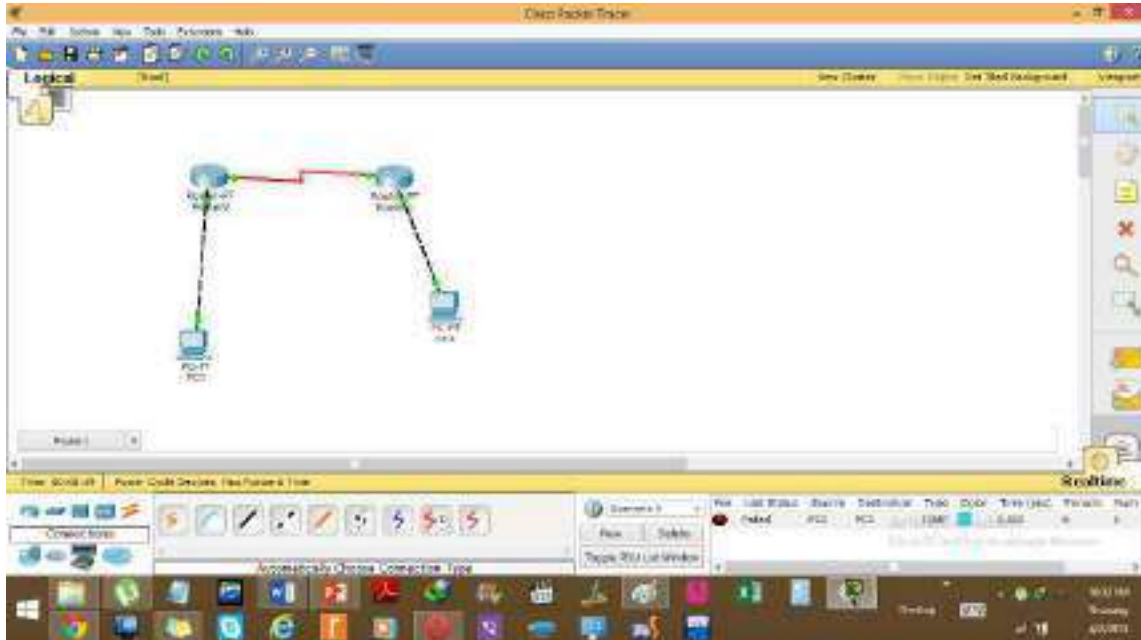
```
Switch1(config-if)#switchport access vlan 10
```

```
Switch1(config-if)#interface fastEthernet 3/1
```

```
Switch1(config-if)#switchport access vlan 20
```

Experiment 2:- Implementation of RIP on packet tracer

Lets apply RIP protocol on the following topology.



Now, we will follow the steps as mentioned in detail in the following [article](#). i.e.

- i. We will assign IP addresses to all the fast Ethernet and serial interfaces respectively.
- ii We will change the state of the interfaces from down to UP.

Then, after we are done with the basic step. We will apply RIP protocol commands on both routers.

Configuration of Router 0 i.e. configuring both serial and fast ethernet interfaces.

```

105 Configured Line Interface:
Router0>configure terminal
Enter configuration commands, one per line. End with CTRL/Z.
Router0(config)#interface FastEthernet0/0
Router0(config-if)#ip address 192.168.1.1 255.255.255.0
Router0(config-if)#no shutdown

%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router0(config-if)#
Router0(config-if)#exit
Router0(config)#interface FastEthernet0/0
Router0(config-if)#
Router0(config-if)#exit
Router0(config)#interface Serial2/0
Router0(config-if)#ip address 192.168.2.1 255.255.255.0
Router0(config-if)#clock rate 64000
Router0(config-if)#no shutdown
Router0(config-if)#

```

R1

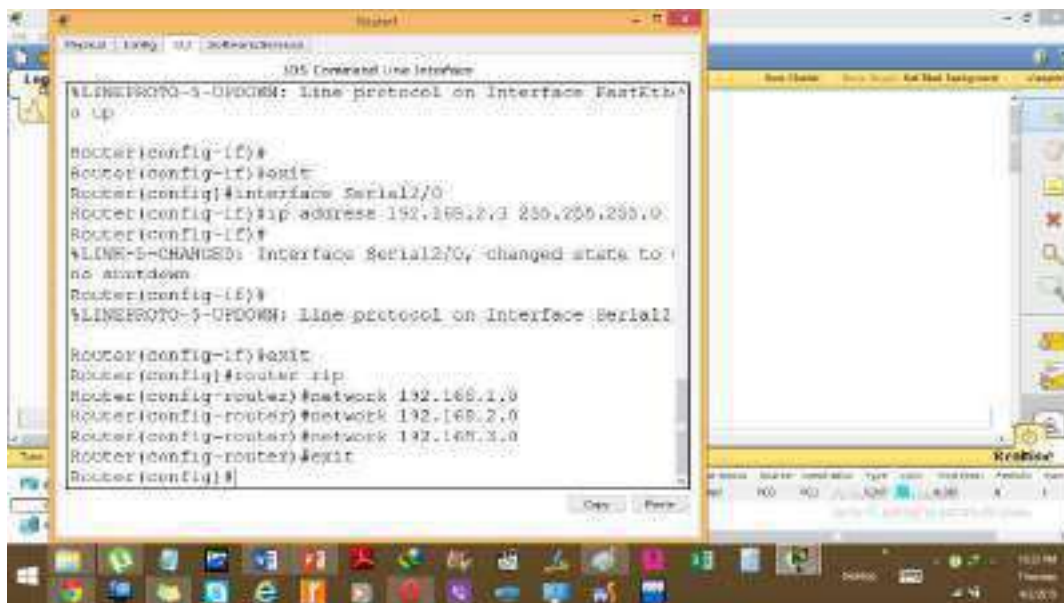
In order to apply protocol RIP, we will write the following set of commands.

```
Router(config)# router rip
Router(config-router)# network 192.168.1.0
Router(config-router)# network 192.168.2.0
Router(config-router)# network 192.168.3.0
Router(config-router)#exit
```

R2:

In order to apply protocol RIP, we will write the following set of commands on R2 as well.

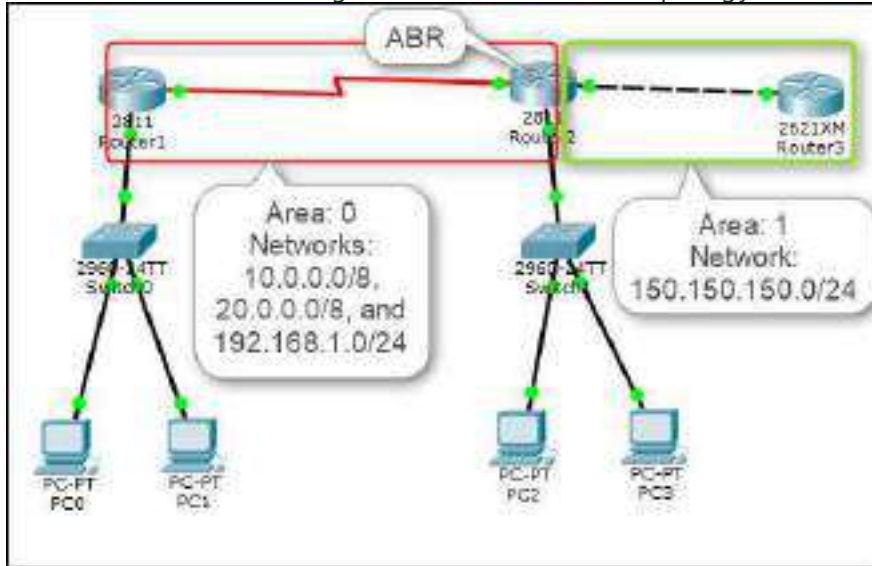
```
Router(config)# router rip
Router(config-router)# network 192.168.1.0
Router(config-router)# network 192.168.2.0
Router(config-router)# network 192.168.3.0
Router(config-router)#exit
```



1. Ping PC1 from PC1 and see the communication
2. Also trace route the communication

Experiment 3: - Implementation of OSPF protocol

We will use the following Cisco Packet Tracer topology to [configure OSPF routing protocol](#).



We assume that the IP address configuration is already configured on each router and PC

Sr. No.	Device	Interface	IP Address
1	Router1	Fa0/1	10.0.0.1/8
		S1/0	192.168.1.1/24
2	Router2	S1/0	192.168.1.2/24
		Fa0/0	20.0.0.1/8
		Fa0/1	150.150.150.1/24
3	Router3	Fa0/1	150.150.150.2/24
4	Switch1	N/A	N/A
5	Switch2	N/A	N/A
6	PC0	Fa0	10.0.0.2/8
7	PC1	Fa0	10.0.0.3/8
8	PC2	Fa0	20.0.0.2/8
9	PC3	Fa0	20.0.0.3/8

as per the following table.

OSPF Configuration Command Syntax

Once you have configured the appropriate IP addresses on each device. Execute the **show ip interface brief** command on each router to verify the IP configuration. Once you verified the IP configuration on each router, proceed to the next section.

The OSPF routing protocol uses the following command syntax.

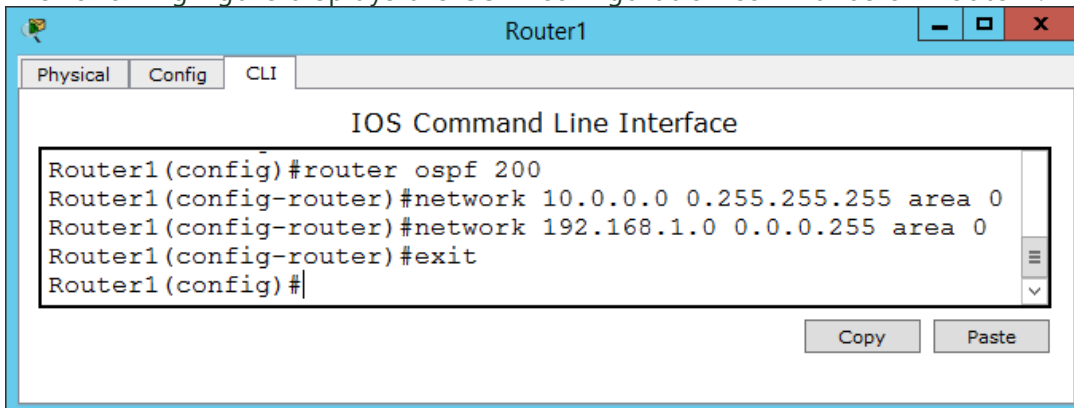
```
Router(config)#router ospf <process id 1-65535>
Router(config-router)network <network address> <wild card mask> area <0-4294967295>
```

Note: You can define an area number either in the decimal format or in the IP address format. For example, the area number 20 can be defined as 20 in the decimal format or as 0.0.0.20 in the IP address format.

OSPF Configuration Steps

To configure OSPF routing protocol on the above-mentioned topology, you need to perform the following steps.

1. Move on to **Router1** and execute the following commands to specify the OSPF network and area.
2. Router1(config)#router ospf 200
3. Router1(config-router)#network 10.0.0.0 0.255.255.255 area 0
4. Router1(config-router)#network 192.168.1.0 0.0.0.255 area 0.0.0.0
Router1(config-router)#exit
5. The following figure displays the OSPF configuration commands on Router1.

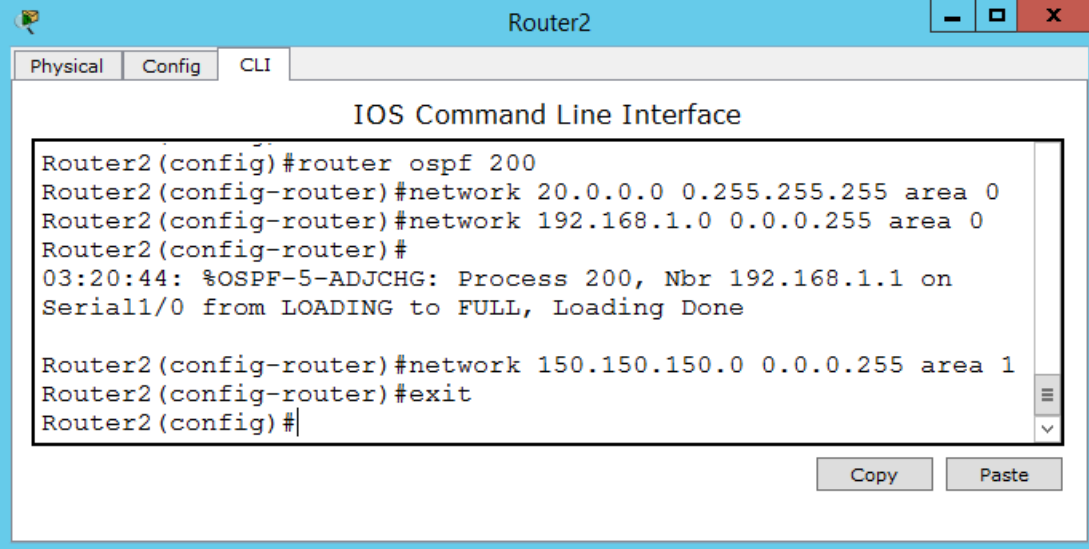


The screenshot shows a terminal window titled "Router1" with tabs for "Physical", "Config", and "CLI". The main content is the "IOS Command Line Interface" where the following commands have been entered:

```
Router1(config)#router ospf 200
Router1(config-router)#network 10.0.0.0 0.255.255.255 area 0
Router1(config-router)#network 192.168.1.0 0.0.0.255 area 0
Router1(config-router)#exit
Router1(config)#|
```

Buttons for "Copy" and "Paste" are visible at the bottom right of the terminal window.

6. Next, move on to **Router2** and execute the following commands to specify OSPF networks and areas.
7. Router2(config)#router ospf 200
8. Router2(config-router)#network 20.0.0.0 0.255.255.255 area 0
9. Router2(config-router)#network 192.168.1.0 0.0.0.255 area 0
10. Router2(config-router)#network 150.150.150.0 0.0.0.255 area 1
11. Router2(config-router)#exit
Router2(config)#exit

12.  The screenshot shows the CLI of Router2. The user has entered the following commands: `router ospf 200`, `network 20.0.0.0 0.255.255.255 area 0`, `network 192.168.1.0 0.0.0.255 area 0`, `exit`, `network 150.150.150.0 0.0.0.255 area 1`, and `exit`. The system output shows the OSPF process starting on Serial1/0.

```
Router2 (config)#router ospf 200
Router2 (config-router)#network 20.0.0.0 0.255.255.255 area 0
Router2 (config-router)#network 192.168.1.0 0.0.0.255 area 0
Router2 (config-router)#
03:20:44: %OSPF-5-ADJCHG: Process 200, Nbr 192.168.1.1 on
Serial1/0 from LOADING to FULL, Loading Done
Router2 (config-router)#network 150.150.150.0 0.0.0.255 area 1
Router2 (config-router)#exit
Router2 (config)#
```

13. On **Router3**, execute the following commands.

14. Router3(config)#router ospf 200

15. Router3(config-router)#network 150.150.150.0 0.0.0.255 area 1

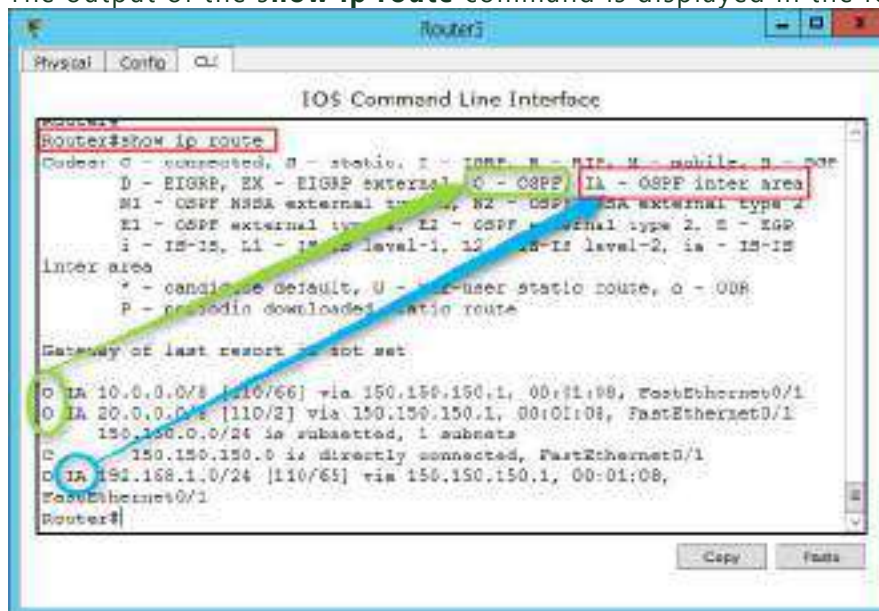
16. Router3(config-router)#exit

Router3(config)#exit

17. Once you have configured the OSPF routing protocol on all the routers, execute the following command on Router3 (or any other router) to view the routing table.

Router3#show ip route

18. The output of the **show ip route** command is displayed in the following figure.

 The screenshot shows the CLI of Router3. The user has entered the command `show ip route`. The output displays the routing table, including entries for directly connected networks and OSPF routes. A legend at the top explains the route codes: C for connected, S for static, R for RIP, O for OSPF, IA for OSPF inter area, N1 for OSPF NSSA external type 1, N2 for OSPF NSSA external type 2, E1 for OSPF external type 1, E2 for OSPF external type 2, I for IS-IS level-1, I2 for IS-IS level-2, ia for IS-IS inter area, * for candidate default, U for user static route, o for ODR, and P for protocol downloaded static route. The routing table shows three entries: a connected route for 10.0.0.0/8, an OSPF inter area route for 20.0.0.0/8, and an OSPF inter area route for 192.168.1.0/24.

```
Router3#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       O - OSPF, EX - EIGRP external, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, I - IS
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS
       inter area
       * - candidate default, U - user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

O IA 10.0.0.0/8 [110/66] via 150.150.150.1, 00:01:08, FastEthernet0/1
O IA 20.0.0.0/8 [110/2] via 150.150.150.1, 00:01:08, FastEthernet0/1
    150.150.0.0/24 is subsetting, 1 subnets
C     150.150.150.0 is directly connected, FastEthernet0/1
O IA 192.168.1.0/24 [110/65] via 150.150.150.1, 00:01:08,
FastEthernet0/1
Router#
```

19. In the preceding figure, you can see that the 10.0.0.0/8, 20.0.0.0/8, and 192.168.1.0/24 networks are added through the OSPF routing protocol on Router3.

Verifying OSPF Configuration

To verify and test the OSPF configuration, execute the following commands on any router and review the output of each command.

To view the OSPF neighbor routers, execute the following command.

```
Router#show ip ospf neighbor
```

To view the OSPF border routers, execute the following command.

```
Router#show ip ospf border-routers
```

The following figure shows the output of the **show ip ospf neighbor** and **show ip ospf border-routers** commands.



```
Router3
Physical Config CLI
IOS Command Line Interface
router#show ip ospf neighbor
Neighbor ID      Pri  State           Dead time   Address
Interface
192.168.1.2      1   FULL/DR         00:00:30   150.150.150.1
FastEthernet0/1
Router#show ip ospf border-routers
OSPF Process 200 Internal Routing Table
Codes: i - Intra-area route, I - Inter-area route
1 192.168.1.2 [I] #ia 150.150.150.1, FastEthernet0/1, ABR, Area 1, SPF 1
Router#
```

To view the OSPF routing database, execute the following command.

```
Router#show ip ospf database
```

The following figure shows the output of the **show ip ospf database** command.

Experiment 4: - Implementation of NAT

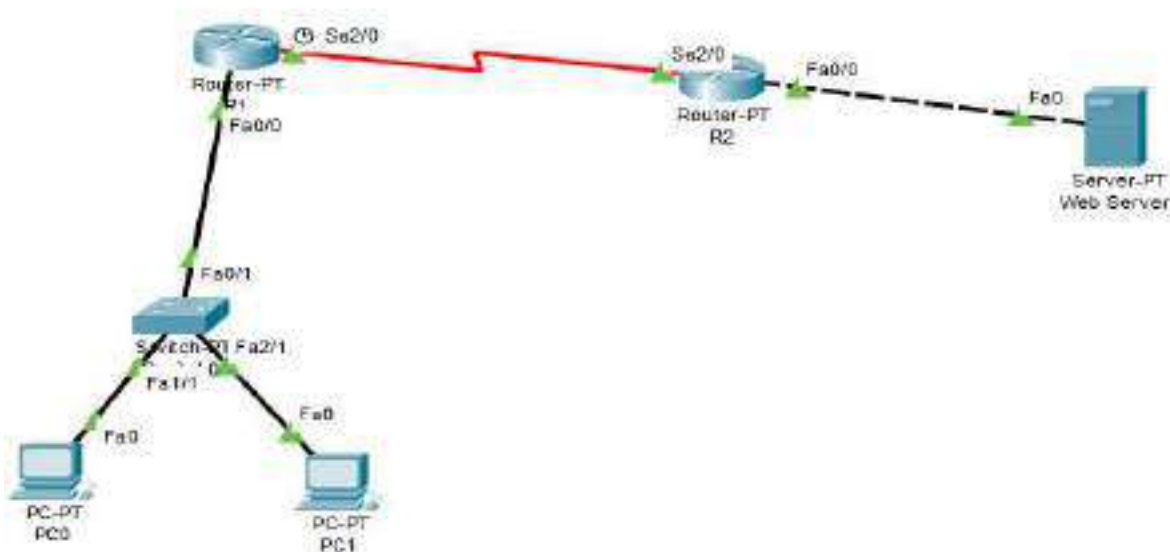
Network Address Translation(NAT): It is a process in which one or more local IP address is translated into one or more Global IP address and vice versa in order to provide Internet access to the local hosts.

To access the Internet, one public IP address is needed, but we can use a private IP address in our private network. The idea of NAT is to allow multiple devices to access the Internet through a single public address.

Static NAT: In this, a single private IP address is mapped with single Public IP address, i.e., a private IP address is translated to a public IP address. It is used in Web hosting.

Dynamic NAT: In this type of NAT, multiple private IP address are mapped to a pool of public IP address . It is used when we know the number of fixed users wants to access the Internet at a given point of time.

PAT (Port Address Translation): This is also known as NAT overload. In this, many local (private) IP addresses can be translated to single public IP address. Port numbers are used to distinguish the traffic, i.e., which traffic belongs to which IP address. This is most frequently used as it is cost effective as thousands of users can be connected to the Internet by using only one real global (public) IP address.



Device	Port	IP Address	Global IP Address
Router 1	Fa0/0	10.0.0.1	100.0.0.1
	Se2/0	192.168.2.1	NA
Router 2	Fa0/0	192.168.1.1	100.0.0.2
	Se2/0	192.168.2.2	NA
Server	Fa0/0	192.168.1.2	200.0.0.10
PC0	Fa0	10.0.0.10	50.0.0.10
PC1	Fa0	10.0.0.20	50.0.0.20
PC2	Fa0	10.0.0.30	50.0.0.30

Configure static routing in R1

```
R1(config)#ip route 200.0.0.0 255.255.255.0 100.0.0.2
```

Configure static routing in R2

```
R2(config)#ip route 50.0.0.0 255.0.0.0 100.0.0.1
```

```
R1(config)#ip nat inside source static 10.0.0.10 50.0.0.10
```

```
R1(config)#ip nat inside source static 10.0.0.20 50.0.0.20
```

```
R1(config)#ip nat inside source static 10.0.0.30 50.0.0.30
```

```
R1(config)#interface fa0/0
```

```
R1(config-if)#ip nat inside
```

```
R1(config-if)#exit
```

```
R1(config)#interface se2/0
```

```
R1(config-if)#ip nat outside
```

```
R1(config-if)#exit
```

```
R2(config)#ip nat inside source static 192.168.1.2 200.0.0.10
```

```
R2(config)#interface Fa0/0
```

```
R2(config-if)#ip nat inside
```

```
R2(config-if)#exit
```

```
R2(config)#interface Se2/0
```

```
R2(config-if)#ip nat outside
```

```
R2(config-if)#exit
```

Device	Inside Local IP Address	Inside Global IP Address
PC0	10.0.0.10	50.0.0.10
Server	192.168.1.10	200.0.0.10

To test this setup click PC0, Desktop and click Command Prompt.

