

Date: 2026/1/26

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# Computer Networks

Introduction to Networks - Assignment 1

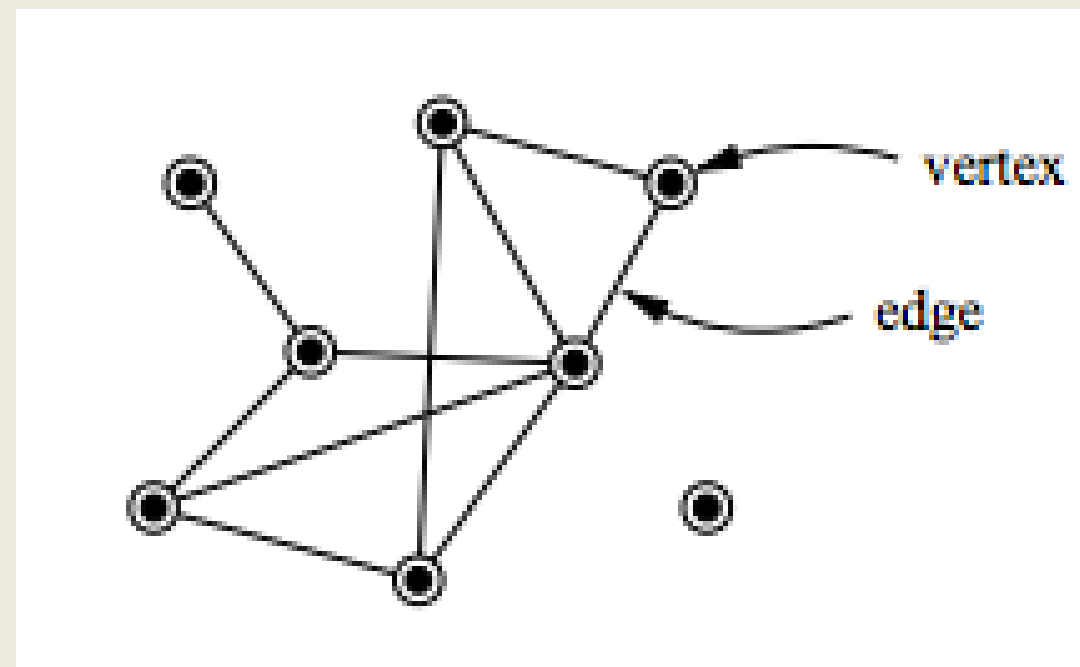
Present by :

**0xSaad / Saad Almalki**

# Introduction

**Network** : is Graph have connected nodes by lines (edges)

Networks is very important in daily life and have a many applications.



