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A.Y 2019-20

Institutional Summer Internship

Track: Data Networking and Cyber Security

Project Report on

Wireless Networking with DHCP and SMPT

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Designation, E&TC

DATA NETWORKING AND CYBER SECURITY

REPORT

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ABSTRACT :

- **EVERYTHING ABOUT OUR PROJECT :**

  Wireless technologies are ubiquitous and an essential aspect in modern computing and mobile devices. In particular, Bluetooth (BT), if not only from its namesake, has captured end-user attention and acceptance; however, few possess familiarity with it in much depth aside from the obligatory accessory add-on when purchasing a new mobile phone. This article serves as both an advanced-level continuous-read self-study and a quick reference to BT technologies by presenting its history concisely, technical specifications, notable exploitations, audit utilities, and securing recommendations. One will notice similarities in comparison to other wireless network technologies, such as Wi-Fi (802.11).

- **WHAT WE HAVE DONE :**

  In this project of ours, we have created a wireless network using Access Point and some protocols which lead to build a strong communication system between two devices in network using Cisco Packet Tracer. We have made this network by observing the current technological development.

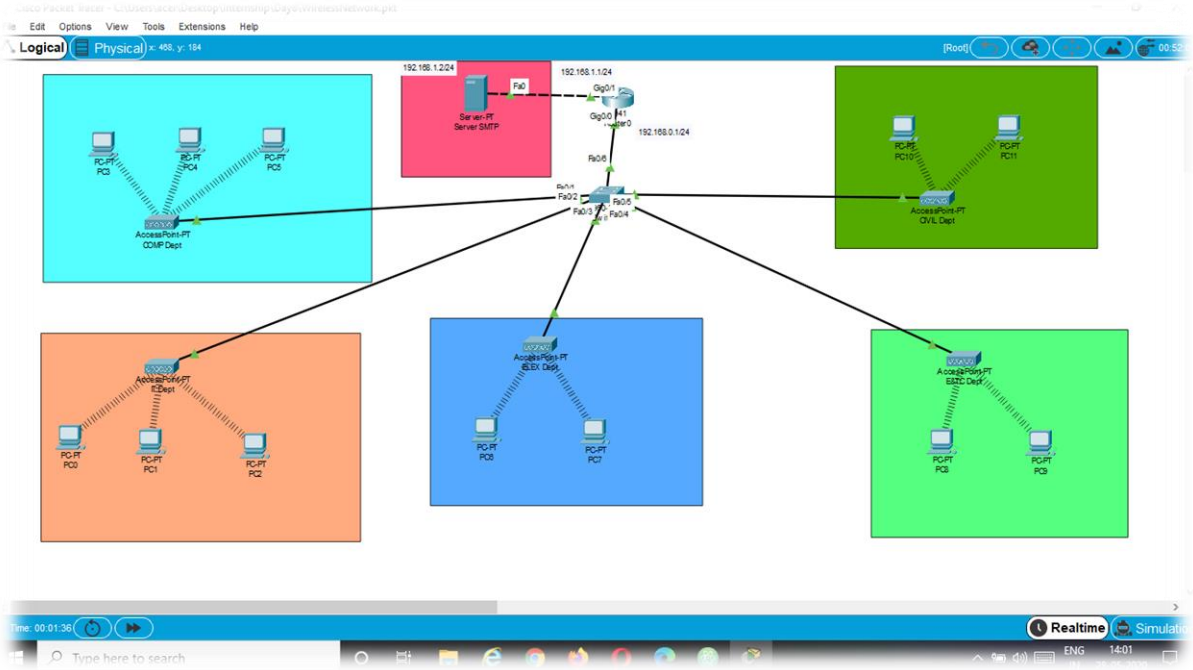
INTRODUCTION :

A **wireless network** is a computer network that uses wireless data connections between network nodes. Wireless networking is a method by which homes, telecommunications networks and business installations avoid the costly process of introducing cables into a building, or as a connection between various equipment locations. admin telecommunications networks are generally implemented and administered using radio communication. This implementation takes place at the physical level (layer) of the OSI model network structure. Now, the industry accepts a handful of different wireless technologies.

Each wireless technology is defined by a standard that describes unique functions at both the Physical and the Data Link layers of the OSI model. These standards differ in their specified signalling methods, geographic ranges, and frequency usages, among other things. Such differences can make certain technologies better suited to home networks and others better suited to network larger organizations.