Run ipconfig command.

Run ping 200.0.0.10 command.

Run ping 192.168.1.10 command.

Click any PC and click Desktop and click Web Browser and access 200.0.0.10

You should get the web page of server

See output of following commands in privileged mode of the any Router:

```
R1#sh ip nat translations
```

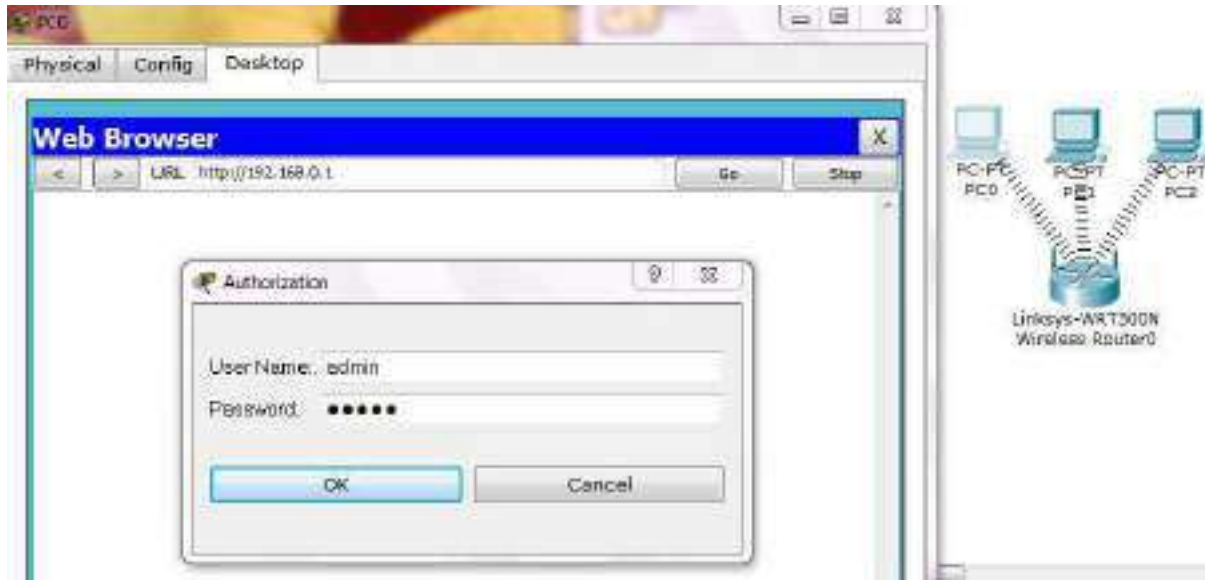
and

```
R1#sh ip nat statistics
```

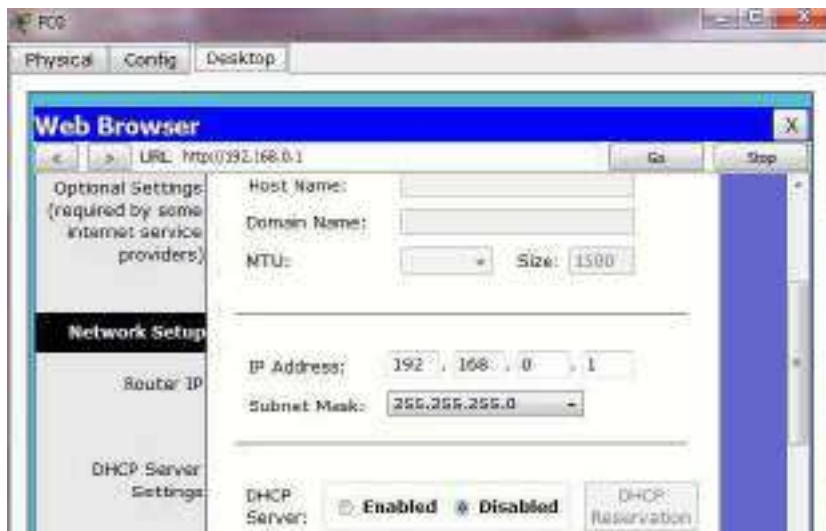
Experiment 5:-

As given in question our network is running on 192.168.0.0 network and all PC's are DHCP clients and functioning properly. So we will first connect to Wireless router to off DHCP.

Double click on PC and select Web Browser. As given in question IP of Wireless router is 192.168.0.1 so give it in Web browser and press enter, now it will ask for authentication which is also given in question. Give user name admin and Password to admin



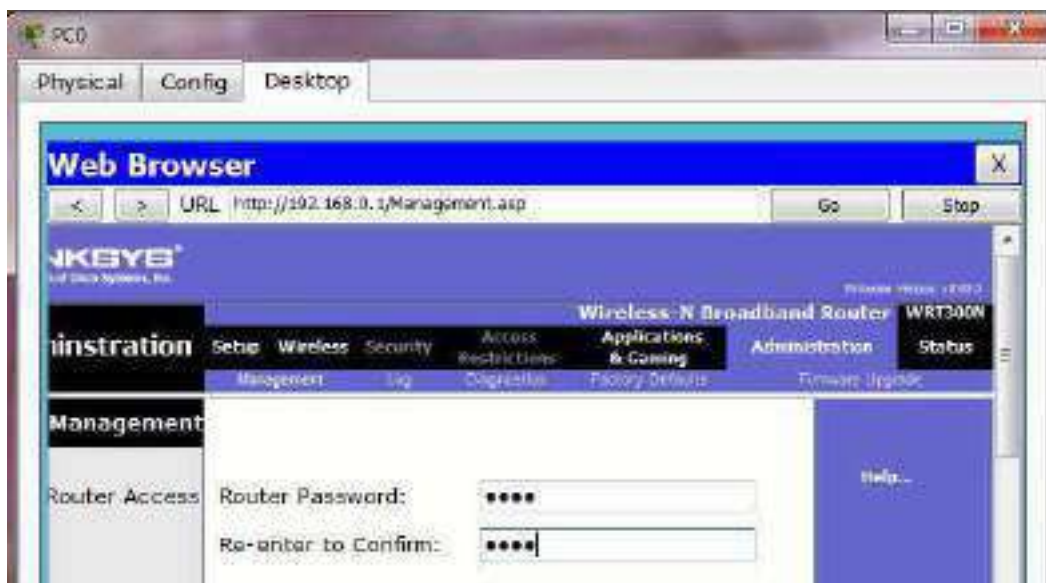
This will bring GUI mode of Wireless router. Scroll down screen to Network Step and Select Disable DHCP



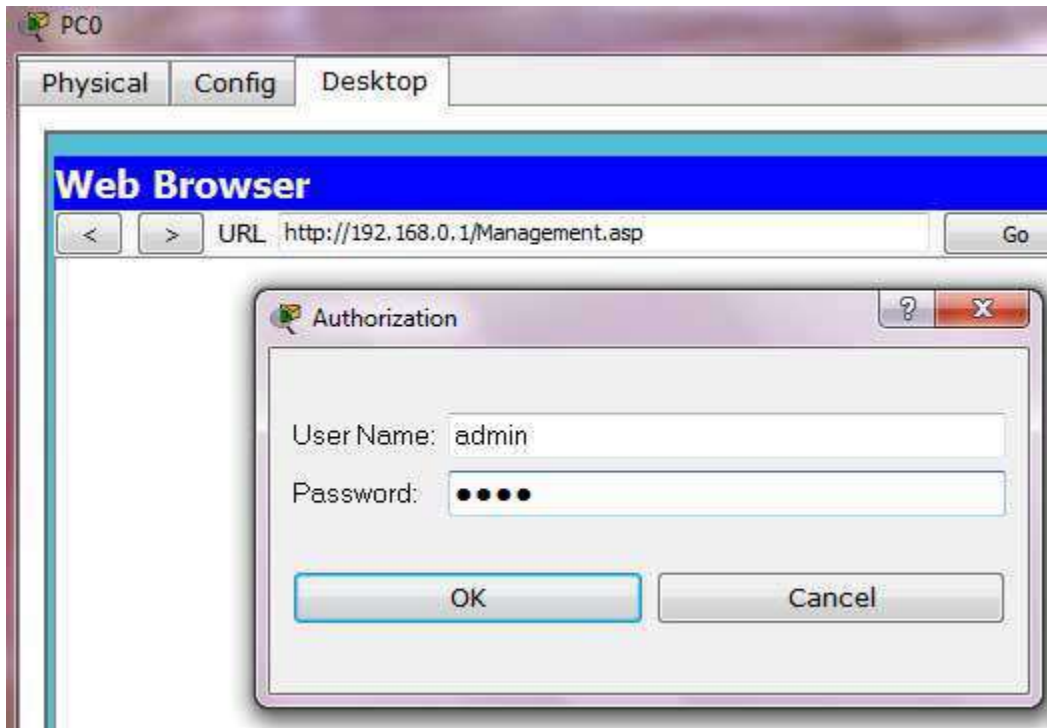
Go in end of page and click on Save setting this will save setting click on continue for further setting



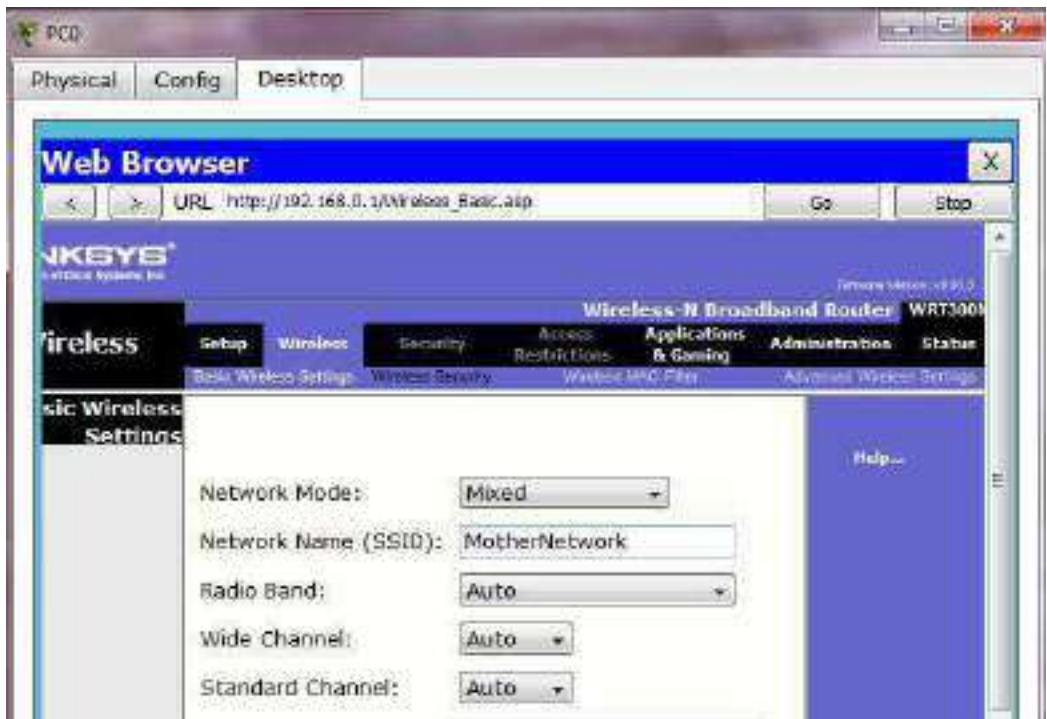
Now select Administration from top Menu and change password to test and go in the end of page and Click on Save Setting



Click on continue for further setting. This time it will ask you to authenticate again give new password test this time



Now click on wireless tab and set default SSID to MotherNetwork



Now Select wireless security and change Security Mode to WEP



Set Key1 to 0123456789



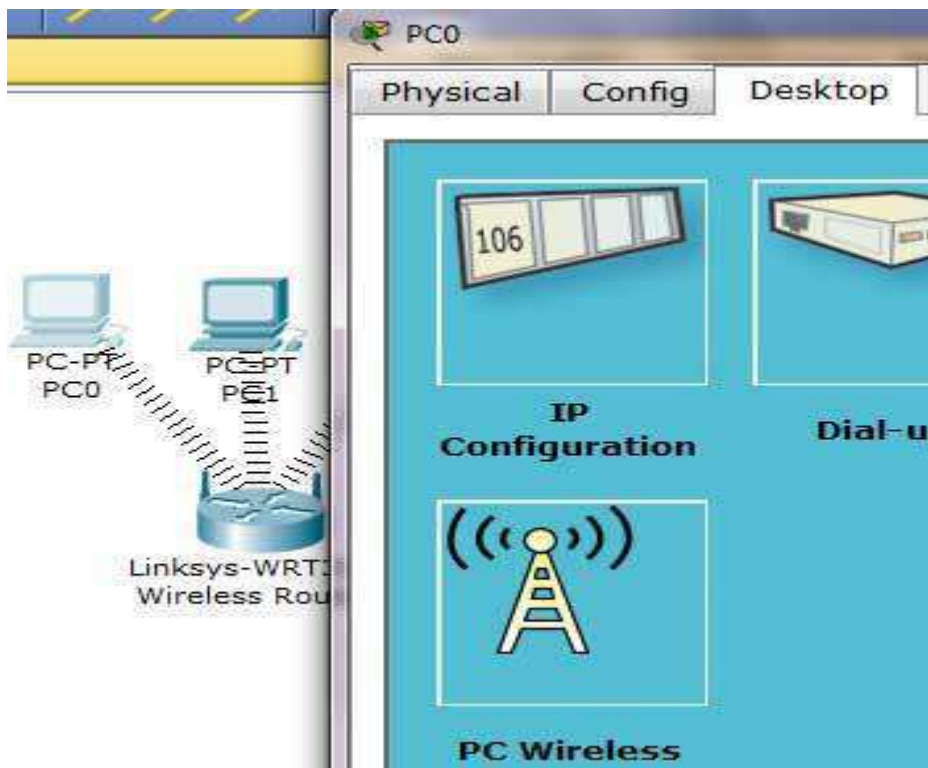
Again go in the end of page and Click on Save Setting

Now we have completed all given task on Wireless router. Now configure the static IP on all three PC's

Double click on pc select Desktop tab click on IP configuration select Static IP and set IP as given below

PC	IP	Subnet Mask	Default Gateway
PC0	192.168.0.2	255.255.255.0	192.168.0.1
PC1	192.168.0.3	255.255.255.0	192.168.0.1
PC2	192.168.0.4	255.255.255.0	192.168.0.1

Now it's time to connect PC's from Wireless router. To do so click PC select Desktop click on PC Wireless



Click on connect tab and click on Refresh button



As you can see in image that Wireless device is accessing MotherNetwork on CH 6 and signal strength is 100%. In left side you can see that WEP security is configured in network. Click on connect button to connect MotherNetwork

It will ask for WAP key insert 0123456789 and click connect



It will connect you with wireless router.

As you can see in image below that system is connected. And PCI card is active.



Repeat same process on PC1 and PC2.

Experiment 6:

Implementation of DHCP Server, DNS Server, WEB Server in cisco packet tracer

Dynamic Host Configuration Protocol (DHCP) Server:

A DHCP Server is a network server that automatically provides and assigns IP addresses, default gateways and other network parameters to client devices. It relies on the standard protocol known as Dynamic Host Configuration Protocol or DHCP to respond to broadcast queries by clients.

Domain Name System (DNS):

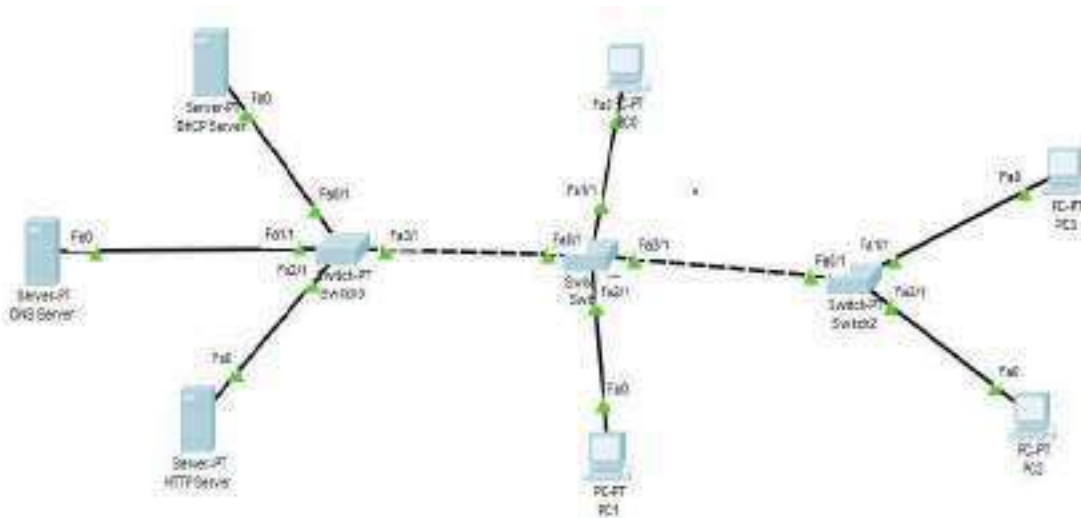
The Domain Name System resolves the names of internet sites with their underlying IP addresses adding efficiency and even security in the process.

e.g. www.ns1.com DNS converts this address to

104.20.48.182

Web Server:

A web server (HTTP Server) is a computer that stores web server software and a website's component files. A web server connects to the Internet and supports physical data interchange with other devices connected to the web.



```
<html>
```

```
<head> <center > <font size='+2' color='Red'>This is my website </font></center> </head>
```

```
<body>
```

```
<center><font size='+2' color='blue'>PRANITA</font></center>
```

```
<h1> <center > <font size='+2' color='Blue'> Welcome to first HTML code </center> </h1>  
</body>  
</html>
```

Save the file with .htm extension

To see the output, write the path of your file in the web browser

- <file:///C:/Users/User/Desktop/first.htm>

Output: Take the screenshot of the webpage fetched from any end device

Experiment 7:- Implementation of BGP

Border Gateway Protocol (BGP) is a standardized gateway protocol that exchanges routing information across autonomous systems (AS) on the Internet.

Border Gateway Protocol considers all peering partners that a router has and sends traffic to the router that is closest to the data's destination.

This communication is possible because, BGP allows peers to communicate their routing information and then stores that information in a Routing Information Base (RIB)

BGP is classified as a path-vector routing protocol

BGP is an Exterior Gateway Protocol (EGP) used in routing in the internet. It is an interdomain routing protocol.

BGP is a path vector routing protocol suited for strategic routing policies.

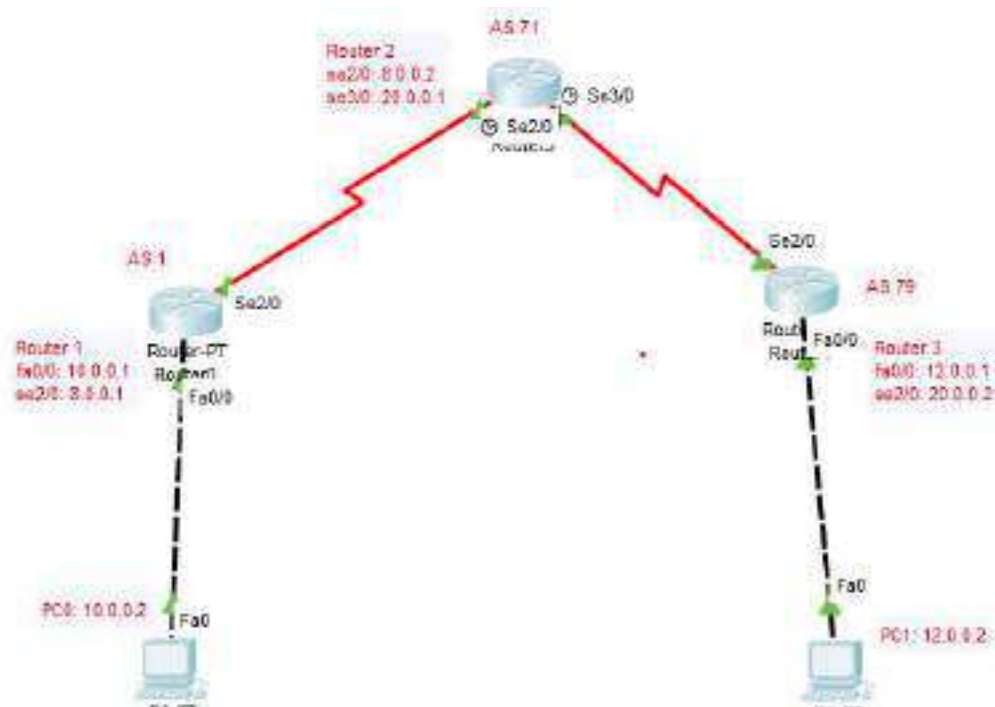
It uses TCP port 179 to establish connections with neighbors.

BGPV4 implements CIDR.

EBGP is used for external neighbors. It is used between different autonomous systems.

IBGP is used for internal neighbors. It is used within an AS.

BGP uses several attributes in the routing-decision algorithm.




```
R1(config)#router bgp 1
R1(config-router)#neighbor 8.0.0.2 remote-as 71
R1(config-router)#network 10.0.0.0 mask 255.0.0.0
R1(config-router)#exit
R1(config)#do write
Building configuration...[OK]
R1(config)#
R2(config)#router bgp 71
R2(config-router)#neighbor 8.0.0.1 remote-as 1
R2(config-router)#neighbor 20.0.0.2 remote-as 79
R2(config-router)#network 12.0.0.0 mask 255.0.0.0
R2(config-router)#exit
R2(config)#do write
Building configuration...[OK]
R2(config)#
```

R1 #show ip route

R1 #show ip protocols

R1 #show ip bgp summary

R1 #show ip bgp neighbors

Experiment 8: Implementation of SSH

The SSH protocol (also referred to as Secure Shell) is a method for secure remote login from one computer to another. It provides several alternative options for strong authentication, and it protects the communications security and integrity with strong encryption. It is a secure alternative to the non-protected login protocols (such as telnet) and insecure file transfer methods (such as FTP).

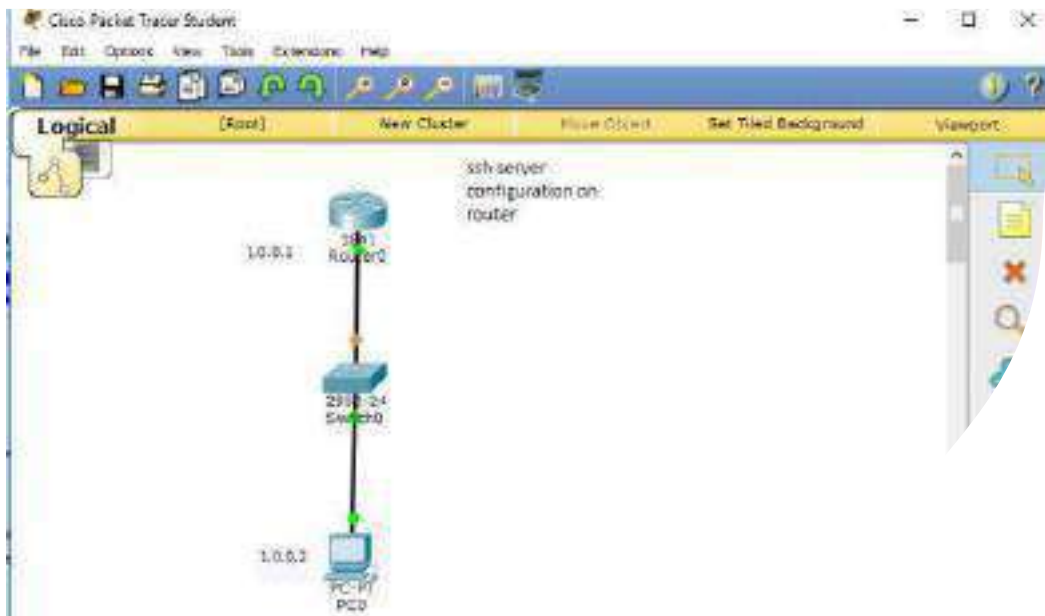
The protocol is used in corporate networks for:

Providing secure access for users and automated processes

Interactive and automated file transfers

Issuing remote commands

Managing network infrastructure and other mission-critical system components.



- Step1. set up a hostname and and a domain name

```
Router>enable
```

```
Router#config t
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Router(config)#host pranita
```

```
pranita(config)#ip domain-name pranita.com
```

- Step2. configure local username and password

```
pranita(config)#username pp password pp123
```

Step3. generate RSA public and private keys

```
pranita(config)#crypto key generate rsa
```

The name for the keys will be: satish.linuxtiwary.com

Choose the size of the key modulus in the range of 360 to 2048 for your General Purpose Keys. Choosing a key modulus greater than 512 may take a few minutes.

How many bits in the modulus [512]: 1024

% Generating 1024-bit RSA keys, keys will be non-exportable...[OK]

- **Step4. Allow only SSH access**

```
pranita(config)#line vty 0 10
```

```
*Mar 1 0:4:43.632: %SSH-5-ENABLED: SSH 1.99 has been enabled
```

```
pranita(config-line)#login local
```

```
pranita(config-line)#transport input ssh
```

- **Step5. apply enable password**

```
pranita(config)#enable password pp123
```

Click end device and go to command prompt

```
PC>ssh -l ccna 1.0.0.1
```

Open

Password:

```
pranita>en
```

```
pranita#sh ip route
```

It should display the routing table

Experiment 9: - Implementation of TELNET

Telnet is a protocol by which you can remotely login into remote devices to make changes in the configuration of that device. The aim of this article is to give you a quick guide about how you can enable telnet on a switch.



Configuring telnet for the above network topology

STEP BY STEP GUIDE:

STEP 1: OPEN CISCO PACKET TRACER



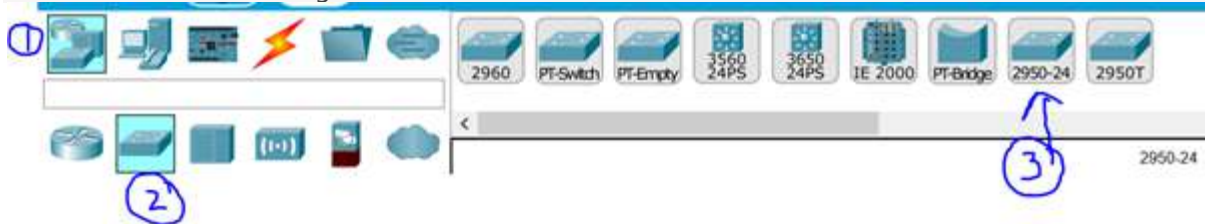
Blank Cisco Packet Tracer

STEP 2: MAKE CONNECTIONS

As shown in the figure below, go to (1) End Devices and select (2) PC and then finally drag and drop PC on Screen.



Then select a switch [I have taken Switch named as 2950-24]. Go to (1)Network device ->(2) switches ->(3) 2950-24 as shown in the figure below.



Then finally take a wire and connect PC to switch.



Now when you have taken the PC, wire, switch then start making the connection as shown in the figure below.



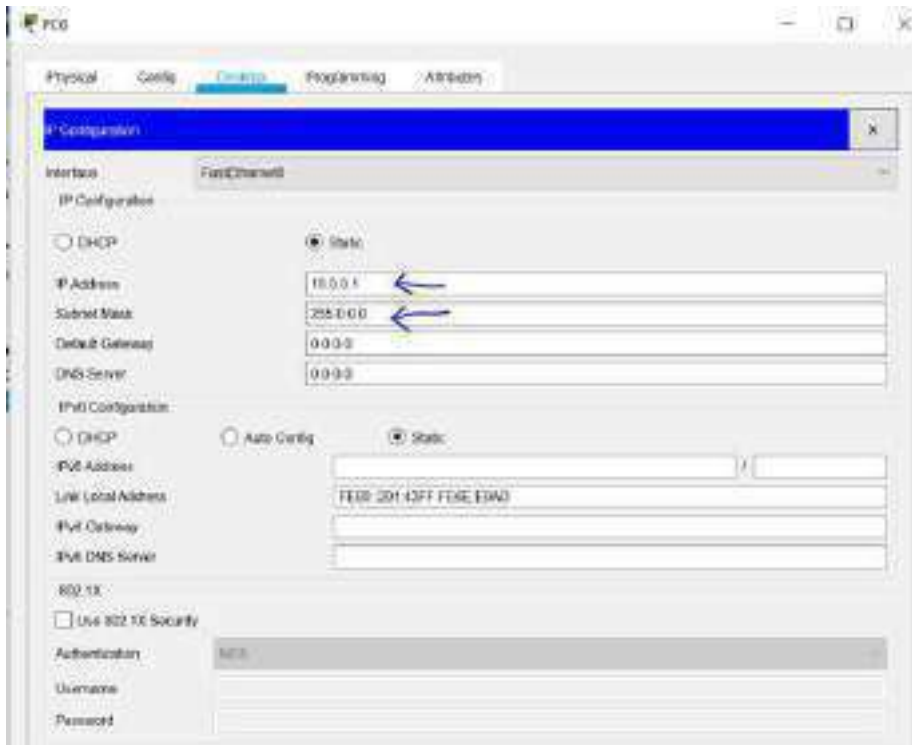
Note: The green triangle might be appearing as an orange circle when you have just made the connections, but don't worry after some time they will become green.

STEP 3: ADD IP ADDRESS TO PC

Click on the PC and then a dialogue box will appear. Go to Desktop then click IP Configuration button.

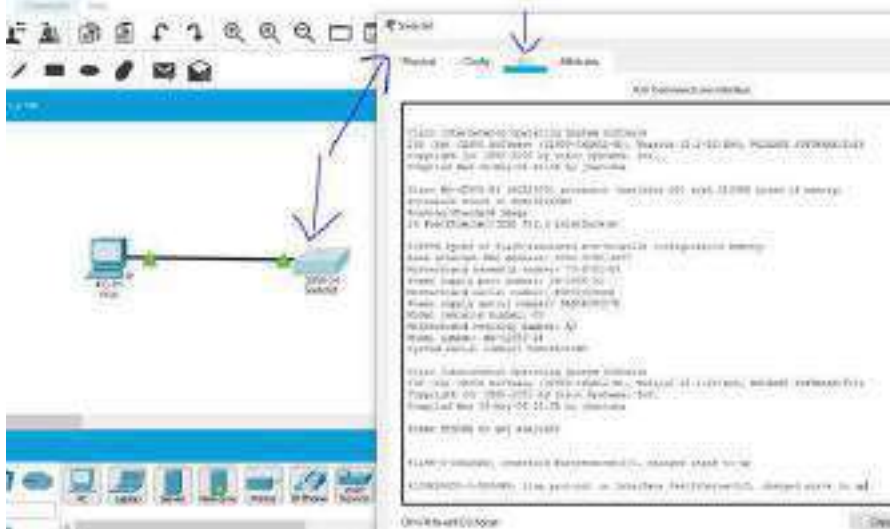


A dialogue box will open up and then fill the IP address of PC whatever you want to, For e.g. write 10.0.0.1 in IP address field and then automatically subnet mask will be filled as 255.0.0.0.



STEP 4: ENABLE TELNET ON SWITCH

Now close the dialogue box and select switch now and then a dialogue box will be opened for the switch and then select CLI where we will have to write the main commands to do telnet configuration on the switch.



The dialogue box that will get opened after clicking the switch

Now hit enter and start writing commands on CLI. Write the commands highlighted in yellow colour as

shown in the figure below.

```
SLIMESUP0-S-SP0001: Line protocol on Interface FastEthernet0/1, changed state to up

Switch>
Switch#conf t
Enter configuration commands, one per line. End with CTRL/Z.
Switch(config)#int vlan 1
Switch(config-if)#no shut

Switch(config-if)#
SLIMESUP0-S-SP0001: Interface Vlan1, changed state to up

SLIMESUP0-S-SP0001: Line protocol on Interface Vlan1, changed state to up

Switch(config-if)#ip add 10.0.0.10 255.0.0.0
Switch(config-if)#exit
Switch(config)#line vty 0 4
Switch(config-line)#password cisco
Switch(config-line)#login
Switch(config-line)#exit
Switch(config)#enable secret cisco12
Switch(config)#
```

In case the image is not visible, the commands that you have to write are:

`en`

`conf t`

`int vlan 1`

`no shut`

`ip add 10.0.0.10 255.0.0.0`

`exit`

`line vty 0 4`

`password cisco`

`login`

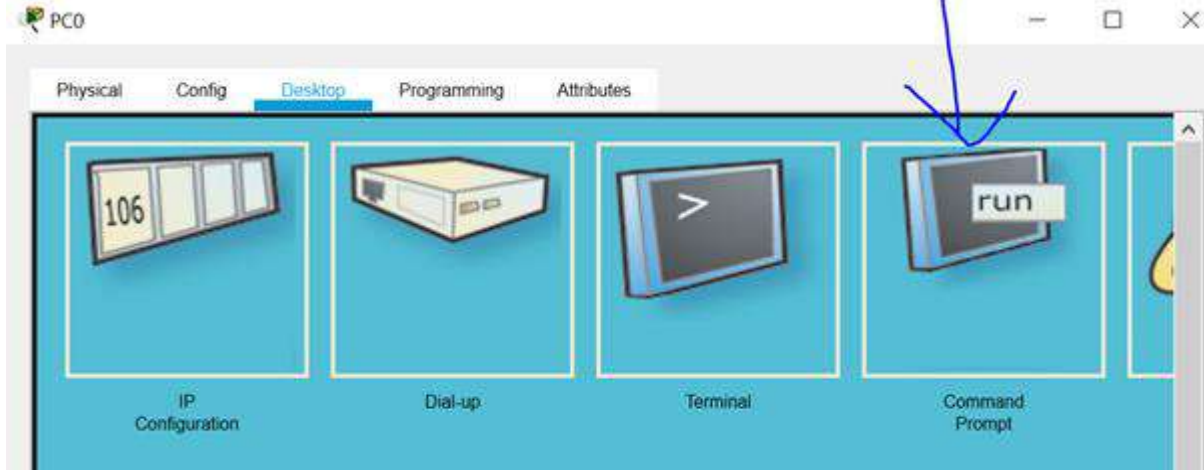
`exit`

`enable secret cisco12`

After you are done writing all the commands then it means you have successfully enabled telnet on the switch. A brief explanation of these commands is given at last of this article.

STEP 5: CHECK IF TELNET IS ENABLED OR NOT?

Now to test it go to pc and then select command prompt.



The dialogue box which will appear after clicking on PC

After opening the command prompt, write

telnet 10.0.0.10

It will ask you for a password and then you need to write

cisco

VAA – Skill Development Activity with Winter Internship Program

VAA Code	VAA-2301
Title	Python with Data Science
Methodology	Skill Development Activity
Conducted By	Prof. Shrikant Velankar and Prof. Hiren Soni
Target Audience	Institute UG and PG Students, Interested Faculty
Duration	30 Hrs. Skill Development Activity (6 Days X 4 Hrs.) + 6 Hr. Project
Venue	Laboratory M516
Certification By	Vidyalankar Institute of Technology in association with IEEE Bombay (through IEEE-VIT Student Chapter)
Industry Collaboration	ADM Virtual Labs (by ADM Pvt. Ltd.)
Schedule	
Skill Development Activity	Tue. 03 to Mon. 09 January 2023 14:00 to 18:15 Hrs. (with 15 min. break) Venue: Lab M-516 (5 th Floor, M Block, VIT)
Takeaways & Fees	
Takeaways	<ul style="list-style-type: none"> Comprehensive knowledge dissemination Full hands-on practical work in Activity and Project work IEEE endorsed Certification Industry Experienced Faculty
Fees	₹ 2,900/-
Contents & Coverage	
Day 1 (Tue. 03 January 2023)	<ul style="list-style-type: none"> Session 1: Introduction to Python, Python Programming Environment, Python Data Types, Operators, Python Console I/O Session 2: Control Structures, Python Sequences – Lists, Strings, Tuples, Dictionaries
Day 2 (Wed. 04 January 2023)	<ul style="list-style-type: none"> Session 1: Python Functions and Modules, Special functions – Range, Lambda, Map, Datetime functions Session 2: Python File I/O – Accessing & Manipulating Text Files, GP-I/O with Machine module related to MicroPython
Day 3 (Thu. 05 January 2023)	<ul style="list-style-type: none"> Session 1: Study of Database Access, Study of NumPy Library Session 2: Data Visualization – Matplotlib Library

VAA – Skill Development Activity with Winter Internship Program

Day 4 (Fri. 06 January 2023)	<ul style="list-style-type: none">• <u>Session 1</u>: Data Processing with NumPy and Pandas, Study of Pandas Library• <u>Session 2</u>: Data Refining and Filtering, EDA (Exploratory Data Analysis – using Pandas, NumPy and Matplotlib)
Day 5 (Sat. 07 January 2023)	<ul style="list-style-type: none">• <u>Session 1</u>: Statistical Techniques in Data Science and Data Analytics• <u>Session 2</u>: Data Science Techniques, using Data Science Libraries as SciKit Learn etc. Data Science
Day 6 (Mon. 09 January 2023)	<ul style="list-style-type: none">• End-to-End Data Science Project and hands-on execution
Conclusion (Sat, 14 January 2022)	<ul style="list-style-type: none">• Dispatch of Certificates to the participants to their e-mail ids, in PDF form.• The hard copy can be collected from the CAO office after 15 January 2023• Activity Concludes.

VAA – Skill Development Activity with Winter Internship Program

VAA Code	VAA-2302
Title	Embedded Solutions by MicroPython Programming
Methodology	Skill Development Activity
Conducted By	Prof. Shrikant Velankar and Prof. Amol Sakhalkar
Target Audience	Institute UG and PG Students, Interested Faculty
Duration	30 Hrs. Skill Development Activity (6 Days X 5 Hrs.)
Venue	Laboratory M516 + Vidyalankar Innovation Lounge
Certification By	Vidyalankar Institute of Technology in association with IEEE Bombay (through IEEE-VIT Student Chapter)
Industry Collaboration	ADM Virtual Labs (by ADM Pvt. Ltd.)
Schedule	
Skill Development Activity	Tue. 03 to Mon. 09 January 2023 9:00 to 14:00 Hrs. (with 30 min. lunch break) Venue: Lab M-516 (5 th Floor, M Block, VIT)
Takeaways & Fees	
Takeaways	<ul style="list-style-type: none"> • Comprehensive knowledge dissemination • Full hands-on practical work in Activity and Project work • IEEE endorsed Certification • Few selected students get Industrial Project • Take-home R-Pi-Pico with MicroPython kit
Fees	₹ 2,700/- (Inclusive of Take-home kit worth ₹ 1,250)
Contents & Coverage	
Day 1 (Tue. 03 January 2023)	<ul style="list-style-type: none"> • <u>Session 1</u>: Introduction to Python, Python Programming Environment, Python Data Types, Operators, Python Console I/O • <u>Session 2</u>: Control Structures, Python Sequences – Lists, Strings, Tuples, Dictionaries
Day 2 (Wed. 04 January 2023)	<ul style="list-style-type: none"> • <u>Session 1</u>: Python Functions and Modules, Special functions – Range, Lambda, Map, Datetime functions • <u>Session 2</u>: Python File I/O – Accessing & Manipulating Text Files, GP-I/O with Machine module related to MicroPython
Day 3 (Thu. 05 January 2023)	<ul style="list-style-type: none"> • <u>Session 1</u>: Study of MicroPython, Study of Raspberry-Pi-Pico, Embedding MicroPython on R-Pi-Pico and its booting /environment • <u>Session 2</u>: Interfacing LEDs, keys, Relays with R-Pi-Pico

VAA – Skill Development Activity with Winter Internship Program

<p>Day 4 (Fri. 06 January 2023)</p>	<ul style="list-style-type: none"> • <u>Session 1</u>: Interfacing 7-Segment, LCD Displays with R-Pi-Pico, Writing LCD Device driver in MicroPython • <u>Session 2</u>: Introduction to Industrial Buses, SPI, I2C, UART/USART - RS232C. Writing program to access basic industrial Buses Through R-Pi-Pico. Creating Interface/Device driver for RS232C and I2C buses.
<p>Day 5 (Sat. 07 January 2023)</p>	<ul style="list-style-type: none"> • <u>Session 1</u>: Interfacing I2C based Displays, Temperature Sensors (DHT22) and display temperature parameters on LCD. • <u>Session 2</u>: Mini-Project Session, Quiz, forming Project Groups, Allocation and distribution of Internship work.
<p>Day 6 (Mon. 09 January 2023)</p>	<ul style="list-style-type: none"> • Full Hands-on Project
<p>Conclusion (Sat, 14 January 2022)</p>	<ul style="list-style-type: none"> • Dispatch of Certificates to the participants to their e-mail ids, in PDF form. • The hard copy can be collected from the CAO office after 15 January 2023 • Activity Concludes.

Vidyalankar Institute of Technology

Office of the Chief Academic Officer

Level	Course	Sem.	VAC	Track	Link(s)	Hours	Instructor/ Organization	Fee
UG	ALL	III	Discrete Structures	AI/ML	https://in.coursera.org/specializations/discrete-mathematics	30~50	Coursera	Paid
UG	ALL	IV	Statistics	AI/ML	https://www.edx.org/course/statistics-and-r?index=product	16-20	Edx	Free/ Paid
UG	ALL	V	R Programming	AI/ML	https://in.coursera.org/learn/r-programming	60	Coursera	Paid
UG	ALL	VI	Natural Language Processing	AI/ML	https://in.coursera.org/specializations/natural-language-processing	120	Coursera	Paid
UG	ALL	VII	Machine Learning	AI/ML	https://www.edx.org/course/data-science-machine-learning?index=product	32	Edx	Free/ Paid
UG	ALL	VIII	Deep Learning	AI/ML	https://www.edx.org/course/deep-learning-with-tensorflow	20~25	Edx	Free/ Paid
UG	ALL	III	Statistics & Probability	DS	https://www.edx.org/course/statistics-and-r?index=product	16-20	Edx	Free/ Paid
UG	ALL	IV	R Programming	DS	https://in.coursera.org/learn/r-programming	60	Coursera	Paid

Vidyalankar Institute of Technology

Office of the Chief Academic Officer

Level	Course	Sem.	VAC	Track	Link(s)	Hours	Instructor/ Organization	Fee
UG	ALL	V	Data Architecture	DS	https://www.udemy.com/course/every-data-architecture-is-the-same/	15	Udemy	Paid
UG	ALL	VI	Data Warehousing & Mining	DS	https://www.coursera.org/learn/fundamentals-of-data-warehousing (3 rd Part only)	15	Coursera	Paid
UG	ALL	VII	Data Visualization	DS	https://www.coursera.org/specializations/data-visualization	60	Coursera	Paid
UG	ALL	VIII	Big Data Analytics	DS	https://in.coursera.org/specializations/big-data	60	Coursera	Paid
UG	ALL	III	C Programming for Embedded Systems	Embedded Systems	https://www.coursera.org/learn/introduction-embedded-systems	15-20	Coursera	Paid
UG	ALL	IV	Fundamentals of Embedded Linux	Embedded Systems	https://www.coursera.org/learn/c-programming-using-linux-tools-and-libraries (7th Part only)	15-20	Coursera	Paid
UG	ALL	V	Analysis using Verilog and VHDL Design	Embedded Systems	https://www.udemy.com/course/verilog-for-an-engineer-with-xilinx-vivado-design-suite/	20-25	Udemy	Paid
UG	ALL	VI	FPGA Design and Implementation	Embedded Systems	https://in.coursera.org/specializations/fpga-design	60	Coursera	Paid

Vidyalankar Institute of Technology

Office of the Chief Academic Officer

Level	Course	Sem.	VAC	Track	Link(s)	Hours	Instructor/ Organization	Fee
UG	ALL	VII	Embedded System Design Using ARM Technology	Embedded Systems	https://onlinecourses.nptel.ac.in/noc22_cs93/preview	40-50	NPTEL	Free/ Paid
UG	ALL	VIII	Real Time Embedded Digital signal Processing	Embedded Systems	https://in.coursera.org/learn/dsp4?specialization=digital-signal-processing (4 th Part only)	20	Coursera	Paid
UG	ALL	III	Stress Management	General Track	https://onlinecourses.nptel.ac.in/noc19_ge26/preview	15-20	NPTEL	Paid
UG	ALL	IV	Professional Ethics & Human Values	General Track	https://www.udemy.com/course/human-values-and-professional-ethics/	10-15	Udemy	Paid
UG	ALL	V	Rural Development	General Track	N/A			
UG	ALL	VI	Engineering Economics	General Track	https://nptel.ac.in/courses/112107209	20-30	NPTEL	Paid
UG	ALL	VII	Field work Techniques	General Track	N/A			
UG	ALL	VIII	Technology, Industry & Trade	General Track	N/A			