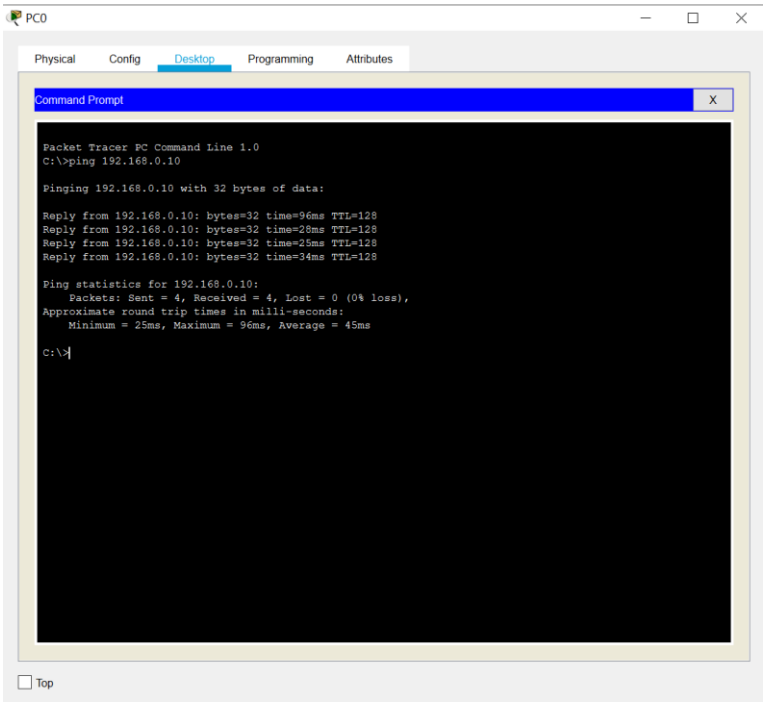
For homeowners, wireless technology is an effective option compared to Ethernet for sharing printers, scanners, and high-speed Internet connections. WLANs help save the cost of installation of cable mediums, save time from physical installation, and also creates mobility for devices connected to the network. Wireless networks are simple and require as few as one single wireless access point connected directly to the Internet via a router. For IP Addressing, there are DHCP routing method from which we can assign IP addresses to our devices automatically. And for Mail purpose, SMTP is used to transfer and receive mail at respective host. Most e-mail systems that send mail over the Internet use SMTP to send messages from one server to another; the messages can then be retrieved with an e-mail client using either POP or IMAP.

ARCHITECHTURE & TOPOLOGY :

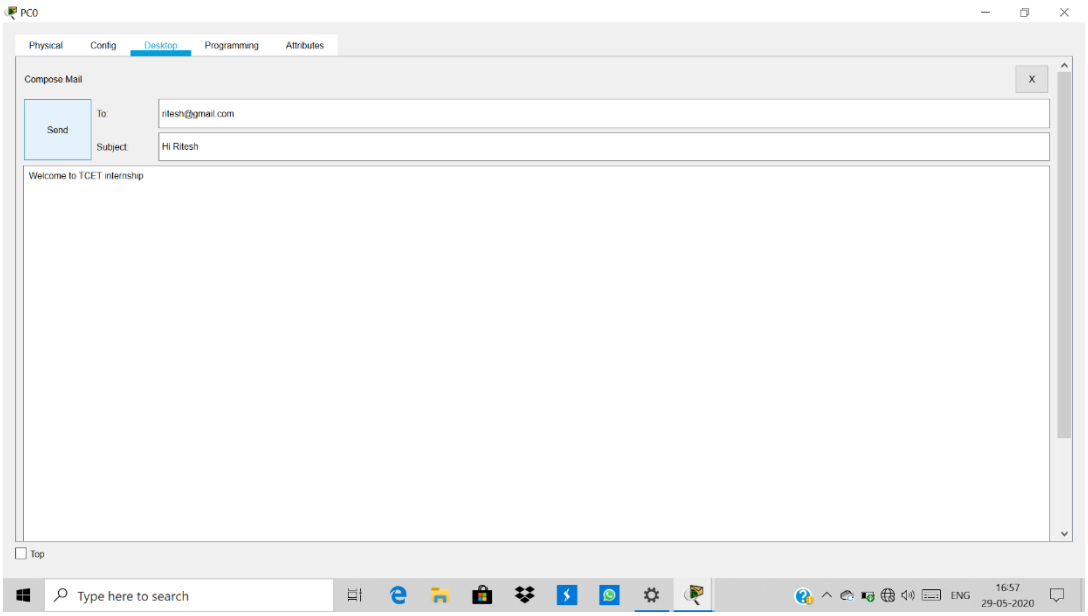


IMPLEMATATION :