Certificate of Completion

This is to certify that

Anushka Chavrekar

Has completed an internship titled

**“Various Sensors and Web App
Development”**



Prof. Pranita Padhye
Internship Guide



Prof. Akshatha Bhat
Internship Coordinator



Dr. Arun Chavan
Head -Electronics
Engineering

Internship Period – 22nd June 2022 to 6th July 2022

Final Top 10 Project List of Electronics and Computer Department

Sr. No	Group ID	Title	Name of Guide	Name of student
1.	ETRX-BE-01	Automated Parking Management System: V-Park	Dr. Arun Chavan	1. Pranjali Suresh Jadhav 2. Sanmesh Sanjay Shintre 3. Divya Jitendra Jain 4. Anusha Anand Sarla
2.	ETRX-BE-03	Comparative analysis of Vedic multiplier using various adders	Prof. Rajashree Soman	1. Pragati Rajesh Mali 2. Mitali Vivek Bandekar 3. Prathamesh Sanjog Satam
3.	ETRX-BE-04	Smart Farm Assistant	Prof. Rajashree Soman	1. Sunjanaa Katke 2. Atharva Sohani 3. Rucha Patil 4. Darshankumar Mohite
4.	ETRX-BE-06	CampusDine	Prof. Akhil Masurkar	1. Kartik Ajit Bodhankar 2. Yash Prakash Jungade 3. Raj Keshav Khetale 4. Shubham Mahesh Dalvi
5.	ETRX-BE-12	Talkative Skin	Dr. Nayana Mahajan	1. Ashish Surendra Gosavi 2. Rohit Suresh Sawant 3. Rohit Mohite
6.	ETRX-BE-26	Unmanned Aerial Vehicle	Dr. Girish Gidaye	1. Vaibhav Suresh Shenoy 2. Mandar Jaiwant Kulkarni 3. Hemant Suresh Bhoir 4. Chirag Vijay Jadhav
7.	ETRX-TE-6-9	Lora Based Home Automation	Prof. Nisy Mathew	1. Shubham chavan 2. Ashish Thakur 3. Aman yadav 4. Sristy pandey
8.	ETRX-TE-6-24	High Efficiency Pure sine wave Inverter	Prof. Amaya Pethe	1. Sakshi Sawant 2. Tejas Bhandare 3. Harshali Mohite 4. Kirti Singh
9.	ETRX-4- Mini-13	Aquarium Monitoring & temperature control system	Prof. Anuradha Joshi	1. Tushar Waghmode 2. Ankit Patil 3. Pranjal Patil
10.	ETRX-4- Mini-29	Programmable Infinity Mirror Dodecahedron	Prof. Amol Sakhalkar	1. Vinit Nikam 2. Shivam Deshmukh 3. Ninad Balam 4. David Karunanidhi

ISA Activities for cloud computing (ETRX and EXTC)

1. Quizzes (Average of all) (**Individual Activity**)
2. Certification/ Technical Research Paper Review (Latest trends in cloud computing) (**Individual Activity**)
3. Technical Survey (Must include hands-on)/ Micro-Project (**Group Activity**)

Rules: -

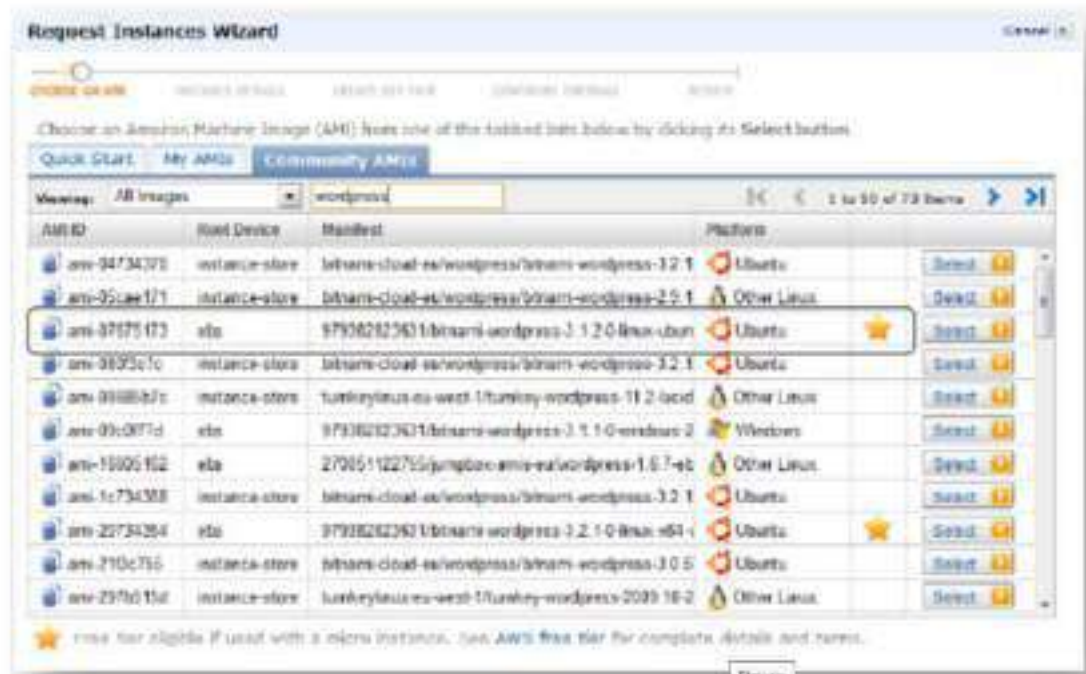
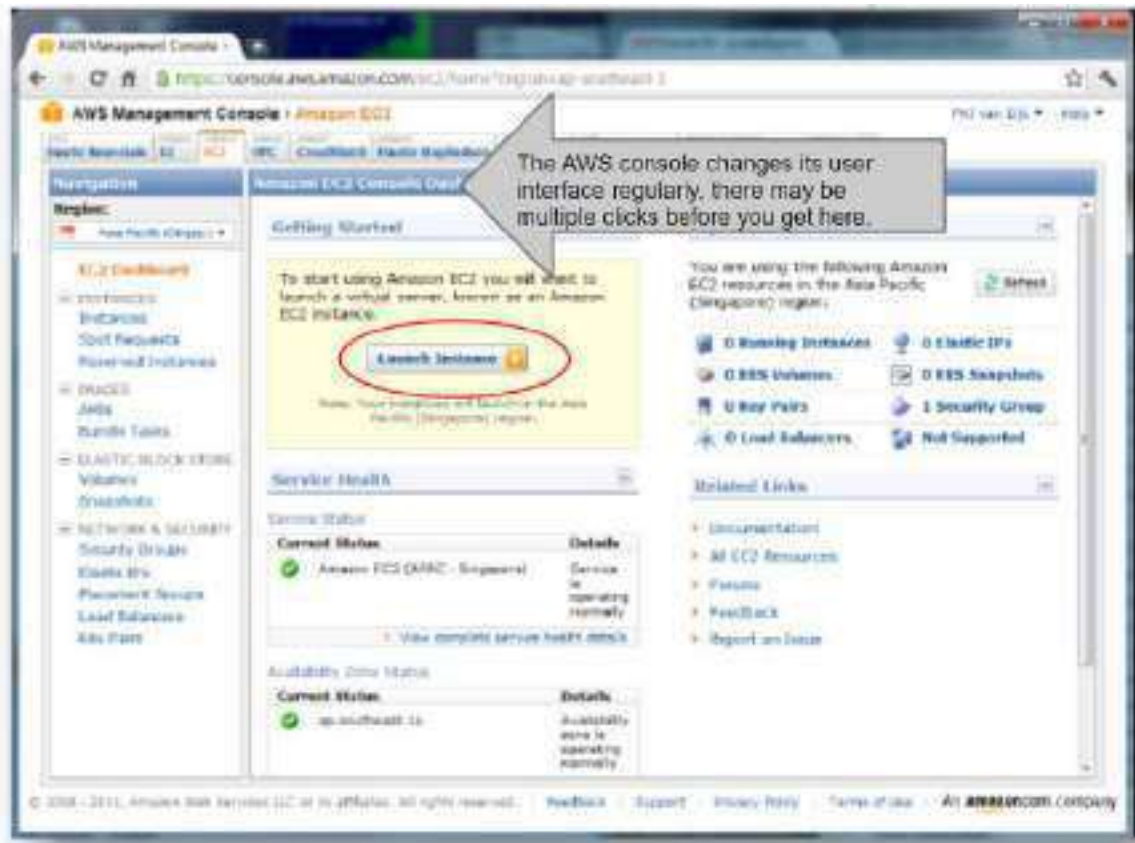
- a) All 3 activities are mandatory.
- b) In Group activity- 3 to 4 students per group
- c) Technical Research Paper Review-Latest paper expected (from the year 2020 onwards)
- d) Submission: -

For Individual activity- Certificate and 4-to-5-page report **or**
Technical Paper, presentation and 3-page document

For Group activity- Presentation (In the class) and 4-to-5-page report

Topics for Group Activity : -

1. Generate your own public/private key pairs -See following instruction <https://docs.google.com/presentation/d/1bcfwGvpvA9CAygHq0H8AekZpJqu0a7XwTEuhKNV7jU4/edit?usp=sharing>
2. IaaS- If you have an Amazon AWS account? <http://aws.amazon.com>
Getting such an account verified takes hours-days and a phone call. Do try this at home. Otherwise use: <https://pvedemo.signin.aws.amazon.com/console> usernames are handed out on site. Use Amazon EC2 -The next step is to start up a webserver. We will be using bitnami provided server images.



Select the Bitnami image to start a webserver, or search for **ami-8139ece8** in Region US-East
See next page for more practical information

Tips:

Bitnami WordPress on EC2:

Start it in US-East: image name 'ami-8139ece8'

Tip: when launching the image, give it a name and a tag so you won't confuse it with others.

Tip: you don't have to create a keypair, but you won't be able to login to the Linux command line.

Tip: you can enable cloudwatch in the screen 'instance details'

Tip: you can use security group: webserver.

You can start the Bitnami application through the public domain name (DNS) that the EC2 dashboard gives you.

This has a button that says 'launch my application' which will bring you to the wordpress site.

Using WordPress:-

In order to create a page on the wordpress site, you will have to login.

Default WordPress login information (follow the link that says Meta -> log in).

username: user password: bitnami

Please change this to avoid unauthorized access. In the administrator page you can select 'new-> post' to create a new post.

Study questions: think about what you have to do if you run a thousand of these? Manage security groups, users, images, instances, performance?

Feel free to explore other features of the EC2 interface panel, or other cloud services such as S3.

3. IaaS: Cost control and other management with Newvem

High Level the steps are as follows: 1. get a free account at www.newvem.com

2. create an amazon sub account with read-only access, through the IAM service. (<https://newvem.uservoice.com/knowledgebase/articles/33997>)

3. give these account details to newvem

ALTERNATIVE: www.cloudcheckr.com



Create Newvem account
independent of Amazon

Slide content

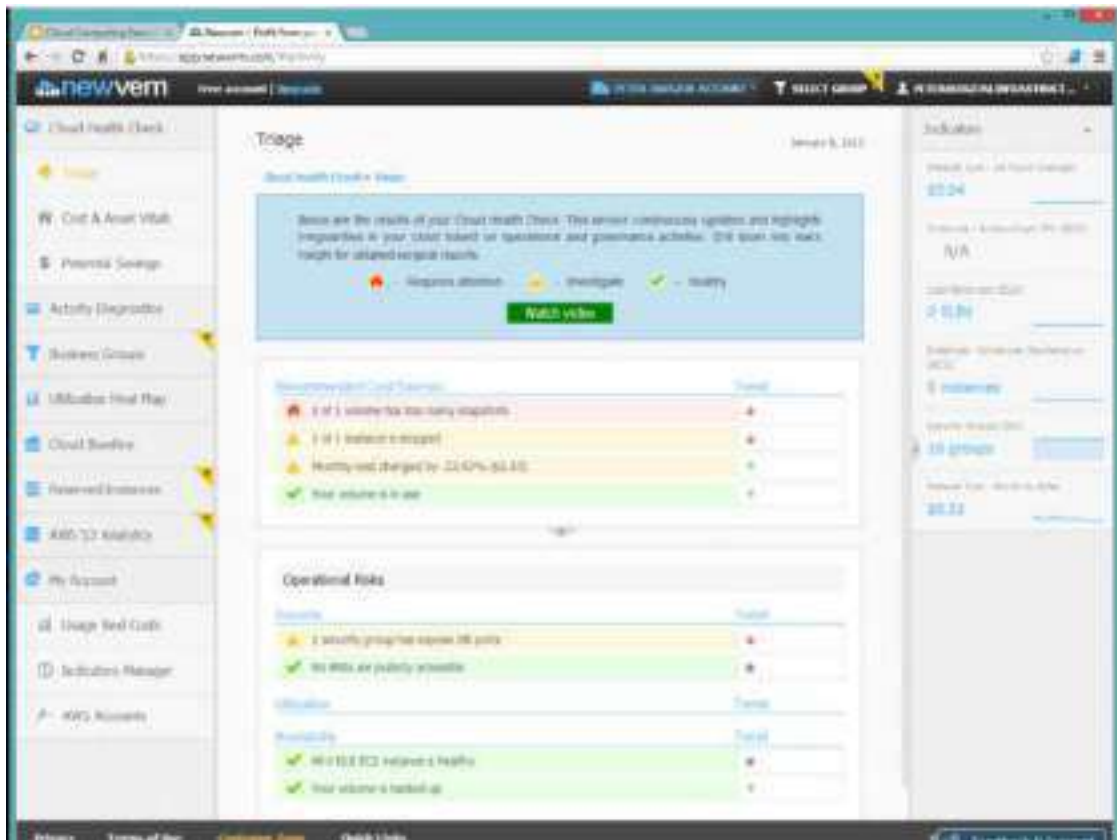


Create a new user in Amazon Web Services
with limited access
(only one step shown here..)

Then give these to NewVem Newvem was
acquired by DataPipe in 2013

<https://www.newvem.us/enrnce.com/knowledgebase/articles/33997>

Full details in:



4. OpenStack: - Free account to try

<https://x86.trystack.org/dashboard/auth/login/>

Small demo video:

<https://www.youtube.com/watch?v=EPZPzXSypI4&feature=youtu.be>

5.

<http://goo.gl/S1UXL> Business simulation game

<http://www.cloudchallenge.com>

As homework, read the document at
https://docs.google.com/open?id=0B_ilbs_TLVWQQ2hoQVgweXILb2s

When in the lab, it is probably a good idea to do this in pairs: one person reading the instructions, the other person playing the game.

If your registration fails, try:

User ID : democloud1

Password : democloud2012

6. Virtualization:

Virtualization Exercise

Create a new virtual machine in VirtualBox.

Click next, next, etcetera for defaults (most can be changed later).

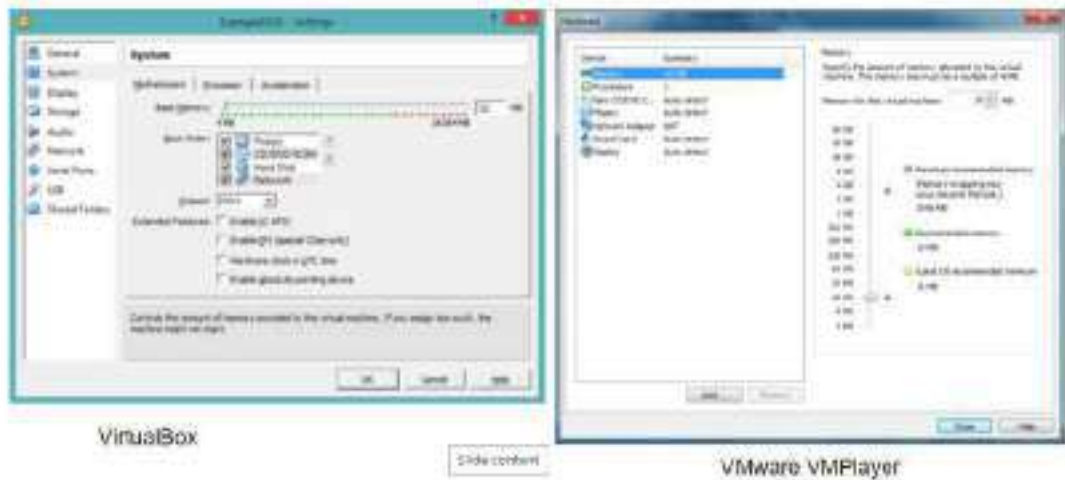
When it is created, right-click the icon for settings, including boot device. Notice the various hardware settings.

You can try to boot it, but without a bootable device it will fail.

Click New



Virtual Machine settings



Notice how we manipulate, through software, the resources that used to be hardware

Run more Virtual machines Copy the virtual machine images from the course USB drive to a local directory.

Find the files called *.vmx or *.ova and start them by double clicking.

Notice the servers booting up.

There is a web server, which you can browse to if you note the address.

There is a desktop (DSlinux), which you can click on to interact with it.

Press Ctrl-alt to leave that window. Connect to Windows server

Use MSTSC from a Windows command line. (may not work with all firewalls).

7. Running a private cloud: <http://devstack.org/> is a documented script to run OpenStack. Requires Github.
8. OpenStack
9. CloudStack
10. Apache Mesos
11. Eucalyptus
12. OpenNebula
13. AppScale
14. Tsuru
15. OpenShift Origin/OKD

16.

PaaS

Platform as a Service examples are also accessible for experimentation. Arguably the simplest example can be made with Google maps. By sending the appropriate URL to Google Maps, you can embed a map in your website. Try the next example:

```
http://maps.google.com/maps/api/staticmap?  
center=Eiffel+Tower&zoom=12&size=512x512&sensor=false
```

You may have to use Notepad or so to fold this to a single line. Then you can play around with the parameters. For example, change the location to 'Brooklyn+Bridge,New+York,NY'. Or change the maptype by adding '&maptype=terrain' add the end. You can also add a marker to the map with '&markers=color:green%7Clabel:E%7C48.8583,2.2945'. The example now becomes:

```
http://maps.google.com/maps/api/staticmap?  
center=Eiffel+Tower&zoom=12&size=512x512&sensor=false&maptype=terrain&markers=color:green%7Clabel:E%7C48.8583,2.2945
```

<https://developers.google.com/maps/documentation/staticmaps/> has more documentation on the parameters you can change.
<http://ws.geonames.org/postalCodeSearch?postalcode=90210&country=us>

17.

Paas: the internet of things

Xively.com storing data streams from sensors.

Zapier.com to implement workflows over them

Example:

<http://www.clubcloudcomputing.com/2014/02/cloud-things/>

NAME _____

Roll Number: _____

10 Multiple choice questions

1. Hybrid

- a. What are the 2 variants of Community Cloud?
- b. What are the 3 primary Cloud Service Models?
- c. What are the 2 types of Private cloud?
- d. What type of cloud is composed of two or more individual clouds, each of which can be private, community, or public clouds?

2. Public, Private, Hybrid, Community

- a. What are the 2 types of Private cloud?
- b. What are the 3 primary Cloud Service Models?
- c. What are the 2 variants of Community Cloud?
- d. What are the 4 primary cloud deployment models?

3. IaaS, PaaS, SaaS

- a. What are the 4 primary cloud deployment models?
- b. What are the 3 primary Cloud Service Models?
- c. What are the 2 types of Private cloud?
- d. What are the 2 variants of Community Cloud?

4. On—Premise, Externally—Hosted

- a. What are the 3 primary Cloud Service Models?
- b. What are the 4 primary cloud deployment models?
- c. What are the 2 types of Private cloud?
- d. What are the 2 variants of Community Cloud?

5. Externally-Hosted

- a. What are the 2 types of Private cloud?
- b. The organization's IT infrastructure connects to the _____—_____private cloud over a secure network.
- c. What are the 2 variants of Community Cloud?
- d. A _____cloud is a cloud infrastructure deployed by a provider to offer cloud services to the general public and/or organizations over the Internet.

6. Public

- a. What are the 2 types of Private cloud?
- b. A _____cloud is a cloud infrastructure deployed by a provider to offer cloud services to the general public and/or organizations over the Internet.
- c. What type of cloud is composed of two or more individual clouds, each of which can be private, community, or public clouds?
- d. What are the 3 primary Cloud Service Models?

7. Yes

- a. What are the 2 variants of Community Cloud?
- b. What are the 4 primary cloud deployment models?
- c. What are the 3 primary Cloud Service Models?
- d. Can any of the 4 deployment models be used to support the 3 Service models?

8. On—Premise, Externally Hosted

- a. What are the 3 primary Cloud Service Models?
- b. What are the 2 types of Private cloud?
- c. What are the 2 variants of Community Cloud?
- d. What are the 4 primary cloud deployment models?

9. Private

- a. What are the 4 primary cloud deployment models?
- b. What are the 2 types of Private cloud?
- c. What are the 3 primary Cloud Service Models?
- d. The cloud services implemented on the _____cloud are dedicated to consumers, such as the departments and business units within the organization.

10. On-Premise

- a. What are the 4 primary cloud deployment models?
- b. What are the 3 primary Cloud Service Models?
- c. What type of cloud is composed of two or more individual clouds, each of which can be private, community, or public clouds?
- d. The _____—_____private cloud, also known as an internal cloud, is hosted by an organization on its data centers within its own premises.



CERTIFICATE OF COMPLETION

Presented to

PRITISH PAUL

For successfully completing a free online course
Network Security

Provided by

Great Learning Academy

(On May 2023)

Add a little bit of body text



CERTIFICATE OF COMPLETION

Presented to

Divya Vikas Khedekar

For successfully completing a free online course
Network Security

Provided by

Great Learning Academy

(On April 2023)





*CLOUD BASED WEATHER
MONITORING SYSTEM*

Participants :

1. Ashish Gosavi 19103A0036
2. Krishnaprasad Menon 19103A0004
3. Gaurav Gosavi 19103A0077
4. Rohit Mohite 19103A0047

Introduction

- A weather station is a device that collects data related to the weather and environment using many different sensors.
- Weather station is also a facility that can use for measuring atmospheric conditions to provide information for weather forecasts and to study the weather and climate.
- Therefore, Weather Station using Internet of Thing is proposed to help user access data about weather anywhere in real-time.

Objectives :

- Collecting realtime weather related data with IOT.
- Display Data on ThingsSpeak in Real Time

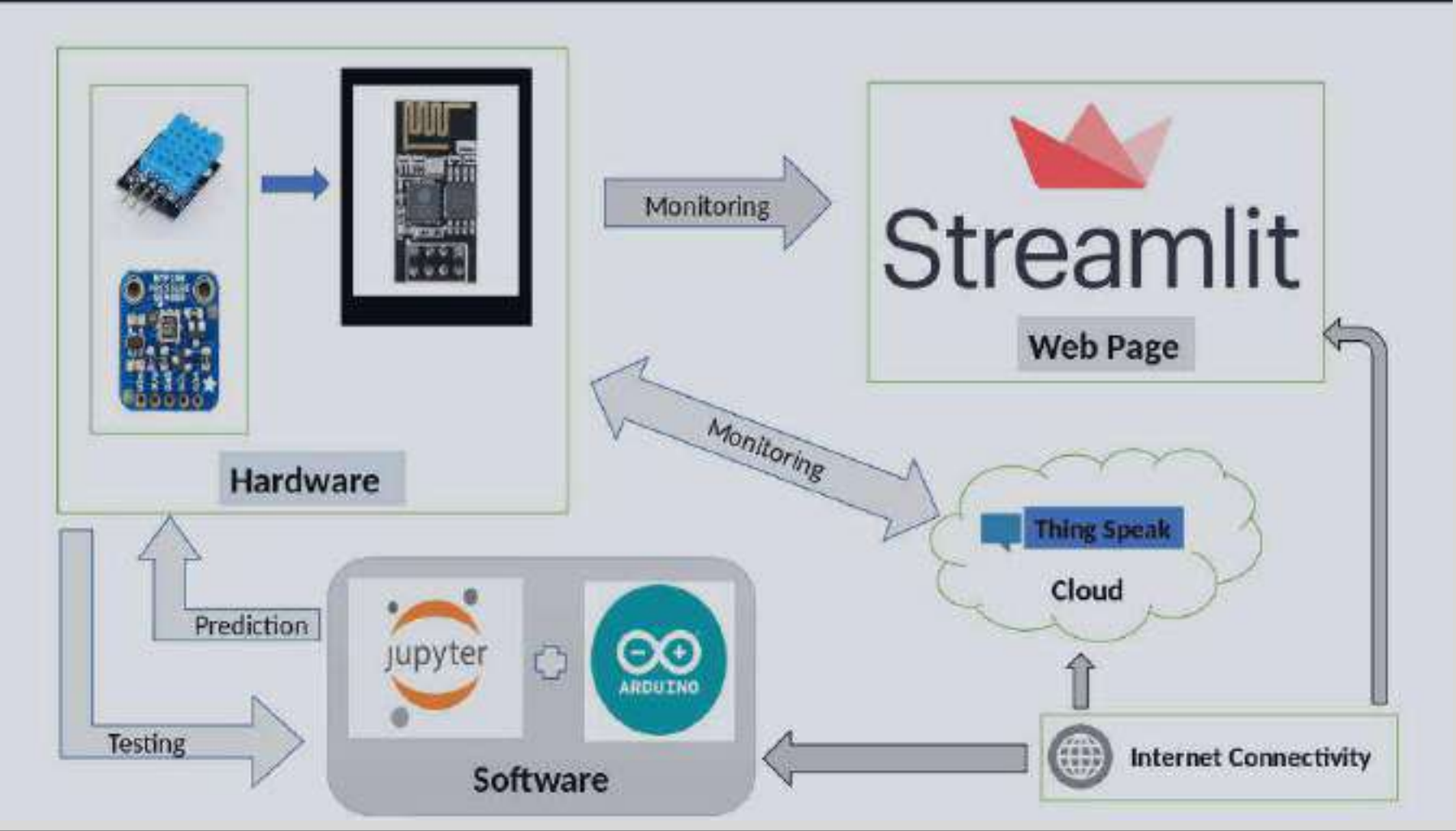
Components :

- DHT11 humidity
- Temperature sensor
- BMP180 barometric pressure sensor
- FC37 rain sensor
- ESP8266 Microcontroller

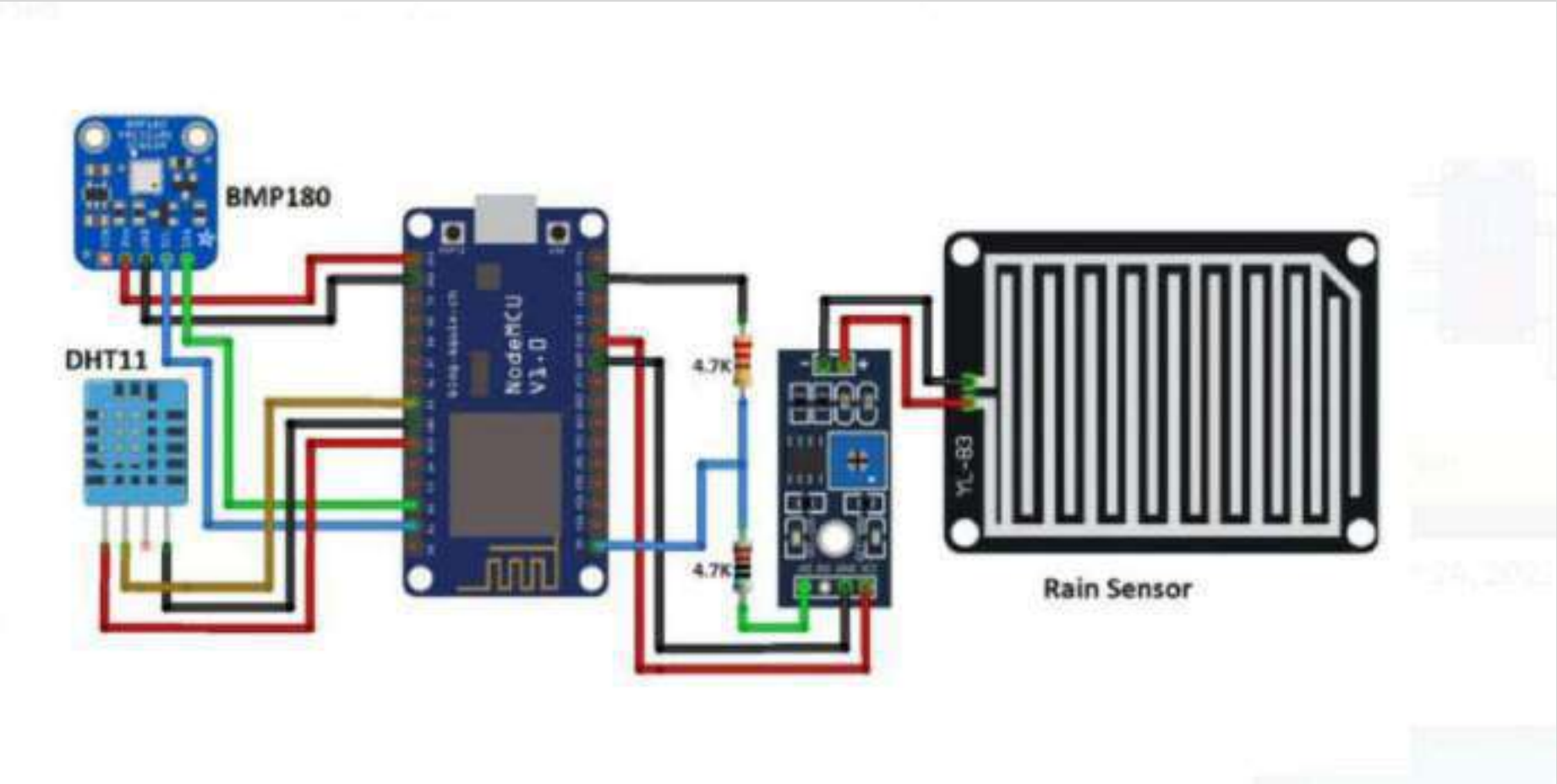
Software :

- ThingSpeak
- Arduino IDE

Block Diagram :




Circuit Diagram



Conclusion :

- The real time weather prediction system presented in this presentation has been developed around low cost IoT board and sensors.
- The temperature, pressure, rainfall and humidity are the 4 important parameters that are monitored and uploaded on thingspeak cloud.
- The system has been deployed in an indoor environment and values of the parameters have been recorded.
- Further, the system can be modified to be used at commercial level and have many applications in smart homes, buildings, sports, hospitals etc.

Cloud Computing



Cloud Computing

['klaud kam-'pyüt-ij]




The delivery of different services through the Internet which includes tools and applications like data storage, servers, databases, networking, and software.

Investopedia



Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user

TYPES OF CLOUD COMPUTING

PUBLIC	PRIVATE	HYBRID
		
<ul style="list-style-type: none">✓ Scalable✓ Reliable✓ Inexpensive✓ Location Independent	<ul style="list-style-type: none">✓ Scalable✓ Secure✓ Flexible✓ Greater control	<ul style="list-style-type: none">✓ Scalable✓ Secure✓ Flexible✓ Cost effective



Details to be filled by project guides for each group

Project Guide	Prof. Pranita Padhye
Mobile of Guide	9867337761
Email of Guide	pranita.padhye@vit.edu.in
Project Title	Wild Animal Tracker
Group Id	
Project Deadline	

Group Member Details			
Name	Roll Number	Mobile	Email Id
Kaustubh Pimpalkhare	21103A0017	9594119981	kaustubh.pimpalkhare@vit.edu.in
Anurag Khatavkar	21103A0021	8291794789	anurag.khatavkar@vit.edu.in
Devang Patel	21103A0003	8097600091	devang.patel@vit.edu.in
Amey Thorat	21103A0002	9819538306	amey.thorat21@vit.edu.in

Project Meeting Schedule

Day	Every Friday
Venue	Lab-06
Time	3.45pm

Project Category

Theoretical Study	Survey	Applied	Other
	✓	✓	

(Tick Which Ever Applicable)

Project Approach

New Concept	Newer Approach for Existing Concept	Other, Specify
	✓	

(Tick Which Ever Applicable)

Project Type

In - House	Out- House	Industry
✓		

If Outhouse or Industry based project specify the role of External agency

Role of External Agency

--

Project Usefulness

To track hunting movement of wild animals.
To monitor health of the animal by measuring body temperature.
To track location of the animal in wildlife sanctuaries and national parks.

Social Impact of the Project

Useful in Environment Balancing

Project Display: Do you plan to display/present the project to any external agencies? (Tick Whichever Applicable)

Yes	No	✓
Name of External Agency		
Address		
Name of the Contact		
Mobile of Contact		
Email Id of Contact		

Do you wish/think that the project can be converted as a product?

Yes	✓	No

Project Objectives

To analyze, gather information on and study wildlife behavior in detail.
To Monitor Health and Physical condition of wild animals.

Resources Needed

GPS tracker, Heart Rate monitor, Temperature sensor , Display screen , Microcontroller , Coding Software , Antenna , GPS receiver

Resources Available

--

--

Project Methodology:

Give details about technology / platform being used with relevance / justification

GPS tracker will be used to constantly track movement and locomotion of the animal across given range of the tracker.

Temperature Sensor and heart monitor will be used to examine and keep a close eye on the health and wellness of the animal.

Display screen will display the various data received from the tracker.

Antenna will be used send data from the tracker to the display screen.

Project Cost

Around 3000/-

Funding Agency

Name of Funding Agency

Address

Name of the Contact

Mobile of Contact

Email Id of Contact

Literature Survey Plan:

Give details along with external agencies/organizations/experts/locations you plan to meet/visit with respect to project work

- 1) Design of GPS-based Wild Animal's Tracking System with Reduced Size and Weight, June 2013, Conference: XLVIII INTERNATIONAL SCIENTIFIC CONFERENCE ON INFORMATION, COMMUNICATION AND ENERGY SYSTEMS AND TECHNOLOGIES At: Ohrid, Macedonia Volume: pp.2950298
- 2) Wildlife Animal Tracking System using GPS and GSM, DOI : 10.17577/IJERTCONV8IS17002
- 3) GPS BASED WILDLIFE ANIMAL TRACKING SYSTEM, Volume 5 Issue 10, October-2018, eISSN: 2349-5162

International Connect: Give details, if any

--

--

Project Planning:

Give activity plan indicating activities on time (days of months) scale

--

Virtual Industrial Visit

<https://lightriver.com/take-a-virtual-tour-of-our-recently-expanded-network-factory/>

POP Quizzes-

- 1) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThUQOJXRE1XSIBEWUROVINPMUROVEk1NUpQMMy4u>
- 2) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThUQIQ3M0xUV0VMN1NETUQ1MFdQTk9WV1RIWS4u>
- 3) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThUQOZERzNHT1g3N1BBQ0VJQUs4SUkzQk1LSi4u>
- 4) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThURDJCNUNXRFVNVUwWfKzWkxLUDFHMDY3MC4u>
- 5) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThUOFk0NkdEQjdBTkPOMkxRRUpZR0xLWktOUC4u>
- 6) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThURVo1RUUxUTJaR1pVTE5HTFpGSE5VTzJZUC4u>
- 7) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThURUhVUIUzRIM5ODMyOVc3QUpHTjRPRUVYOC4u>
- 8) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThURFJCNVYxRFREvk1aVksxMVNRNzRXUkg2SC4u>
- 9) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThUNFRS040S0FQSUw2QktJU1BYRThUM1RHTS4u>
- 10) <https://forms.office.com/Pages/ResponsePage.aspx?id=fw2wx5mtKkSxL8LJEgRP3JSFzf6GDBKIIbKgn8tdThUN00yTFRDTONLMOxWMUFVNVpRRDgxTTVYTS4u>

Assignments on Padlet-3 assignments-

<https://padlet.com/dashboard>

Quiz on App-JOINMYQUIZ-

<https://quizizz.com/join/game/U2FsdGVkX18uiNguppb3Hr6UEEPua%252FNgo2zTELJSIpf374SdB4rHYtIDZqw1hzwM?gameType=solo>

Use of Quizlet

<https://quizlet.com/in/517937093/wireless-lan-flash-cards/?funnelUUID=0a304444-5bf7-4abe-80e7-250942d2dc3e>

Gamification using Kahoot

<https://create.kahoot.it/>

<https://create.kahoot.it/user-reports/live-game/2586697b-b588-45e4-a962-5d53b7f2a044/2b91eb10-435e-4d97-9d2d-147b3f0405eb/1634706552482/summary>

Event Name	Date	Link
Alila Exhibition	27th April 2023	Click here to know more
Seminar on IPR and How to write research proposals for funded projects	12th April 2023	Click here to know more
Guest Lecture Series on Computer Networks	5th to 12th April 2023	Click here to know more
ALGORHYTHM	16th to 18th March 2023	Click here to know more
CESA Flagship event-Plethora	13th March 2023	Click here to know more
Impulse : The Next Gen	10th to 14th March 2023	Click here to know more
VANGUARD Case Study Conclave	4th March 2023	Click here to know more
Webinar on "Insights on pursuing MBA from premium institutes in India"	25th February 2023	Click here to know more
Mutual Funds and Financial Management	22nd February 2023	Click here to know more
Workshop on data engineering using Python and Cloud Technology	18th and 19th February 2023	Click here to know more
Online workshop on "API with Postman"	18 February 2023	Click here to know more
Intel Digital Readiness AI for Future Workforce	16-17 February 2023	Click here to know more
Invited talk on "Blockchain and its Applications"	15th February 2023	Click here to know more
Guest Lecture on – Mumbai Dabbawala: Delivering Lunch to Lectures	21st January 2023	Click here to know more
Hands-On Session- Industrial Application on Machine Learning	20th January 2023	Click here to know more
Industrial visit to Medirays Corporation	15th October 2022	Click here to know more
E summit- Entrepreneurship Opportunities in Healthcare	10th - 15th October 2022	Click here to know more
Workshop on Warli Painting	13th October 2022	Click here to know more
International Seminar on Google Big query	17th September 2022	Click here to know more
Live Demonstrations (Mannequins) and Workshop on "Cardiopulmonary Resuscitation -First Aid Technique"	17th September 2022	Click here to know more
Corridors to Revelation	11th September 2022	Click here to know more
VIT Participates in hackathon 2022		Click here to know more
One Minute Video of your Performance on the Theme of Patriotism	12th August 2022	Click here to know more
Azadi ka Amrit Mahotsav - Photography Exhibition	8th August 2022	Click here to know more
Workshop on "Advancements in Radio-Diagnostic and Radiotherapy Equipment"	6th August 2022	Click here to know more
Webinar on – "Design Thinking "	23rd July 2022	Click here to know more
IDEATHON	6th May 2022	Click here to know more



DEPARTMENT OF ELECTRONICS ENGINEERING
SUBJECT: CLOUD COMPUTING
PROF: PRANITA PADHYE

**TOPIC: ENHANCING SECURITY OF HEALTH
INFORMATION USING MODULAR ENCRYPTION STANDARD
IN MOBILE CLOUD COMPUTING**

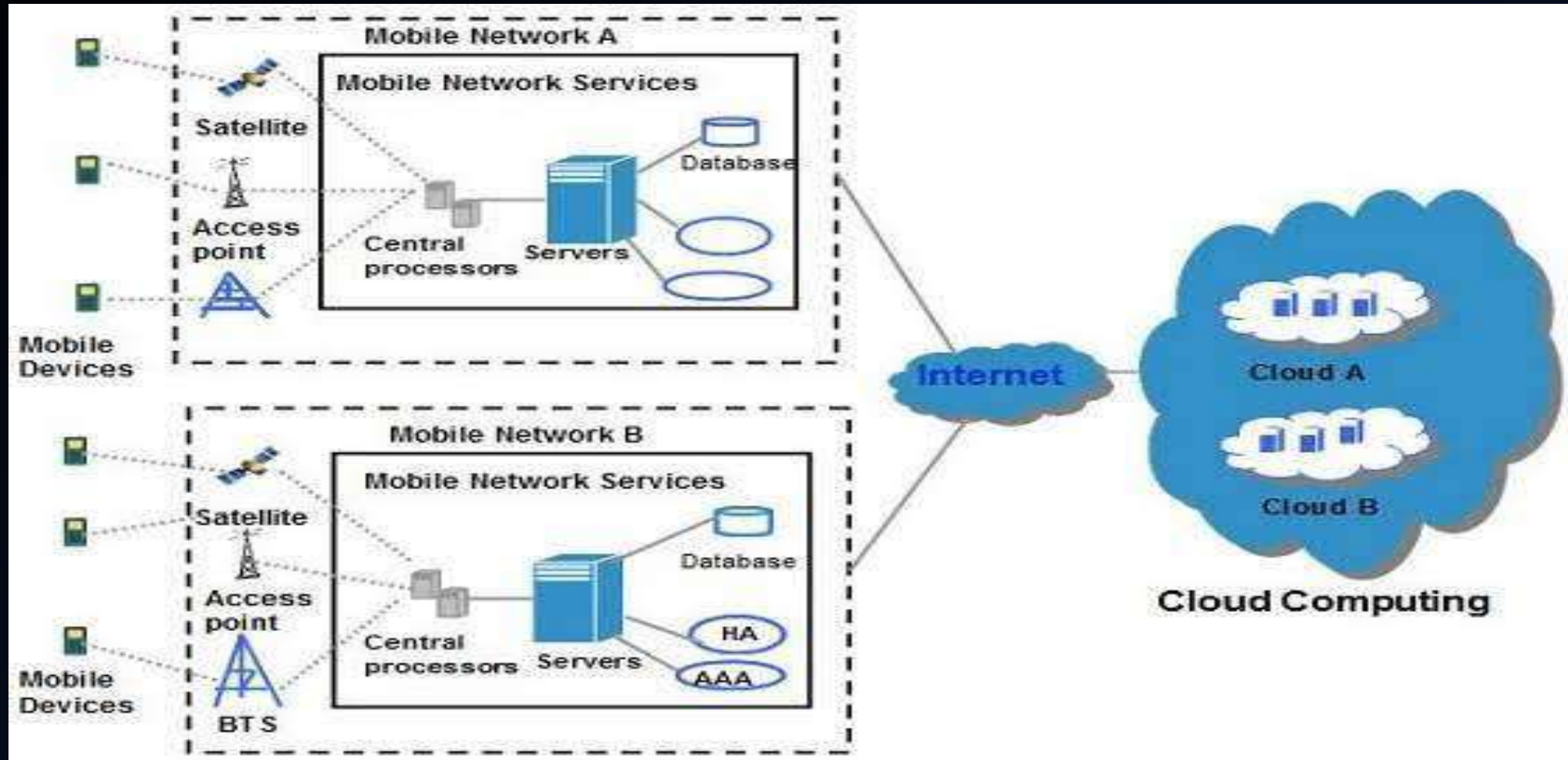
GROUP MEMBERS

- OMKAR POL:19103A0066**
- GANESH KUMBHAR:19103A0063**
- SANKALP GAMBHIR:19103A0073**
- AKSHAY SALUNKHE:19103A0048**

INTRODUCTION

- As computing technologies have rapidly growth , cloud computing has earned a lot of popularity in recent years through applications, services, storage, and computing over the Internet.
- It is commonly utilized in many domains like Medical Science, Agriculture, Business, Information Technology, and many others. Additionally, it encourages resource provisioning flexibility and cost-effective decoupling administrations.
- Smart devices like smartphones and tablets are progressively turning into a fundamental constituent of human life as a convenient and effective tool for communication that is not limited by place and time.
- Smart device users assemble rich experience of different administrations from mobile apps such as Google Applications and iPhone applications which run on the remote servers using wireless connectivity to the network. The integration of cloud computing with mobile phones is known as Mobile Cloud Computing (MCC) .

MOBILE CLOUD COMPUTING



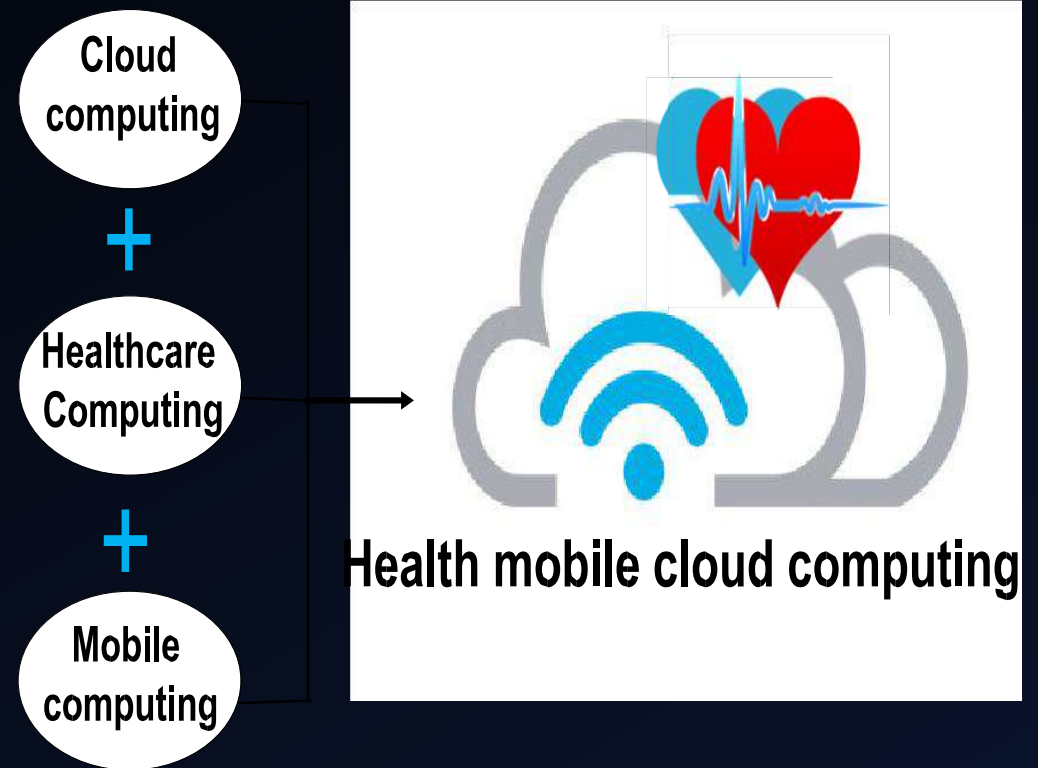
Security of Health Information (HI)

Security of Health Information (HI) is an iterative procedure (with the technological improvements) along with the changes to the healthcare environs. By the adaptation of new schemes to upgrade the quality and effectiveness of HI in practice, it is additionally imperative to reconsider the security policies and practices of HI . Recognizing the threats and securing the HI is challenging and demanding for small health-centers.