1) Pinging a host computer :

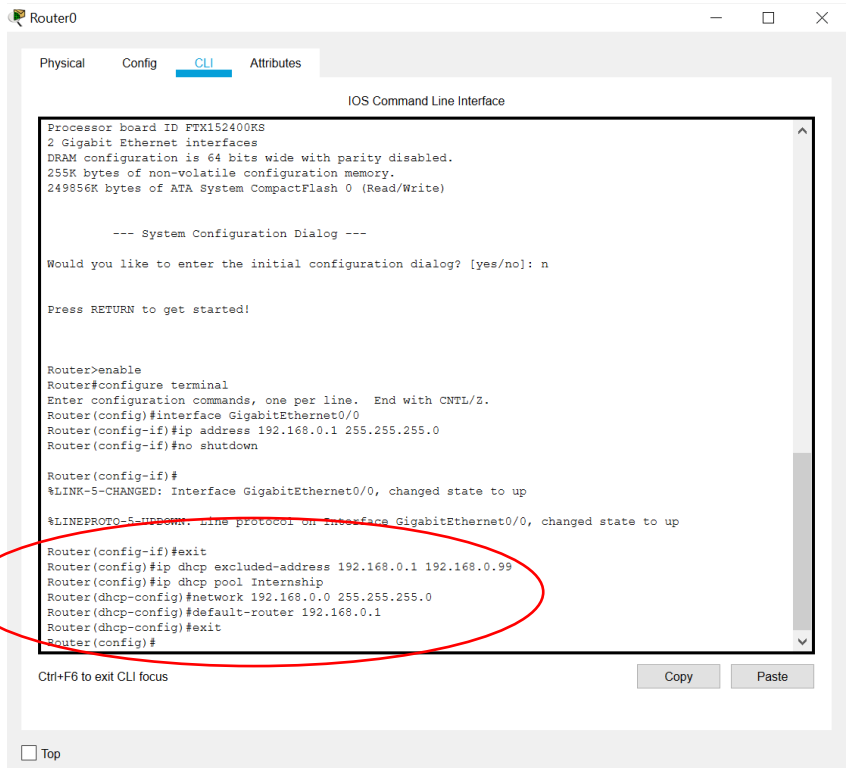


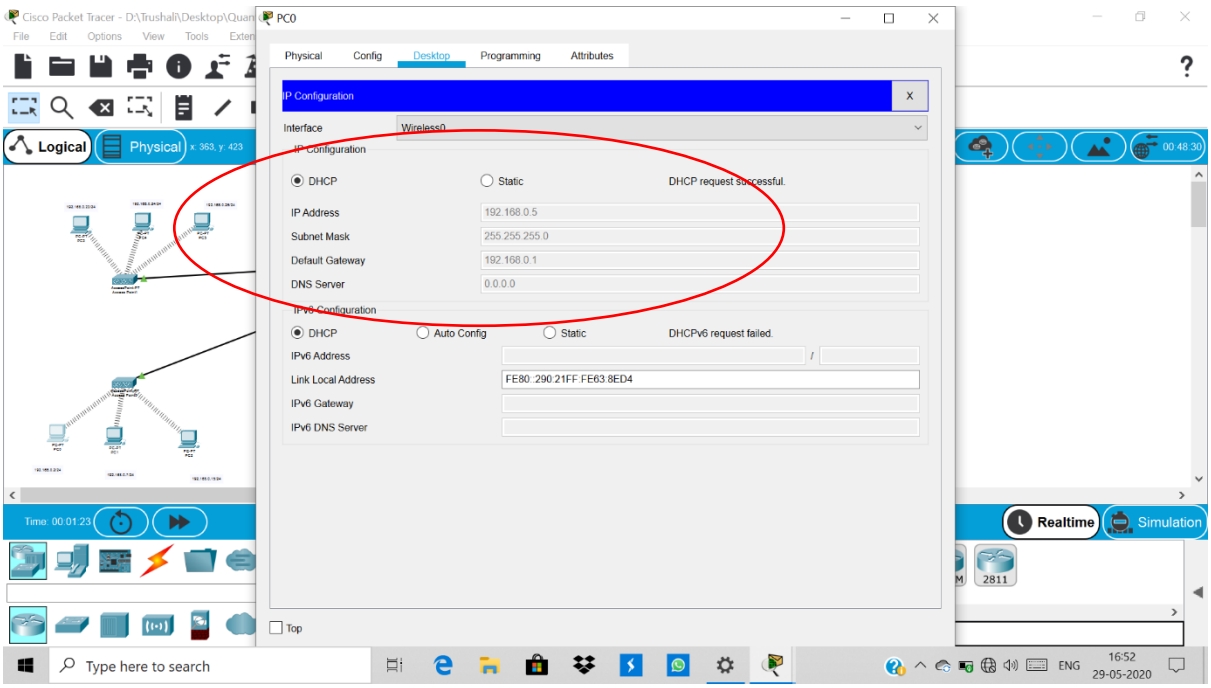
2) Sending an Email Through one host to another :