This research is intended to enable the practice to get ready for those demands and challenges, for effective risk assessment, and provide suitable security approaches to ensure HI security. In the healthcare domain, MCC offers several favors as:

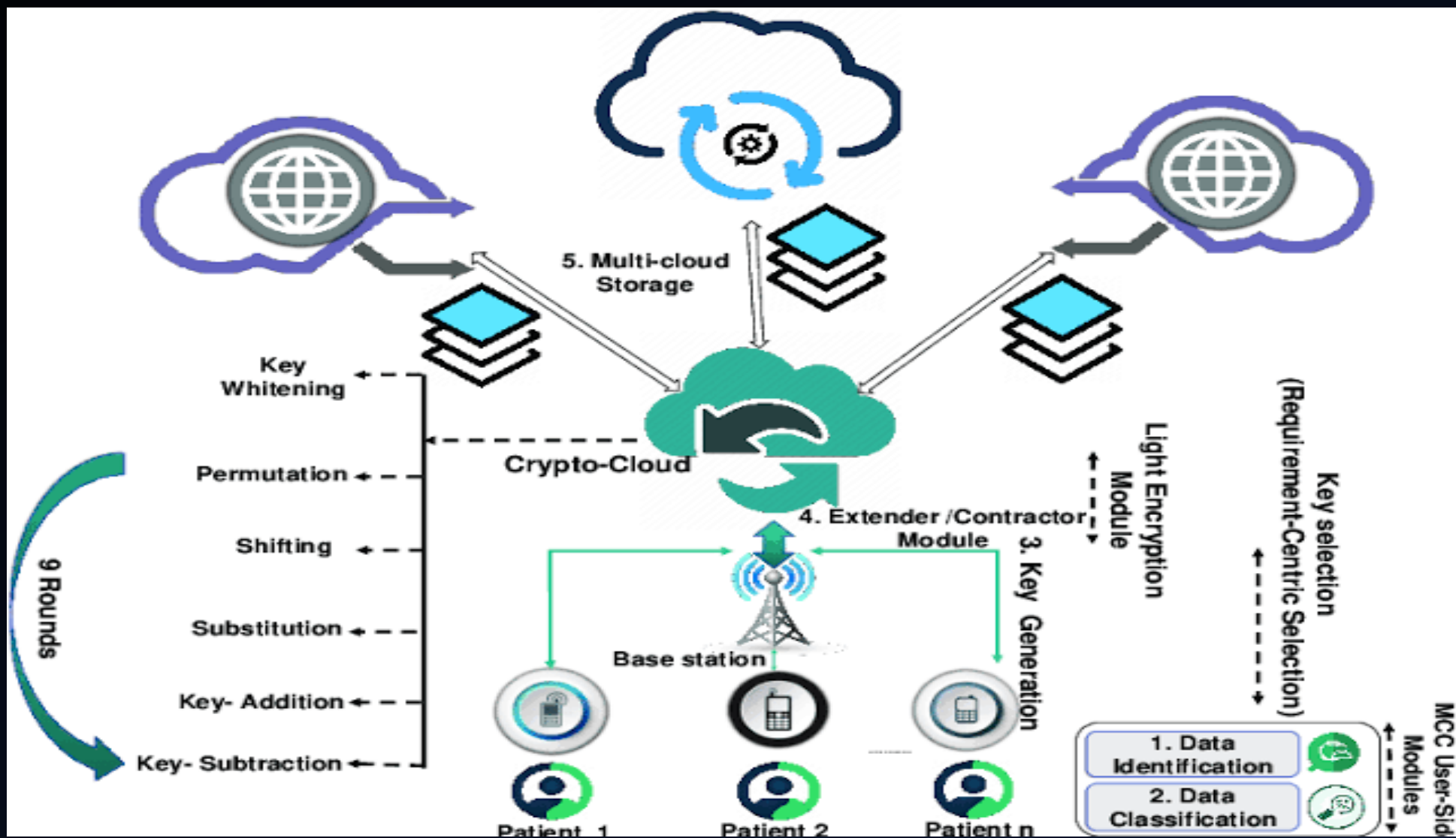
- 1) **Portability:** The facilitation of remote access monitoring of health information in a ubiquitous and distributed manner.
- 2) **Scalability:** The facilitation of remote access to patient information.
- 3) **Modernization:** MCC lessens the barriers to the modernization of healthcare applications.
- 4) **Performance:** A quick access to computing, big data storage can be done by MCC. It provides easy information sharing and cost reduction as well.
- 5) **Collaboration:** It provides team-care facilitation and maintained collaboration

- The integration and federation requirements from distinct domains like health insurance, hospitals, and medical laboratories, have evolved the domain of Health Information Security (HIS). HIS can be regarded as the utilization of e-commerce policies and practices and the infrastructure of Information Technology (IT) for the manipulation, sharing, and processing of Health Information (HI).
- It is one of the rising fields of public health and medical informatics. HI requires organized and coordinated tactics, which comprises the collection of HI monitoring and securing approaches at cloud . Among other solutions, MCC can be the leading HI monitoring approach.
- The integration of Cloud Computing, Healthcare Computing, and Mobile Computing are known as Healthcare Mobile Cloud Computing (HMCC) .



Healthcare monitoring using MES.

- MES includes three significant measures. These measures are “Identification (IDN)”, “Classification (CLF)”, and “Securing (SC)”. IDN and CLF are performed at the MCC user side. While the SC step is performed at the Crypto-cloud. Crypto-cloud is the intermediary cloud that is dedicated to performing cryptography measures.
- A. IDENTIFICATION : The requirement for securing HI is directed by IDN and CLF characterization (as per the level of confidentiality of HI). Here, the identification (to distinguish the criticality and sensitivity of HI) would be performed. The IDN of Health records depends on the MCC client’s highlighted prerequisites.
- B. CLASSIFICATION :
- 1) NON-SENSITIVE DATA • Public Data e.g., Doctor’s/specialist’s availability hours and clinics etc.
- 2) SENSITIVE DATA • Less-Sensitive Data e.g., patient name, gender, etc. • Moderately-Sensitive Data e.g., Doctors/specialists or the medical centers to which the patient is referring, patient-doctor appointment date, timings, etc. • Highly-Sensitive Data e.g., Patient’s diagnostic reports, etc. • Extremely-High Sensitive Data e.g., Genetic Information, etc.



CONCLUSION

- Despite the prospective solutions offered by MCC in Health record monitoring, numerous impediments restrain the key potentials of MCC. Among these obstacles, security and privacy are the key hindrances in the utilization of MCC in healthcare.
- This is one of the considerable research gaps. Accordingly, this research utilizes a layered, modular, data nature-centric cryptography approach, for example, MES, that utilizes secure HI sharing, and storage mechanisms. The Comparative results show that this scheme outperforms other commonly used techniques (from different performance factors) in the MCC environment.
- Currently, this approach is intended for the enciphering and deciphering of textual data and there is no consideration of the image-oriented data-set yet. However, in future work, this issue would be considered.

REFERENCES

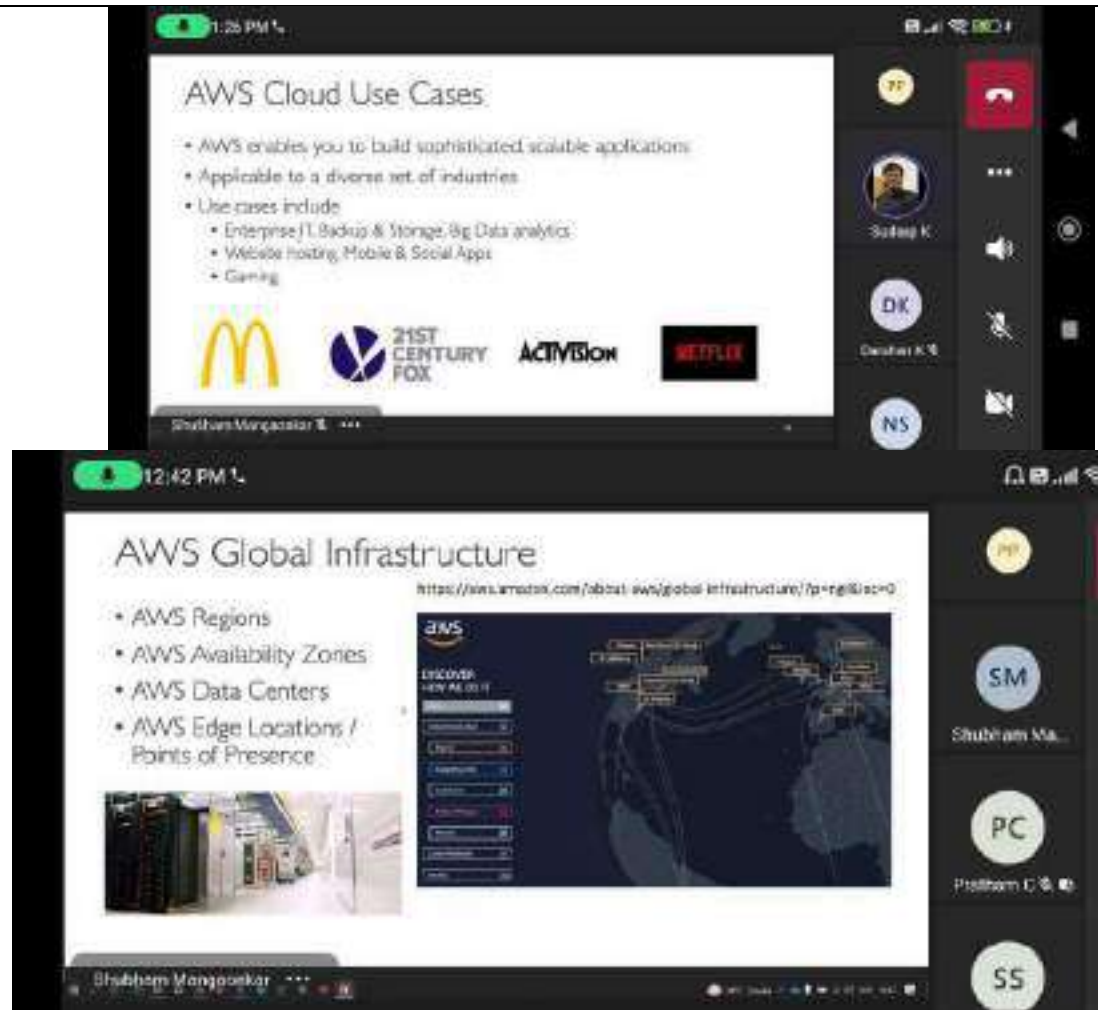
- [1].J. C.-W. Lin, Y. Shao, Y. Djenouri, and U. Yun, “ASRNN: A recurrent neural network with an attention model for sequence labeling,” *Knowl.- Based Syst.*, vol. 212, Jan. 2021, Art. no. 106548.
- [2] H. Qi and A. Gani, “Research on mobile cloud computing: Review, trend and perspectives,” in *Proc. 2nd Int. Conf. Digit. Inf. Commun. Technol. Appl. (DICTAP)*, May 2012, pp. 195–202.

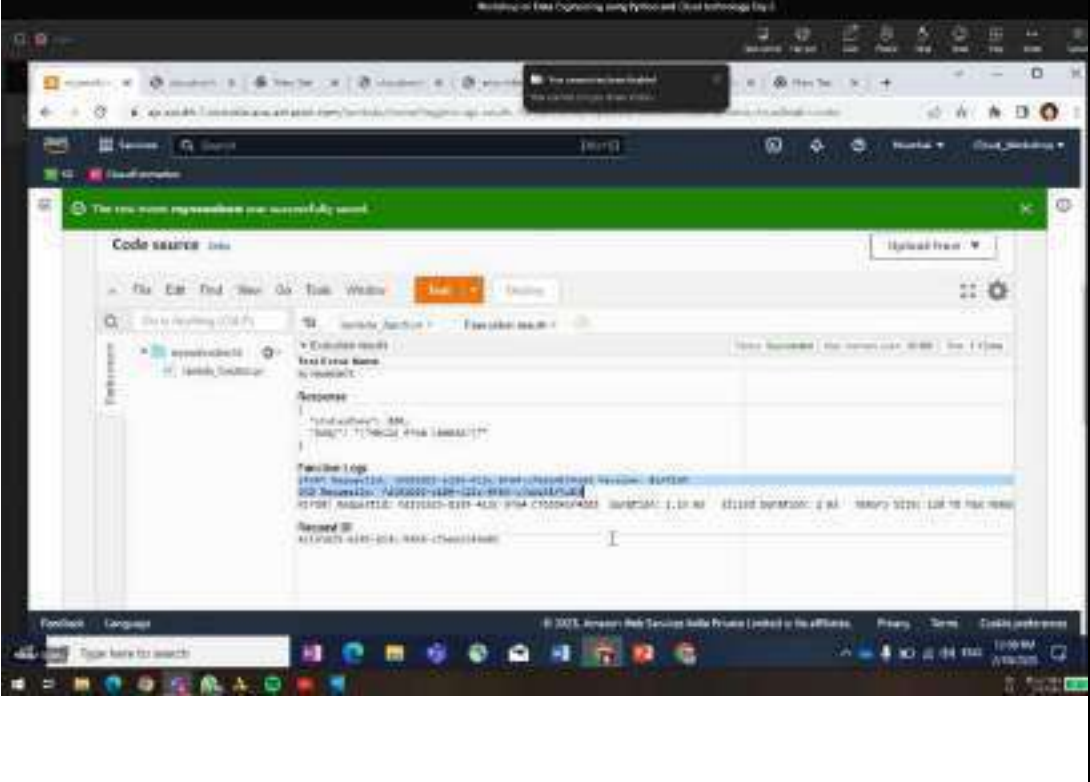
ACTIVITY REPORT:

<p>Activity Poster:</p>	
<p>Name of Institute:</p>	<p>Vidyalankar Institute of Technology</p>
<p>Name of Committee :</p>	<p>Electronics and Telecommunications Students Association (ETSA)</p>
<p>Activity title:</p>	<p>Workshop on Data Engineering using Python and Cloud Technology</p>
<p>Activity date, time, and venue:</p>	<p>The online workshop was conducted on 18th and 19th of February 2023, Saturday and Sunday from 12:00 pm to 4:00 pm.</p>
<p>Activity conduction report:</p>	<p>The event was publicized amongst SE and TE students through various online platforms. A great response from the students was anticipated and the event was conducted in a duly manner. All the participants</p>

were given reminder through messages in which link for joining the team was included. The workshop began sharp at 12:00 pm with our guest speaker, **Mr. Sudeep Khandekar**, **Mr. Shubham Nagaonkar**, and **Mrs. Nikita Shinde** throwing light upon the usage of Cloud Computing as a whole and helping everyone proceed, understand, and assess the topic in a steady pace. On the first day, the speakers briefed all the participants about the basics of the Cloud, AWS, jobs in this sector, etc. The session ended by creating an account on AWS. On the next day, basics about AWS were taught and doubts among the participants were cleared by the speakers. Later, a project was built using a bucket and it was connected to the website for a better experience. The session was concluded after all the doubts were cleared.

Photos:



	
Response s:	88 participants

Feedback Regarding the Activity from Convenor:

A) Outcome Expected from the Activity:

- i. Students would learn about the basics of Cloud Computing.
- ii. Students would test their coding skills by answering and applying them into the situations provided.

B) Outcome Achieved or Not from the Activity:


- i. Developing interest amongst students in Cloud Computing.
- ii. Students learned the basics of AWS and will be able to apply in real-time application.

C) Quality Index --- Grade the Quality of The Activity:



4.75 Average Rating

ACTIVITY REPORT:

<p>Activity Poster:</p>	
<p>Name of Institute:</p>	<p>Vidyalankar Institute of Technology</p>
<p>Name of Committee:</p>	<p>Electronics and Telecommunications Students Association (ETSA)</p>
<p>Activity title:</p>	<p>Industrial Visit-IIT Bombay, Nanofabrication Lab</p>
<p>Activity date, time, and venue:</p>	<p>The workshop was conducted on 12th April 2023 from 2:45pm to 6:00pm</p>
<p>Activity conduction report:</p>	<p>The event was publicized amongst SE, TE and BE students through online messages. Around 35 students were present for the visit and the limit was 40 students. After reaching the IIT Bombay campus, firstly, the students were briefed about the process of a MOSFET designing, and a presentation about the same was explained. Later, the students were taken to Nanofabrication Lab and all the processes of MOSFET designing were shown and explained very well. Overall it was a great</p>

experience as the students got to know in detail of the manufacturing of a MOSFET's and its real life application.

Photos:



Responses:

35 participants

Feedback Regarding the Activity from Convener:

A) Outcome Expected from the Activity:


i. To visit the Fabrication Lab and get to know about it in detail.

B) Outcome Achieved or Not from the Activity:

i. Developing interest amongst students in VLSI domain.

ii. Students learned the processing of MOSFET.

ACTIVITY REPORT:

<p>Activity Poster:</p>	
<p>Name of Institute:</p>	<p>Vidyalankar Institute of Technology</p>
<p>Name of Committee:</p>	<p>Electronics and Telecommunications Students Association (ETSA)</p>
<p>Activity title:</p>	<p>UI/UX Design Workshop</p>
<p>Activity date, time, and venue:</p>	<p>The workshop was conducted on 15th October 2022, Saturday from 10:00 am to 1:00 pm.</p>
<p>Activity conduction report:</p>	<p>The event was publicized amongst SE and TE students. A great response from the students was anticipated and the event was conducted in a duly manner. All the participants were given reminders in the groups. These messages also provided the link for downloading the software required for this event. The workshop began sharp at 10:00 am with our</p>

guest speaker for the day, **Mr. Rajeev Kaviskar** throwing light upon the usage of Figma as a whole and helping everyone proceed, understand, and assess the software. He taught the basics of Figma and later helped the participants develop their own home page of various ideas shared by them. Later after solving all the queries of the participants, the session was concluded.

Photos:





Responses:

47 participants

Feedback Regarding the Activity from Convenor:

A) Outcome Expected from the Activity:

- i. To introduce students about UI/UX

B) Outcome Achieved or Not from the Activity:

- i. Developing interest amongst students in UI/UX
- ii. Students learned the way to process their understanding of a software in general.

C) Quality Index --- Grade the Quality of The Activity:





Department of Information Technology

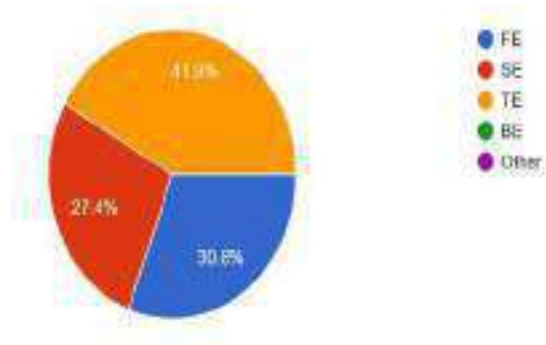
Convener:	Prof. Bhanu Tekwani
Title:	Report of Event Entitled " Business Etiquette & Resume Writing "
Objective:	Detailed description of the Event
Activity Date & Day:	30/01/2023/30 th January 2023 (Monday)
Time & Venue:	9:00am to 11:00am, M101 (Offline)
Conducted By:	ITSA – Information Technology Student Association
Contents:	<ul style="list-style-type: none">❖ Event Details❖ Testimonial of Heads❖ Registration Details and Analysis❖ Event Summary❖ Event Glimpse❖ Event Feedback❖ Participant Suggestions❖ Faculty Feedback
Event Details:	<ul style="list-style-type: none">❖ Date: January 30th ,2022❖ Venue: M101 (Offline)❖ Time: 9.00 pm to 11.00 pm❖ Number of Registrations: 117 registrations❖ Number Of Participants Present: 125 participants were present❖ Feedback Form Submission: 47 feedback submissions❖ Minutes of Meeting: 120 Minutes❖ Faculties Involved: N.A.❖ Testimonials of Heads: 8 heads gave testimonial of the event
Testimonial of Heads:	<p>(i)The testimonial for the event were given by HanesH Iyer, Yashvi Mervana, Manish Thakkare, Vedali Pawar, Vedant Bherde, Aaroh Vishwakarma, Ronit Murpani and Ambika Sanap.</p> <p>(ii)Each head explained their point of view regarding the event in a short description paragraph. And also, on emphasizing their takeaways, experience and learnings from the session.</p>

**Registration
Details and
Analysis:**

❖ **Year Wise Distribution of Responses:**

Year

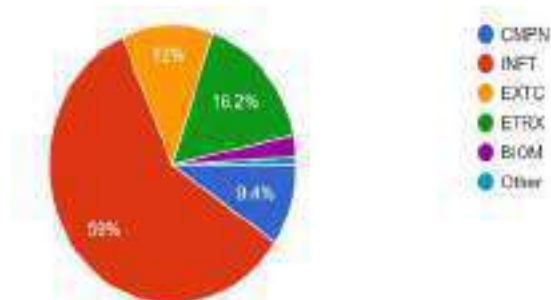
117 responses



❖ **Department Wise Distribution of Responses:**

Branch

117 responses



Event Summary:

ITSA committee of department of information technology has been successful in organizing Business Etiquettes & Resume Writing Event. It took place on 30th January 2023 in the venue M101. Under the guidance and supervision of Prof. Bhanu Teckwani, Team ITSA with all the heads & core successfully organized the event. There were a lot of participants from INFT branch and participants were also from other branches. In the corporate world is a tough place where not only your technical skills are tested but also your soft skills. For a taste of that experience and learning the business etiquette required we invited an Expert to enlighten us and take us through their journey from a Programmer to a Specialist Speaker. Miss Rianna Gorawal walked us through the basic conventions of the office, meetings, interviews subtly showing us through practical examples and explaining later. Like they say, "Show, don't tell". Ma'am showed us how while speaking on stage how your body language matters, like Placater. Ma'am also started conducting a mock interview activity among the students and explaining what they did right or wrong, the SWOT exercise were also ways of demonstrating appropriate behavior, the dos and don'ts and how we could improve upon them. Overall, it was a great session and a very good start of our journey into the corporate world. Towards, the end of the session, Mr. Hansh Iyer (Events Co-Head) gave a Vote of Thanks to ma'am and the entire audience along with the ITSA Committee for the successful completion of event. The event was ended with a Thank you Letter handed over to ma'am from ITSA President & Vice President along with a final photograph.

Event Glimpse:

Event Start



Explanation & Demonstration of Concepts



**Event
Conclusion**



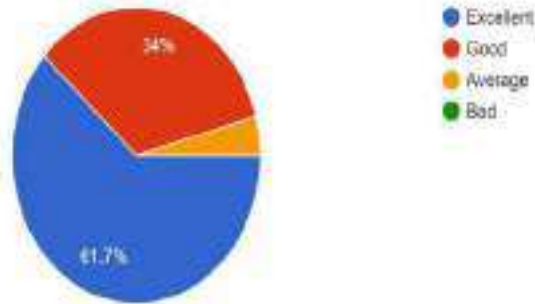
Overall Event Feedback Analysis:

The following are the analysis retrieved from feedback form floated for participants:

Overall Event Feedback

How was your experience in today's event?

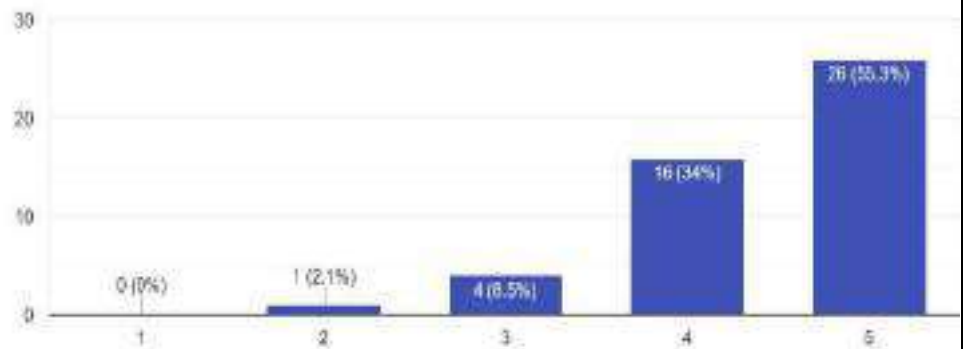
47 responses



Rating of Event (Scale of 1-5)

Rate the event on a scale of 1-5.

47 responses



Participants Suggestions and Feedbacks:

- (i) The knowledge and experience of the speaker about the topic was vast and amazing.
- (ii) The Session was interactive, informative and covered in-depth information about topics like business etiquettes and resume building.
- (iii) The participants also learnt about the do's and don'ts for interview and enhance their soft skills.
- (iii) Request from the participants to conduct more such webinars, seminars, fun events and other technical events.

Testimonial of Heads:	<p><u>Events Co-Head Hanesh Iyer:</u></p> <p>"It was eye-opening for me to recently attend a seminar on business etiquette and resume writing. The speaker was knowledgeable, interesting, and gave me actionable advice that I could use right away in my professional life. I was able to improve my skills through the engaging exercises in a friendly environment. Anyone wishing to develop their business manners and resume-writing abilities should definitely attend this event, in my opinion. I appreciate the great educational opportunity you provided!"</p> <p><u>Creatives Co-Head Yashvi Mervana:</u></p> <p>Thank you for such an informative seminar, ma'am, it was indeed an astonishing event. I really enjoyed and learnt a lot of new things in the entire session. We tend to ignore small things which are important for us in near future, I consider myself lucky getting to attend your seminar and build my professional skills. I would highly recommend everyone else to take this training in order to have a good work life and not struggle afterwards. Looking forward to attend more such workshops!</p> <p><u>Digital Publicity Co-Head Manish Thakkare:</u></p> <p>It was a great event. I got to learn a lot of professional skills. The speaker Rianna Gorawal such an aspiring woman, she showed us how to showcase our confidence and behave in the best manner to please the interviewer. She also explained in detail about the body language and dressing one should look upon while appearing for a business-related event or any formal meet.</p> <p><u>Events Co-Head Vedali Pawar:</u></p> <p>" I would like to begin by appreciating the efforts and visual learning brought up by the speakers by indulging in fun, youthful and learning activities which lead to the involvement of the audience which gave practical implementation knowledge along with the in-person difficulty we could face or experience further such incident which leads to confidence development and gave a sense of acting and behavior psychology which one should maintain to behave in a particular manner for the particular situation demanding I would like to bring one of the facts which I could mirror recall that one should keep the elbow and a 90 degree and give a firm grip while handshake and try to avoid politician handshake and specially patting on the hand or back while professionally "</p> <p><u>Digital Publicity Head Vedant Bherde:</u></p> <p>It was a necessary event for people like me who are entering the professional world. This event literally changed the way I dress, communicate, think, and other important etiquettes. This event has undoubtedly made my life a little easier in the coming professional years.</p>

PRO Aaroh Vishwakarma:

The training on etiquette was conducted at my pace, It took the time to develop and explore different communication platforms, and she explained and outlined the benefits of each of them step by step. She was very open to us picking the right platform that worked best for us.

"Our team truly enjoyed themselves, and I myself feel better equipped to put my best foot forward in business as well as life. Have a great year, and best wishes!"





"We'll all be working on our business dining, networking and interpersonal communication skills. The activities were a great way to learn, and kept our team engaged the whole session.

Vice-President Ronit Murpani:

The seminar was an immaculate experience for all the participants, The teachings by rianna ma'am were very very insightful and she threw light upon the basic things we generally miss during our Interview preparation i.e. Soft Skills. From activities to ppt and to general doubt solving, the session had everything. Thank you ma'am for that amazing session, we learnt a lot of things which will be for our greater good when we sit for our placements.

President Ambika Sanap:

The session on Business etiquettes and Resume Building by Rianna Ma'am was very insightful. The way Ma'am was explaining points was quite unique and interesting which caught the attention of students. The session was quite interactive due to which students could understand all the concepts explained. Overall, it was a great session which also helped in boosting our confidence.

Prepared By:	Pratyush Raut - Documentation Head			
Signature:	Documentation Head 	Vice President 	President 	Convener 

Activity Report 2022-23

Activity	FPGA & ARM: Another approach to Embedded System
Date	24 th September 2022
Time	5:00 pm to 6:30 pm
Description	<p>FPGA & ARM Event was organized in online mode on MS Teams. The Main purpose of this event was to coach the students about how we can create and understand FPGA (Field programmable gate array and its Industry applications). This event was organized by ETSA in collaboration with ISTE. The event commenced at 5 pm in the evening by the committee members, Veershree Patil and Vrutika Pillai, of ETSA and ISTE, with the help of our convenors Prof. Swapnil Ashtekar sir & Prof. Vijay Purohit sir. The guest speaker for the event was Mr. Rahul Pandey. He is currently pursuing M.Tech in Embedded Systems from the Vellore Institute of Technology. He is an intern at Intel Corporation as the system validation engineer and an alumnus of Vidyalankar Institute of Technology from the EXTC department.</p> <p>In the beginning of the session, Mr. Rahul Pandey Sir shared a ppt which started with his Introduction and his social media ID's, including his LinkedIn account. Later, Mr. Pandey mentioned a few rules that were to be followed throughout the session. The History of FPGA was briefly discussed, as the session moved forward, he explained more about FPGA (which includes FPGA Architecture, FPGA vs ASIC and their Advantages) via different images and circuits. The benefits of FPGA were also explained along with the differences in comparison to various software. Later, a Q and A session was taken by sir. He, then started with the ARM (Advances RISC Machines) in which he explained about the importance of ARM and why ARM is backbone technology. At the end, he conversed on the future scope of FPGA and ARM. He ended the session with an impactful statement, <u>"Itna Network banao ki referral dene wala kya, Interview lene wala tak dost nikle"</u>. A Q and A session was held again to Clarify the doubts of the students.</p> <p>As the end of the event was approaching, there was a sense of satisfaction and happiness on the faces of the students who were a part of that event. The vote of thanks was given by Vrutika Pillai by appreciating everyone on the behalf of ETSA and ISTE. In the end, a feedback form was circulated and in</p>

this way the session ended at 6:30 pm successfully.

Images:



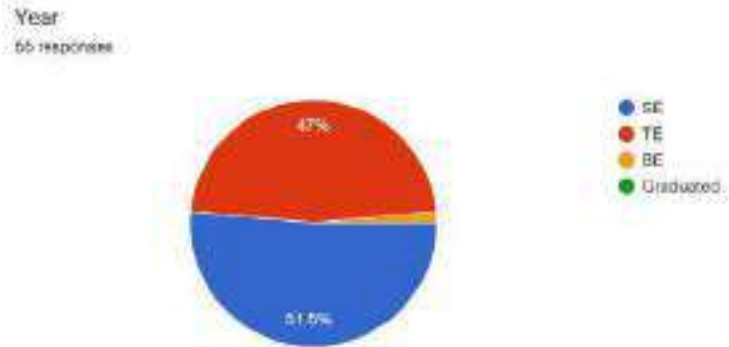


Department of Information Technology

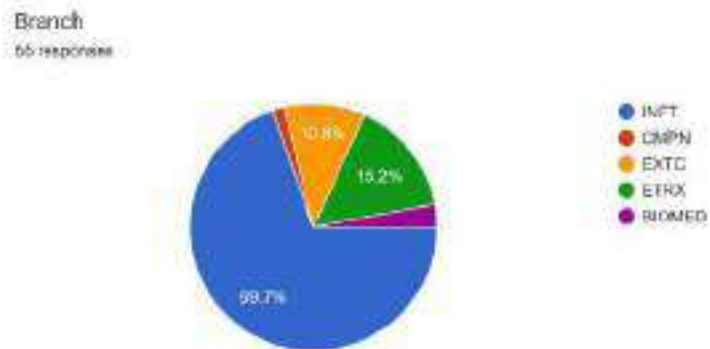
Convener:	Prof. Bhanu Tekwani
Title:	Report of Event Entitled " Cyber Security and Z-Scalar 101 "
Objective:	Detailed description of the Event
Activity Date & Day:	05/11/2022 05 th November 2022 (Saturday)
Time & Venue:	11:00 am to 02:00 pm, M413 (Offline)
Conducted By:	ITSA – Information Technology Student Association
Contents:	<ul style="list-style-type: none">❖ Event Details❖ Faculties Involved❖ Registration Details and Analysis❖ Event Summary❖ Event Glimpse❖ Event Feedback❖ Participant Suggestions❖ Faculty Feedback
Event Details:	<ul style="list-style-type: none">❖ <u>Date:</u> November 05th ,2022❖ <u>Venue:</u> M413(offline)❖ <u>Time:</u> 11:00 pam to 02:00 pm❖ <u>Number of Registrations:</u> 66 registrations❖ <u>Number Of Participants Present:</u> 31 participants were present❖ <u>Faculties Involved:</u> 1 Faculty❖ <u>Certificates Issued:</u> 31 students received certificates
Faculties Involved:	(i) Prof. Bhanu Teckwani

**Registration
Details and
Analysis:**

❖ **Year Wise Distribution of Responses:**



❖ **Department Wise Distribution of Responses:**



Event Summary:	<p>ITSA has been successful in organizing Cyber Security and Z-Scalar 101 Event. It took place on 5th November 2022 in M413 Block . Under the guidance and supervision of Prof. Bhanu Teckwani, Team ITSA with all the heads & core successfully organized the event. There were a lot of participants from INFT branch and participants were also from Other Branches, which were very much enthusiastic and excited about the event.</p> <p>The seminar was conducted by Cybersecurity expert Mr. Kunal Pawar who works at Infosys Pvt Ltd as a System Engineer. The host of the event Miss. Mrunmai Patil introduce about speaker and event. At first it was an intro related to topics like 'what is cybersecurity', 'what is cybercrime' and how is the static data related to this area increasing during the covid pandemic? In short, the terms you need to get started with cybersecurity are explained by Mr. Kunal. After an in-depth introduction to the topic like VPNs, IP addresses, Security Protocol and Mac address routing, Mr. Kunal explained the pros and cons of this technology and how his cyber-based company Z-Scalar tried to solve the problem with his cyber knowledge also introduced some advanced tools, concepts and basics of CIA(Confidentiality Integrity and Availability) services provided by company. After about one hour and half later, guest speaker posed cybersecurity questions and doubts to all attendees. At the same time, based on these questions, he explained new technical concepts such as virtual databases, cloud computing and what is metadata. How the security architecture of z-scalar works. The last part and perhaps the most interesting part in which guest ask specific questions about how to hack certain systems and has participants answer those questions. What are the possible attacks against a particular system and what measures are in place to prevent this. Overall, Session was quite informative and helpful to gain knowledge related to Cybersecurity field and also amazing response from participants was another reason for the success of event.</p>
-----------------------	--

Event Glimpse:

Event Start

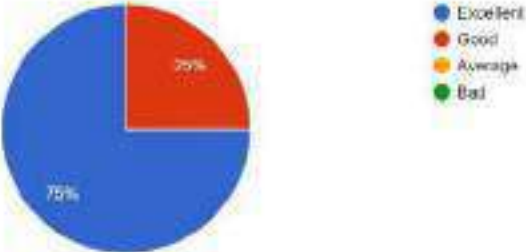


❖ Explanation of Concepts







Event Conclusion



<p>Overall Event Feedback Analysis:</p>	<p>The following are the analysis retrieved from feedback form floated for participants:</p> <p style="text-align: center;"><u>Overall Event Feedback</u></p> <p>How was your experience in the event ? 4 responses</p>  <table border="1"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Excellent</td> <td>75%</td> </tr> <tr> <td>Good</td> <td>25%</td> </tr> <tr> <td>Average</td> <td>0%</td> </tr> <tr> <td>Bad</td> <td>0%</td> </tr> </tbody> </table>	Category	Percentage	Excellent	75%	Good	25%	Average	0%	Bad	0%
Category	Percentage										
Excellent	75%										
Good	25%										
Average	0%										
Bad	0%										
<p>Participants Suggestions and Feedbacks</p>	<ul style="list-style-type: none"> (i) It was really a nice event. Learnt lot from this... (ii) Interactive (iii) Got to lead about z-scalar and cyber security (iv) Really amazing event & well explained !! 										

<p>Faculty Feedback:</p>	<p><u>Prof.Bhanu Teckwani:</u> The event was organized very well. The Speaker was explaining the points nicely with real life examples. The Session experience was great and the explanation of all concepts was up to the mark.</p>
---------------------------------	---

<p>Prepared By:</p>	<p>Pratyush Raut - Documentation Head</p>
----------------------------	---

<p>Signature:</p>	<p>Documentation Head</p> 	<p>Vice President</p> 	<p>President</p> 	<p>Convener</p> 
--------------------------	---	---	--	---



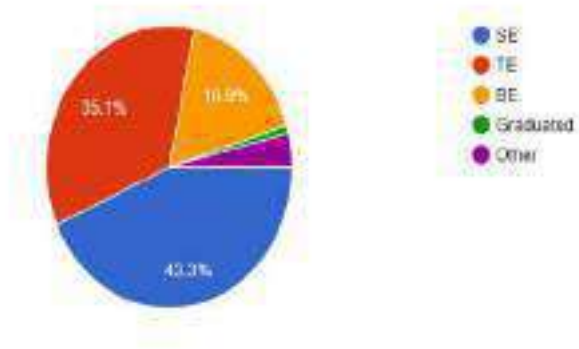
Department of Information Technology

Convener:	Prof. Bhanu Tekwani
Title:	Report of Event Entitled “ Google Big Query ”
Objective:	Detailed description of the Event
Activity Date & Day:	17/09/2022/17 th September 2022 (Saturday)
Time & Venue:	1:30 to 3:30, MS Teams (Online)
Conducted By:	ITSA – Information Technology Student Association
Contents:	<ul style="list-style-type: none">❖ Event Details❖ Faculties Involved❖ Registration Details and Analysis❖ Event Summary❖ Event Glimpse❖ Event Feedback❖ Participant Suggestions❖ Faculty Feedback
Event Details:	<ul style="list-style-type: none">❖ <u>Date:</u> September 17 ,2022❖ <u>Venue:</u> MS Teams (Online)❖ <u>Time:</u> 1.30 pm to 3.30 pm❖ <u>Number of Registrations:</u> 231 registrations❖ <u>Number Of Participants Present:</u> 125 participants were present❖ <u>Faculties Involved:</u> 2 Faculties❖ <u>Assignment Quiz Submission:</u> 93 Participants attempted quiz❖ <u>Certificates Issued:</u> 101 students received certificates
Faculties Involved:	(i)Professor Prakash Parmar (ii)Professor Sneha Annapannavar

**Registration
Details and
Analysis:**

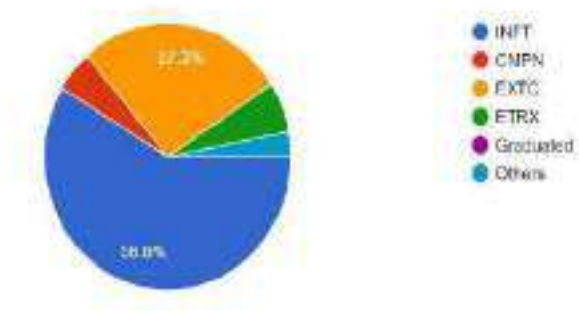
❖ **Year Wise Distribution of Responses:**

Year
271 responses



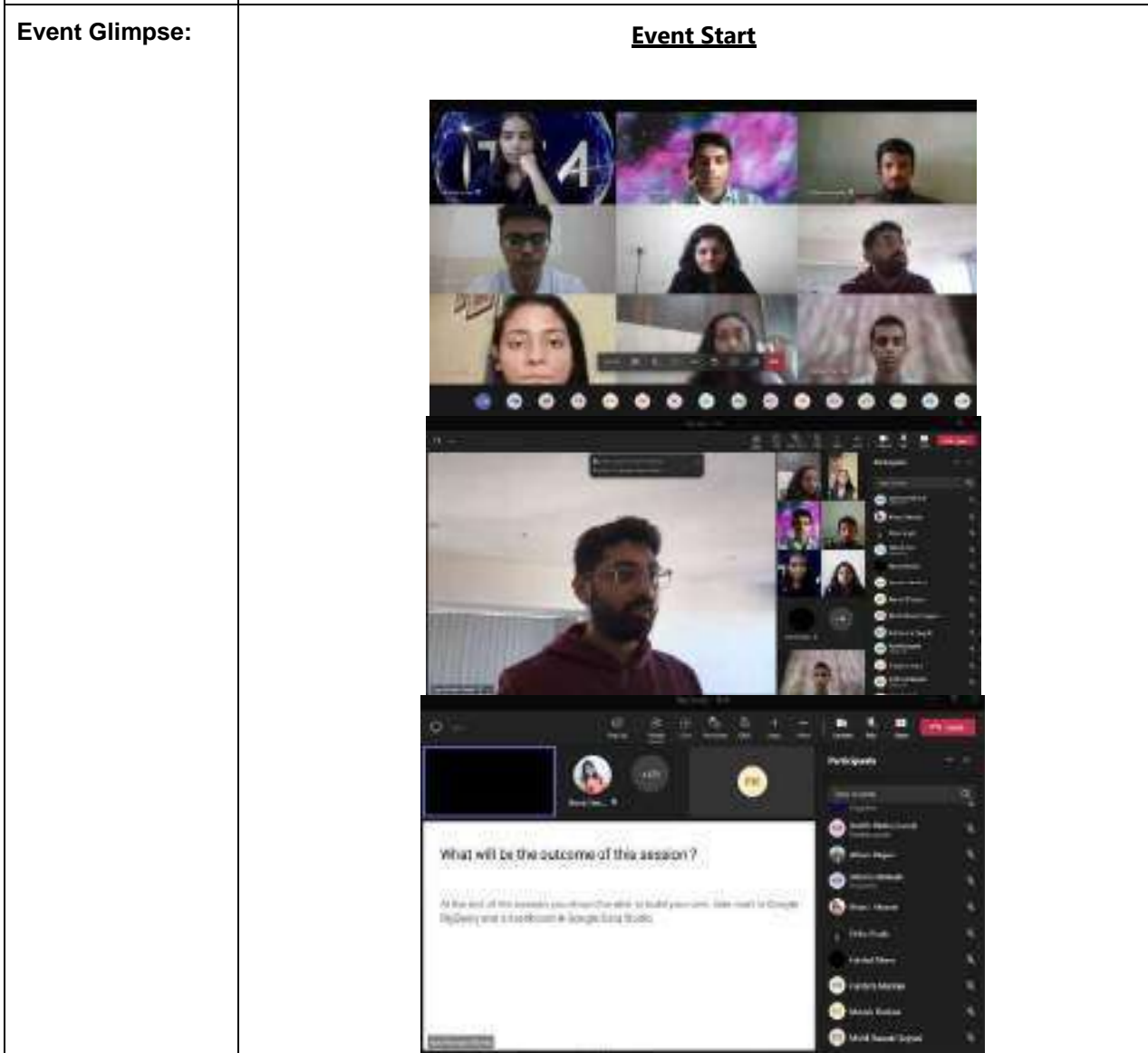
❖ **Department Wise Distribution of Responses:**

Branch
99 responses



Event Summary: ITSA has been successful in organizing Google Big Query Event. It took place on 17th September 2022 on MS Teams. Under the guidance and supervision of Prof. Bhanu Teckwani, Team ITSA with all the heads & core successfully organized the event. There were a lot of participants from INFT branch and participants were also from VSIT and other colleges, which were very much enthusiastic and excited about the event.

The Speaker Ajay Moorjani firstly introduced himself and his work at easyship company. He briefly told everyone about how his overall journey started, and his alumni batch and pass out-year, etc. He also spoke about the different challenges he faced and about the opportunities he found. Later in the event, the speaker "Ajay Moorjani" sir also took some live "Hands on Demo-Lab" to introduce Big Query Tools. Initially before the demonstration, a short theoretical part was taken to illustrate how Big Query works. And general terms like ETL (Extract Transform Load) and ELT (Extract Load Transform) were introduced. At the ending of the event sir resolved multiple queries asked by the students about the Big-Query. The Possible sources of learning Big-Query related terms were resolved by them. Overall, Session was great and amazing response from participants was another reason for the success of event.



❖ Explanation of Concepts

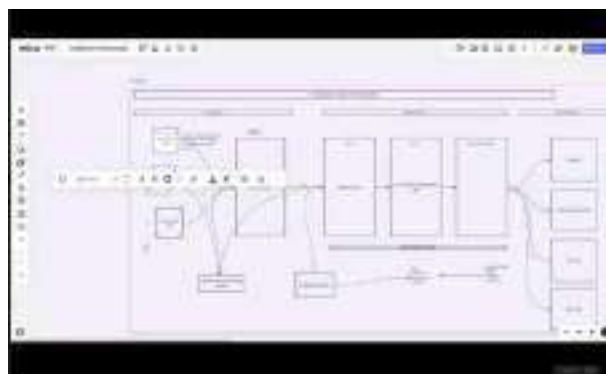
1. What is a Operational Data Source ?