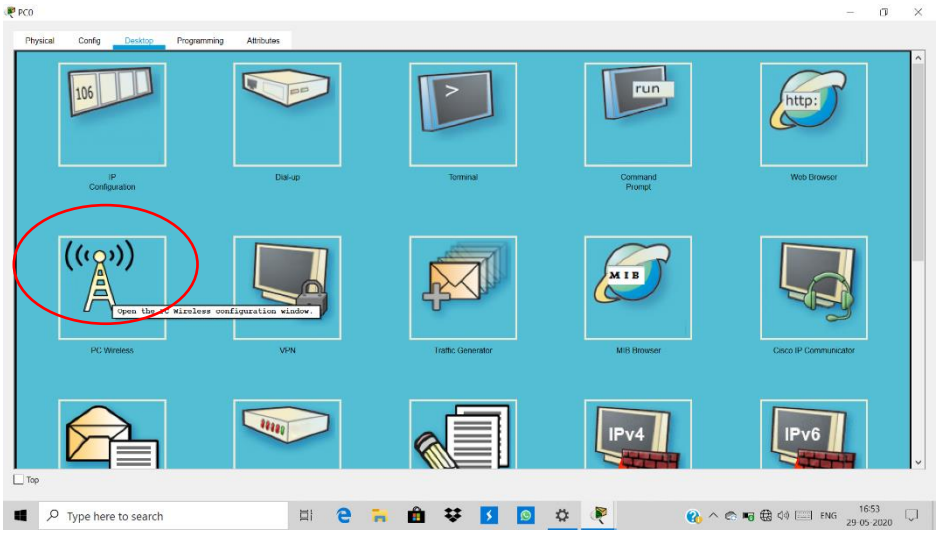
PROCEDURE :

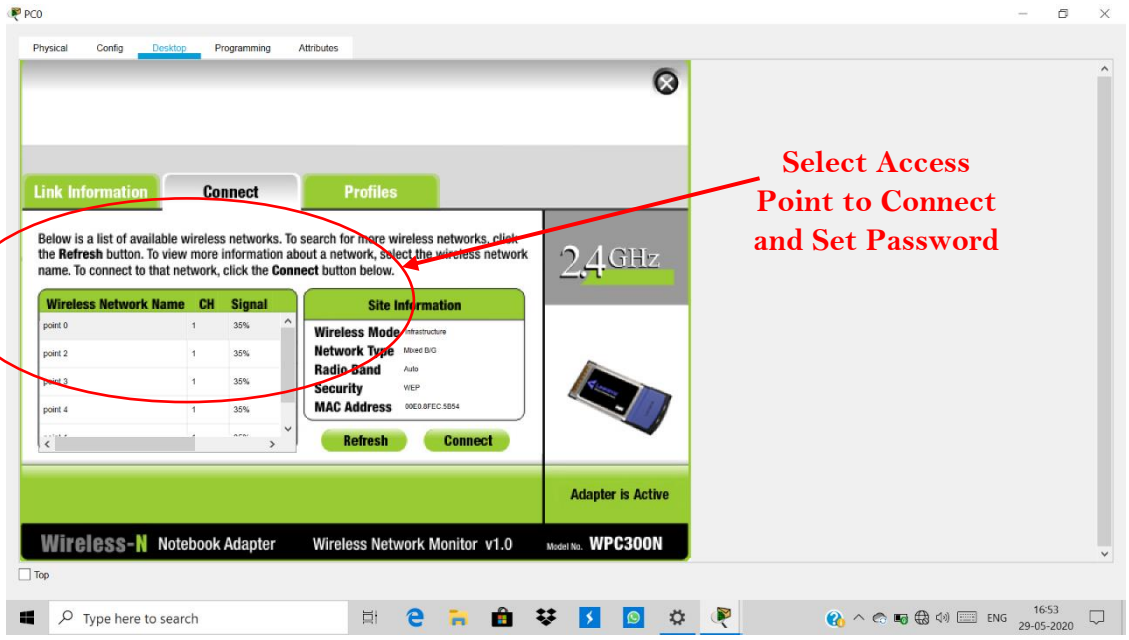
1) Assigning IP addresses to each host by using DHCP :