2. What is Data warehouse ?



3. Data Utilisation





Event Conclusion



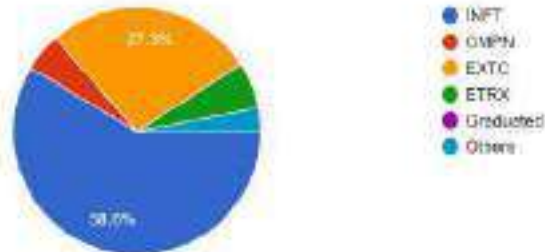
--	--

Overall Event Feedback Analysis:

The following are the analysis retrieved from feedback form floated for participants:

Overall Event Feedback

Branch
99 responses



Rating of Event (Scale of 1-5)

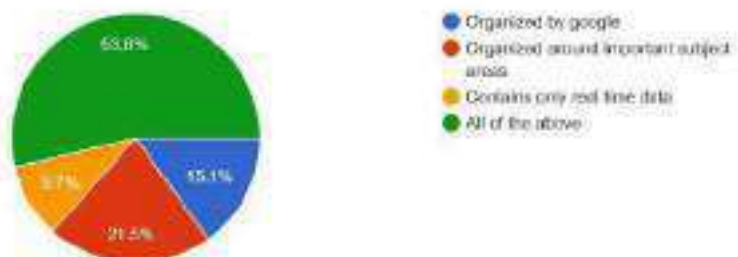
Rate the Event on scale of 1 to 5.
99 responses

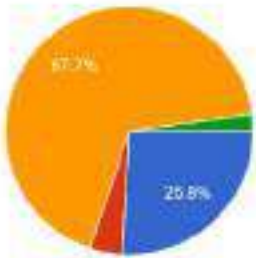
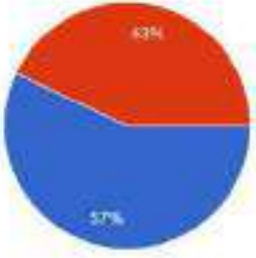
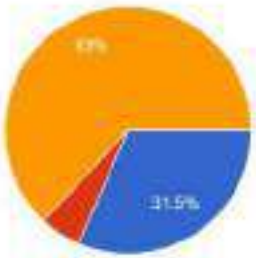






Feedback of Assignment Questions

- What is Data Warehouse?**
- In data Warehouse DSS stands for?**
- Is Big Query free?**
- What kind of SQLs does big query support?**
- What are the permissions that are required to create a table?**

A data warehouse is
93 responses



	<p>In data Warehouse DSS stands for _____: 93 responses</p>  <table border="1"> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Decision Support System</td> <td>67.0%</td> </tr> <tr> <td>Decision Support Stream</td> <td>25.8%</td> </tr> <tr> <td>Decision Study System</td> <td></td> </tr> <tr> <td>None of the above</td> <td></td> </tr> </tbody> </table> <p>Is Big Query free ? 93 responses</p>  <table border="1"> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Yes</td> <td>57%</td> </tr> <tr> <td>No</td> <td>43%</td> </tr> </tbody> </table> <p>What kind of SQLs does Big query support? 92 responses</p>  <table border="1"> <thead> <tr> <th>Option</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Standard SQL</td> <td>31.5%</td> </tr> <tr> <td>Legacy SQL</td> <td>17%</td> </tr> <tr> <td>All of these</td> <td>48%</td> </tr> <tr> <td>None of the above</td> <td></td> </tr> </tbody> </table>	Option	Percentage	Decision Support System	67.0%	Decision Support Stream	25.8%	Decision Study System		None of the above		Option	Percentage	Yes	57%	No	43%	Option	Percentage	Standard SQL	31.5%	Legacy SQL	17%	All of these	48%	None of the above	
Option	Percentage																										
Decision Support System	67.0%																										
Decision Support Stream	25.8%																										
Decision Study System																											
None of the above																											
Option	Percentage																										
Yes	57%																										
No	43%																										
Option	Percentage																										
Standard SQL	31.5%																										
Legacy SQL	17%																										
All of these	48%																										
None of the above																											
<p>Participants Suggestions and Feedbacks</p>	<p>(i)The knowledge and experience of the speaker about the topic was vast and amazing.</p> <p>(ii)The Session was interactive, informative and covered in-depth information about topics like data warehousing and other concepts of Big Query.</p> <p>(iii)Request from the participants to conduct more such webinars, seminars and other technical events.</p>																										

Faculty Feedback:	<p><u>Prof.Prakash Parmar:</u></p> <p>Thanks to the entire team of ITSA for giving this opportunity. The event was very informative and organized very well. The Session experience was great and the explanation of all concepts was up to the mark.</p> <p><u>Prof.Sneha Annapannavar:</u></p> <p>The event was organized very well. The Speaker was explaining the points nicely with real life examples. The hands-on teaching was great.</p>			
Prepared By:	Pratyush Raut - Documentation Head			
Signature:	Documentation Head 	Vice President 	President 	Convener 

ACTIVITY REPORT FOR EESA's HACKATRONICS

Event Name	EESA's flagship event 'HACKATRONICS'
Event Details	Date: 13 th and 14 th April 2023 Day : Thursday and Friday Time: 11 am to 4 pm
Event Venue	Day 1: M-413 Day 2: Online (Teams Platform)
Event Co-ordinator	Convener of EESA, Chairperson, Co-chairperson, General Secretary, Heads, and Core Members of EESA
Target Audience	All students of VIT
Objectives of event	<ul style="list-style-type: none"> • To provide a platform to students to showcase their caliber in the diversified domains of AI/ML and Data Science, Embedded Systems and IOT, Robotics, Web development and App Design. • To give them an opportunity to translate their knowledge and innovative into practical projects • To provide a platform for the participants to showcase their skills to other students coming in as audience.
Event Preparations	Preparations for the event were collectively done by chairpersons, secretary, heads and core members of EESA.
Description	<p>INTODUCTORY SPEECH</p> <p>The ribbon cutting and a ceremonial beginning was done by EESA's Chairperson 'Ms. Niharika Parab' and Co- Chairperson 'Mr. Prathamesh Satam' addressed the crowd and greeted everyone to the start of the event.</p> <p>Mr. Shashank Dwivedi gave the opening speech. He explained the rules and regulations and gave everyone a gist of the event about to commence.</p> <p>The Main Event</p> <p>The Hackatronics had seven teams participating from across engineering branches and domains. The contestants had selected topics as per the modern industry requirements. The seven teams each consisting of 2-5 members were:</p> <ol style="list-style-type: none"> 1) AlphaGammass 2) Script squad 3) Bug squashers

- 4) Cookie byte
- 5) Discord premi
- 6) Team Kode

On day 1 of the event, the three internal judges were Mrs. Debarthi Ghosal, Mr. Amol Sakhalkar and Mr. Pratik Mhatre. The day saw the contestants presenting their projects and ideas for the future to the judges. Three teams were eliminated on the 1st day leaving the four best teams.

With the same enthusiasm, on the 14th of April, day 2 of Hackatronics was resumed. This day was held online owing to the holiday for Babasaheb Ambedkar Jayanti. The external judges on this day were Mr. Anand Dubey, Mr. Sanjay Chavan and Mr. Vinayak Shete . The judging round was held from 2:00- 3:30 PM. The judges critically evaluated all the projects. The uniform excellence did muddle their ability to reach a consensus immediately. After much deliberation they finally declared a winner. The winners were Discord Premi with an average score of 66.66 across parameters. Alpha Gammas with an aggregate of 58.09 were placed as runner ups.

CONCLUSION AND VOTE OF THANKS

- The Hosts of the Events further proceed towards the conclusion of Handover Ceremony event with a 'Vote of Thanks'.
- **Mr. Aman Kumar** from Events Core gave a 'Vote of Thanks' to everyone for making 'HACKATRONICS', EESA's flagship event a raging success. He also thanked the students who showed up in great numbers and all the judges for providing their valuable time and input to guide and evaluate our students.
- Then the event concluded with a photography session of the Speaker, Convener and the Team EESA.

Accomplishments of the Event

AI/ML and Data Science, Embedded Systems and IOT, Robotics, Web development and App Design are all not only emerging fields of great potential but also essential skills to have for the future. With this agenda in mind, they were chosen as the Domains for everyone's benefit. The contestants really dug up problems we all

	<p>face in our everyday life and provided inspiring solutions to them. Though there was a competition, the essence of the event was the effort all the participants put in to work in harmony. A price pool of Rs. 8000 was assigned to the event. The prizes would support the winners and also provide encouragement to the other participants to do better next time. The highlight of the event was the interest shown by the non-participating, especially FE students in the projects. This will surely inspire them to go out there and explore the world beyond the syllabus and enhance their knowledge and upskill themselves with all opportunities being provided not only by EESA but also other organizations.</p>											
Attendees	<table border="1" data-bbox="563 745 1434 866"> <thead> <tr> <th data-bbox="563 745 780 824">No of Students</th> <th data-bbox="780 745 997 824">No of Staff</th> <th data-bbox="997 745 1214 824">No of faculty</th> <th data-bbox="1214 745 1434 824">Total</th> </tr> </thead> <tbody> <tr> <td data-bbox="563 824 780 866">50</td> <td data-bbox="780 824 997 866"></td> <td data-bbox="997 824 1214 866">4</td> <td data-bbox="1214 824 1434 866">54</td> </tr> </tbody> </table>				No of Students	No of Staff	No of faculty	Total	50		4	54
No of Students	No of Staff	No of faculty	Total									
50		4	54									

ACTIVITY REPORT FOR EDWISE INTERNATIONALS EVENT

Event Name	"Embrace global education on your fingertips" Session on Studying Abroad by EDWISE INTERNATIONAL.
Event Details	Date: 21/02/2023 Day : Tuesday Time: 4:00 pm to 5:00 pm
Event Venue	B-105 (B-Block)
Event Co-Ordinator	Convener of EESA, Chairperson, Co-chairperson, General Secretary, Heads, and Core Members of EESA
Target Audience	Targeted towards 1 st year students
Objectives of event	<ul style="list-style-type: none"> To make students aware of the opportunities to study abroad To inform students of the advantages of studying abroad To make them familiar with career opportunities arising in various fields.
Event Preparations	Preparations for the event was collectively done by chairpersons, secretary, heads and core members of EESA
Description	<p>INTODUCTORY SPEECH</p> <p>The hosts of the event greeted and welcomed everyone for the event at the beginning.</p> <p>Then from Events Core Mr. Harshad Bokphode gave an introductory speech and short information about the event of Edwise Internationals and welcomed the speakers "Mr. Tom Sushakumar and Ms. Afreen Khan(Australian councilor)"</p> <p>INTODUCTION FROM SPEAKER</p> <ul style="list-style-type: none"> The speakers provided students insight into what education abroad is about. Speaker also mentioned and explained some points about the content going to be discussed at the guest lecture event using PowerPoint Presentation. <p>IN DEPTH EXPLANATION BY THE INDUSTRY EXPERT SPEAKER</p> <ul style="list-style-type: none"> Some reasons to study abroad are advanced technologies, student centric education, international exposure, better job

	<p>opportunities and also immense competition in India which caps our potential.</p> <ul style="list-style-type: none"> • Edwise provides various services to students to help them realize their dream of studying in a reputed Institution abroad. Some of those services are: • Aptitude testing: preparation for various exams such as GRE, IELTS etc. • Selection of appropriate university/course: choosing the right university and course considering all factors is very important. • Admission process: from sending letter of recommendations to self introduction letters, to sending in the right applications, Edwise is there at every step. • They would also help with the financial aspect of taking loans, securing scholarships. • And last but not the least, travel plans are also looked at. <p>QNA SESSION</p> <ul style="list-style-type: none"> • Many Students asked various queries on the topic and had a QNA Session with the Speaker. • Future Aspects as well as career options were guided by the speaker to the students. <p>CONCLUSION AND VOTE OF THANKS</p> <ul style="list-style-type: none"> • The Hosts of the Events further proceed towards the conclusion of Handover Ceremony event with a 'Vote of Thanks'. • Mr Shreyansh Kanojia from Events Core gave a 'Vote of Thanks' to everyone for bringing this event of Guest Lecture of 'EDWISE INTERNATIONALS' to a success. He also thanked the students and Mr. Tom Sushokumar and Ms. Afreen Khan for their outstanding explanation and guidance at the Event. • Then the event concluded with a photography session of the Speaker, Convener and the Team EESA.
--	---

Attendes	No	of	No of Staff	No of faculty	Total
	34		--	1	35

Convener, EESA

Prof . Akshatha Bhat

Chairperson, EESA

Ms. Niharika Parab

Department of Electronics Engineering

"Technical Paper Review "

"A Study on Cloud Computing Services" Dr. CH. V. Raghavendran, Dr. G. Naga Satish, Dr. P. Suresh Varma, Dr. G. Jose Moses".

Presented by
Srushti Bomble

Guided by
Prof. Pranita Padhye

Introduction

- **Joseph Carl Robnett Licklider** in the **1960s** developed Cloud Computing with his work on ARPSNET to interact with people and data from in any place at any time. In **1983, CompuServe** presented its users as a little amount of disk space that could be used to accumulate any files they choose to upload.
- Simply put, Cloud working out is the distribution of Computing services-including **servers, database, networking, storage, software, analytics** and **intelligence-over the Internet (“the Cloud“)** to offer faster revolution, flexible resources, and economies of scale. Cloud working out is the delivery of computing services such as servers, storage, database, networking, software, analytics, intelligence, and more, over the Cloud (Internet). Cloud Computing gives a different to the on-premises datacentre.

Characteristics of Cloud Computing



On-demand self-service.



Broad network access.



Resource pooling.



Rapid elasticity.



Measured Service.

Types of Clouds



Public Cloud



Private Cloud



Hybrid Cloud



Community
Cloud

Services Of Cloud Computing

Software-as-a-Service (SaaS)

Platform-as-a-Service (PaaS)

Infrastructure-as-a-Service (IaaS)

Big-Data-as-a-Service (BDaaS)

Hadoop-as-a-Service (HaaS)

Big-Data-as-a-Service (BDaaS)

- BDaaS provides a cloud-based structure that presents end to-end big data solutions to companies.
- It is a combined structure of Hadoop as a Service (HDaaS), Data-as-a-Service (DaaS) and Data Analytics as a Service (DAaaS).

Hadoop-as-a-Service (HaaS)

- Hadoop is a keystone technology for many big data projects and applications.
- This is a data storage processing system that enables data storage, file sharing, data analytics etc.
- With growing of social media and Internet communication, Hadoop is being largely used by companies ranging from Facebook to Yahoo. According to Research and Markets, the Hadoop-as-a-service market will grow approximately by 85% year by year from 2014 to 2019. HaaS has emerged as a replacement to On-premises Hadoop.

Benefits of Hadoop-as-a-Service (HaaS)

- Managed Hadoop – No need to hire a system admin
- Ease of use – Built to get started quickly
- No hardware/infrastructure – Just add/remove servers
- as you need it
- Support – Each company has a team of Hadoop experts to help when needed

Conclusion

- Today cloud computing is top of mind with IT companies around the world. Cloud computing has the potential of offering enormous benefits for companies that use it for the deployment and scaling of IT for business processes.
- Every day, millions of customers are using online cloud services viz., Apple iCloud, Gmail and Dropbox across desktop and mobile devices.

THANK YOU

Guidelines for case study:

1. Make a group of not more than 3 students
2. Select the topic from the list given below or you can select any recent topic from the networking field
3. Every group will prepare a presentation based on the topic which should include history/background, objective, working, applications, and future scope for the topic (Maximum 20 slides)
4. Along-with the presentation every group will prepare a case study word document with following specifications: -
 - Font: Times new Roman, size 12 with 1.5 line spacing
 - Diagram or picture should be center aligned
 - Complete document should be justified
 - Should have proper header and footer
 - Page number to be mentioned at the bottom
 - Number of pages of the report can vary from 15 to 40 pages
5. Group should be from the same division.

Case study topics

- 1) Interfacing of Bluetooth module
- 2) Interfacing of Zigbee module
- 3) Interfacing of Wi-Fi module
- 4) Emerging concepts in next generation networks
- 5) 5G and Wi-Fi 6
- 6) Evolution of Wi-Fi
- 7) IP over DWDM
- 8) Software defined networking
- 9) Storage area networks
- 10) C-RAN: Cloud Radio Access Network
- 11) Network Security evolution
- 12) Blockchain as a service
- 13) Virtualization
- 14) Big data analytics in mobile networking
- 15) Vehicle to everything services
- 16) Information Centric networking
- 17) Obsolete OSI model with entry of G.80x
- 18) Massive IoT
- 19) MANET
- 20) IEEE 802
- 21) Delay Tolerant Networks
- 22) Google App Engine
- 23) Virus and anti-viruses
- 24) Human Computer Interface
- 25) Network Traffic management

- 26) Internet Telephony
- 27) Service aware Intelligent GGSN
- 28) Optical satellite communication
- 29) Wireless Intelligent Networks
- 30) Real time transport protocol for VoIP
- 31) Security in cloud computing
- 32) Evolution of cloud computing
- 33) Fog computing
- 34) Implementation of firewall in simulator
- 35) Body Area Network
- 36) Study of various simulators for computer networks
- 37) Routing protocols in WSN
- 38) Green Computing
- 39) Multicast protocols in wireless networks
- 40) Mobile communications over internet protocol

- 1) Given the CIDR representation 20.10.30.35 / 27. Find the range of IP Addresses in the CIDR block.
- 2) Given the CIDR representation 100.1.2.35 / 20. Find the range of IP Addresses in the CIDR block.
- 3) Consider a block of IP Addresses ranging from 100.1.2.32 to 100.1.2.47.
 - a. Is it a CIDR block?
 - b. If yes, give the CIDR representation
- 4) Suppose a network with IP Address 192.16.0.0. is divided into 2 subnets, find number of hosts per subnet. Also, for the first subnet, find-
 - a. Subnet Address
 - b. First Host ID
 - c. Last Host ID
 - d. Broadcast Address
- 5) What is **not true** about subnetting?
 - a. It is applied for a single network
 - b. It is used to improve security
 - c. Bits are borrowed from network portion
 - d. Bits are borrowed from Host portion
- 6) In a class B, network on the internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts per subnet?
 - a. 4096
 - b. 4094
 - c. 4092
 - d. 4090
- 7) If the subnet mask 255.255.255.128 belongs to class C, find-
 - a. Number of subnets
 - b. Number of hosts in each subnet
- 8) If a class B network has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?
 - a. 1022
 - b. 1023
 - c. 2046
 - d. 2047
- 9) Consider the following subnet masks-

1. 255.0.0.0
2. 255.128.0.0
3. 255.192.0.0
4. 255.240.0.0
5. 255.255.0.0
6. 255.255.254.0
7. 255.255.255.0
8. 255.255.255.224
9. 225.255.255.240

For each subnet mask, find-

- a. Number of hosts per subnet
- b. Number of subnets if subnet mask belongs to class A
- c. Number of subnets if subnet mask belongs to class B
- d. Number of subnets if subnet mask belongs to class C

Problem Statement for Data structure

- .1. Given the pointer to the head node of a linked list, change the next pointers of the nodes so that their order is reversed. The head pointer given may be null meaning that the initial list is empty.

Example

Head references the list `1 → 2 → 3 → NULL`.

Manipulate the **next** pointers of each node in place and return **Head**, now referencing the head of the list `3 → 2 → 1 → NULL`.

Function Description

Complete the *reverse* function in the editor below.

reverse has the following parameter:

- *SinglyLinkedListNode pointer head*: a reference to the head of a list

Returns

- *SinglyLinkedListNode pointer*: a reference to the head of the reversed list

Input Format

The first line contains an integer *t*, the number of test cases.

Each test case has the following format:

The first line contains an integer *n*, the number of elements in the linked list.

Each of the next *n* lines contains an integer, the **data** values of the elements in the linked list.

Constraints

- $1 \leq t \leq 10$
- $1 \leq n \leq 1000$
- $1 \leq list[i] \leq 1000$, where *list[i]* is the *i*th element in the list.

Sample Input/output

The initial linked list is: `1 → 2 → 3 → 4 → 5 → NULL`.

The reversed linked list is: `5 → 4 → 3 → 2 → 1 → NULL`.

```
#include <bits/stdc++.h>

using namespace std;

class SinglyLinkedListNode {
public:
    int data;
    SinglyLinkedListNode *next;

    SinglyLinkedListNode(int node_data) {
        this->data = node_data;
        this->next = nullptr;
    }
};
```

```

class SinglyLinkedList {
public:
    SinglyLinkedListNode *head;
    SinglyLinkedListNode *tail;

    SinglyLinkedList() {
        this->head = nullptr;
        this->tail = nullptr;
    }

    void insert_node(int node_data) {
        SinglyLinkedListNode* node = new SinglyLinkedList
Node(node_data);

        if (!this->head) {
            this->head = node;
        } else {
            this->tail->next = node;
        }

        this->tail = node;
    }
};

void print_singly_linked_list(SinglyLinkedListNode* node, str
ing sep, ofstream& fout) {
    while (node) {
        fout << node->data;

        node = node->next;

        if (node) {
            fout << sep;
        }
    }
}

void free_singly_linked_list(SinglyLinkedListNode* node) {
    while (node) {
        SinglyLinkedListNode* temp = node;
        node = node->next;

        free(temp);
    }
}

/*
 * Complete the 'reverse' function below.
 */

```

```
* The function is expected to return an INTEGER_SINGLY_LINKED_LIST.
* The function accepts INTEGER_SINGLY_LINKED_LIST llist as parameter.
*/

/*
* For your reference:
*
* SinglyLinkedListNode {
*     int data;
*     SinglyLinkedListNode* next;
* };
*
*/

SinglyLinkedListNode* reverse(SinglyLinkedListNode* llist) {

}

int main()...
```

1. SSH Implementation:

Take any topology in packet tracer and implement SSH

```
ssh UserName@SSHserver.example.com
```

This command will cause the client to attempt to connect to the server

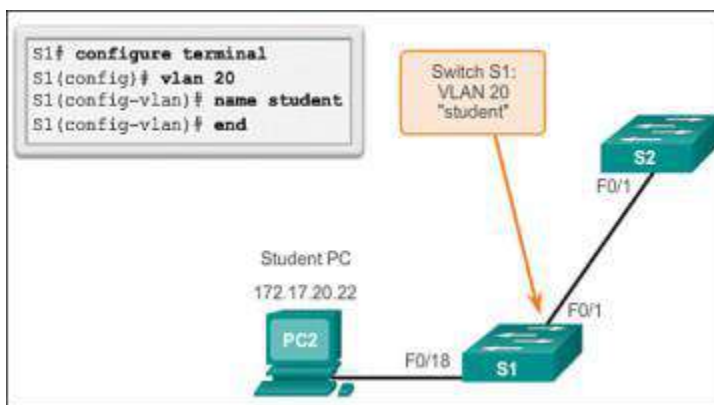
named *server.example.com*, using the user ID *User Name*. If this is the first time negotiating a connection between the local host and the server, the user will be prompted with the remote host's public key fingerprint and prompted to connect, despite there, having been no prior connection:

The output should be

```
The authenticity of host 'sample.ssh.com' cannot be established.  
DSA key fingerprint is 01:23:45:67:89:  
ab:cd:ef:ff:fe:dc:ba:98:76:54:32:10.  
Are you sure you want to continue connecting (yes/no)?
```

2. Implementation of VLAN

Create VLAN for following topology or you can use your own topology



Assignments and BSA

Poster/Infographics	Group Activity	Network Devices/OSI-ISO Model/TCP/IP Model
Take Home Test with quiz certificate	Individual Activity	IP Addressing https://www.proprofs.com/quiz-school/quizreport.php?title=njuxmzmwe6au&sid=281612318
Online certificate course	Individual Activity	Any topic related to networking; links are given below- <ol style="list-style-type: none"> https://learn.saylor.org/course/view.php?id=84 https://www.netacad.com/courses/networking/networking-essentials https://www.udemy.com/course/introduction-to-networking-for-complete-beginners/ (Rs.499/-) https://enterprise.edx.org/vidyalankar-institute-tech/course/LinuxFoundationX+LFS165x (free up to 1st July) https://www.netacad.com/courses/networking/networking-essentials (badge achieved)
Technical Research Paper Review with PPT	Group Activity	Sample papers given below- <ol style="list-style-type: none"> 1) Analysis of TCP/IP Header Attack and How to Prevent Hirushan Sajindra- 15 July 2021 Sri Lanka Institute of Information Technology 2) TCP/IP Protocol Security Problems and Defenses Zhi Kanmai 10 May 2021 School of Engineering and Technology, Xi'an Fanyi University, Xi'an, China 3) Connectivity Based Positioning System for Underground Vehicular Ad Hoc Networks International Journal of Computer Networks and Applications (IJCNA) Published By EverScience Publications ISSN : 2395-0455 4 April 2021 4) Research and Development on Cloud Computing Aliasghar Azma, Dalian University of Technology Nima Kianfar Khaje Nasir, Toosi University of Technology March 2021 5) Packet Reordering Metrics to Enable Performance Comparison in IP-Networks Pedro Rodrigues Torres, Eduardo Parente Ribeiro, Federal University of Paraná, Centro Politécnico, Curitiba, PR 81531-890, Brazil May 2020
Proproofs Quizzes	Individual Activity	3 certificates
Crossword	Individual Activity	OSI-ISO Model
Kahoot, join my quiz	Individual Activity	Based on each module
Youtube Videos	Individual Activity	Based on each module

Guest Lecture	Individual Activity	Recent Trends in networking
Google Quiz with certificate	Individual Activity	Based on each experiment
Youtube video links	CCN	<ol style="list-style-type: none"> 1. https://www.techtarget.com/searchnetworking/definition/OSI 2. https://www.youtube.com/watch?v=dEemt7m0GVQ 3. https://www.bmc.com/blogs/osi-model-7-layers/
	NGN	<ol style="list-style-type: none"> 1. https://www.accenture.com/in-en/insights/5g-index 2. https://www.youtube.com/watch?v=DrH-1505-Mg