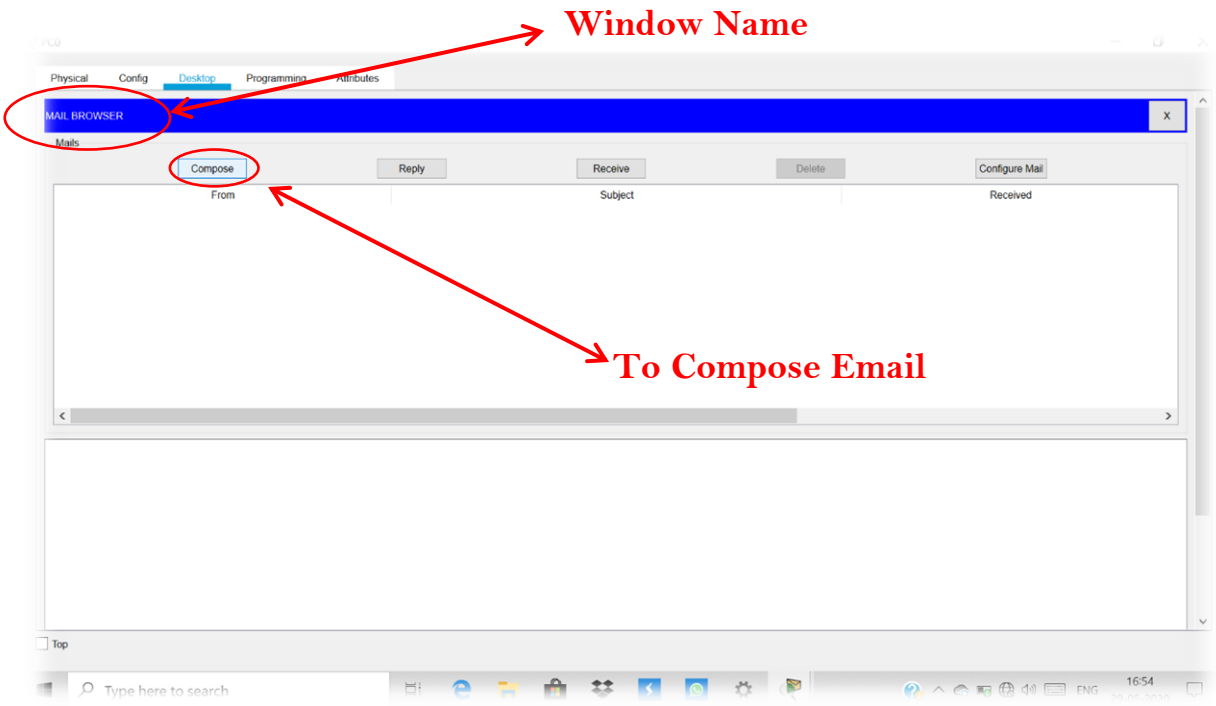


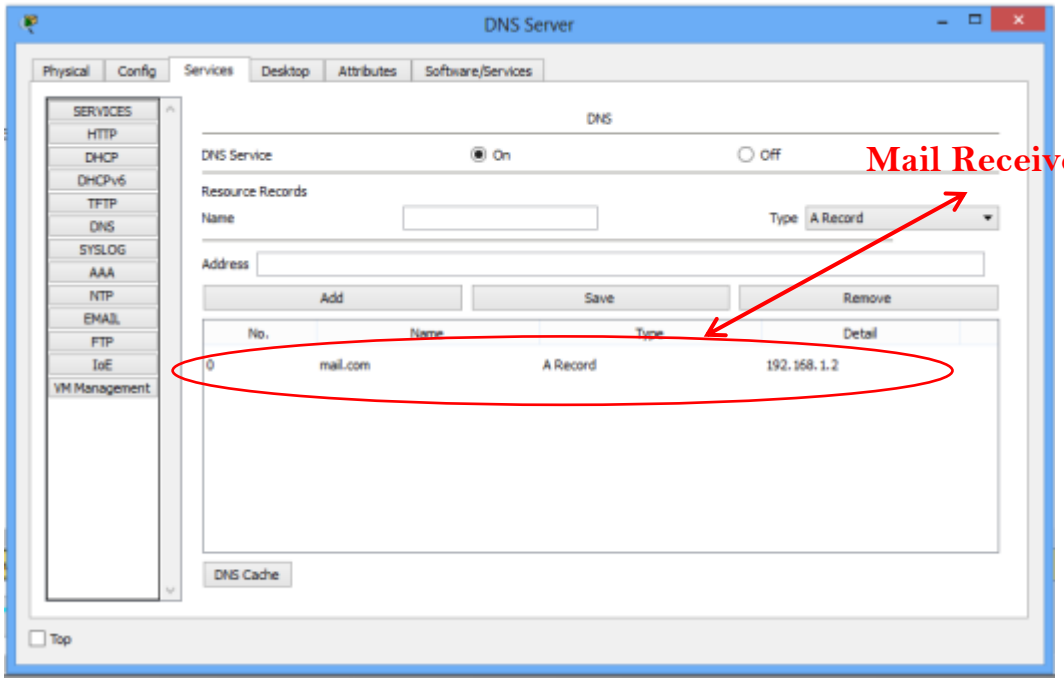
2) Connation between Access Point and Host :





3) Setting SMTP to enable Mail Transfer :





CONCLUTION :

Wi-Fi technology has improved greatly in recent years, but it's not one-size-fits-all especially when it comes to businesses. Large office spaces with heavy traffic typically utilizes access point.

Access point can handle over 60 simultaneous connections each. By installing access points throughout the office, users can roam freely from room to room without experiencing network interruptions. As they move through the building, their devices shift seamlessly from one access point to the next without dropping the connection—they won't even realize they're switching between networks. Wireless technology has come a long way over the past couple of decades.

Wireless data communications are used to span a distance beyond the capabilities of typical cabling in point-to-point communication and point-to-multipoint communication, to provide a backup communications link in case of normal network failure, to link portable or temporary workstations, to overcome situations where normal cabling is difficult or financially impractical, or to remotely connect mobile users or networks. Who would have thought 50 years ago that employees could monitor activities at home with a wireless webcam?

FUTURE SCOPE :

Wireless technology has gained a huge popularity in the last decade. It is gaining ground consistently. Low cost and ease of use- are the causes of its increasing popularity. Wireless network needs less maintenance than a wired network. The invention of the radio has put a stop to the use of telephones that transmits signals using wires. Modern-age cell phones are purely based on wireless technology. The advancement in wireless technology has made it possible for us to reach anyone anytime using these cell phones.

WiMAX will be the next generation of wireless. It is nothing rather an improvement over the existing wireless technology. **Metropolitan Area Network(MAN)** will replace **Local Area Network(LAN)** soon. Wireless technology has already given it potential. So, I think it would definitely become a commonplace in the time to come.

REFERENCES :

- We had referred http://write.flossmanuals.net/data/messages/afzalkhalil/ccna_studyguide.pdf for learning basic information about Data Networking.
- https://www.cisco.com/c/en/us/training-events/training-certifications/certifications/associate/ccna.html
- Data Communications and Networking Book by **Behrouz A. Forouzan** /page no.133-136 to know more about wireless communication.
- https://www.tutorialspoint.com/wireless_communication/wireless_communication_overview.htm

§ THE END §