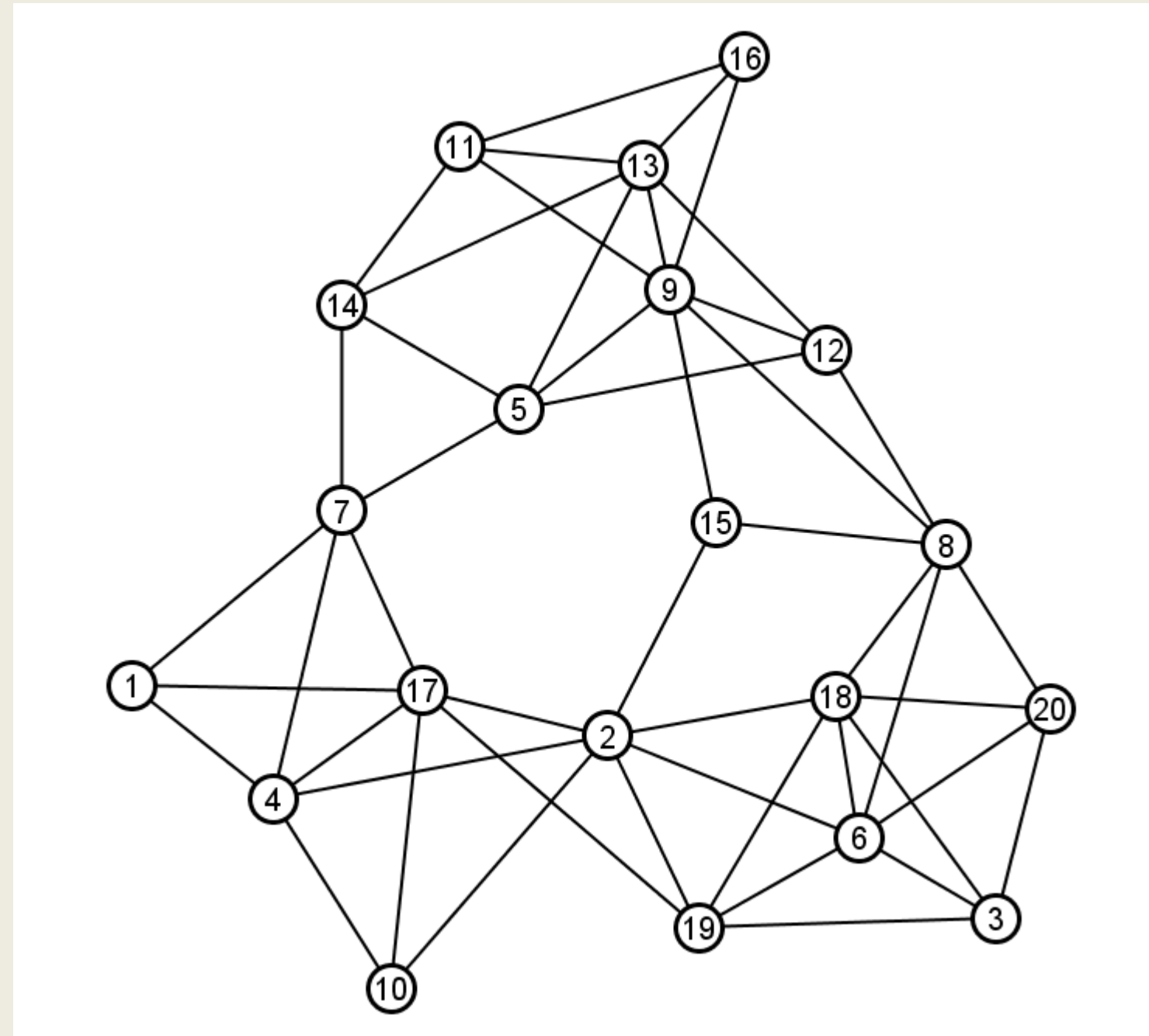
# Examples

Dijkstra Algorithm used In maps :



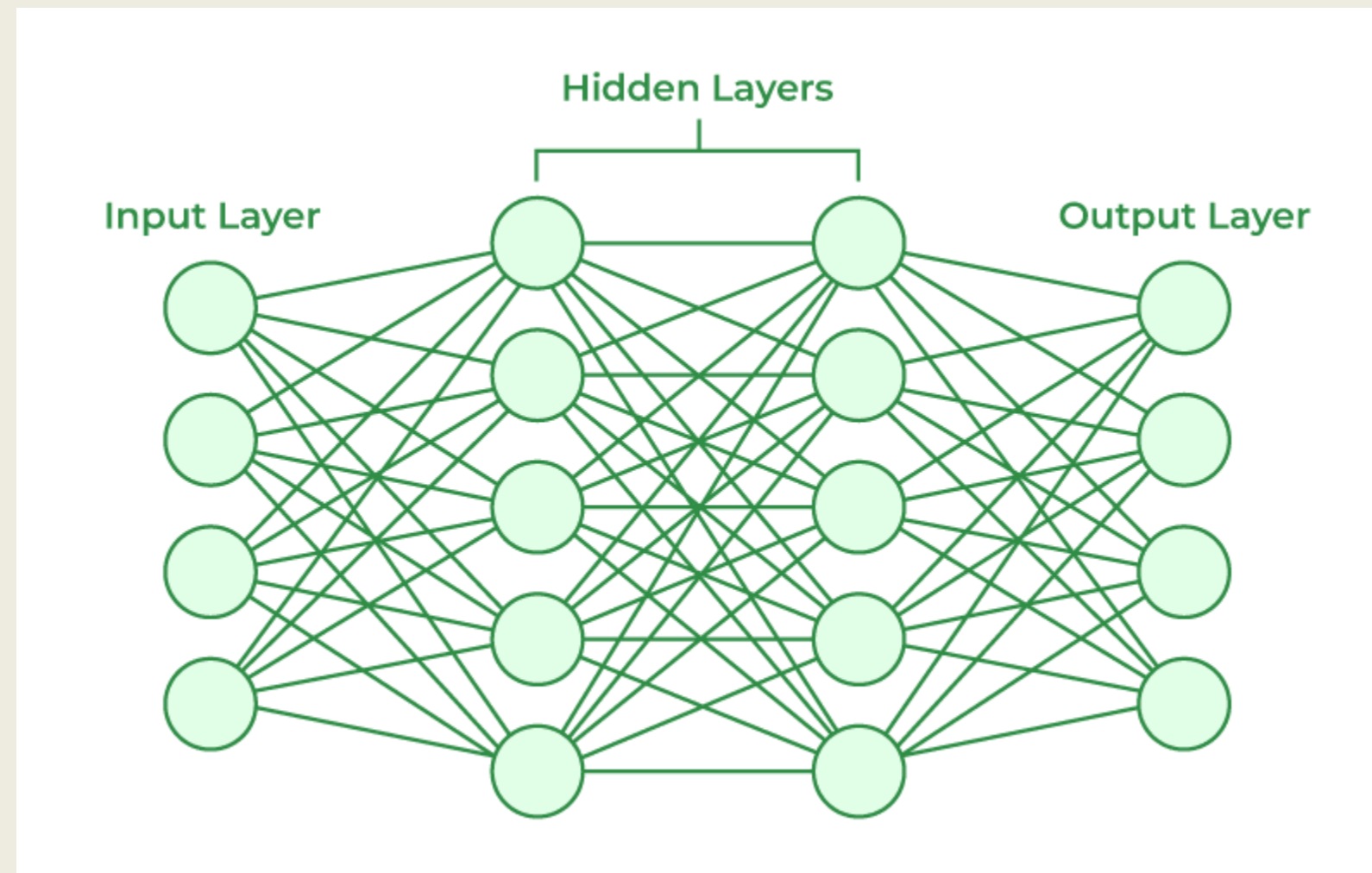
# Examples

Network Theory in Mathematics :



# Examples

Neural networks in Artificial Intelligence :



# Computer Networks

**Computer Network** : Is group of connected two devices or more.

## **Why we need to networks ?**

- Devices in same network can easily communicate and share resources with each devices.

# Uses of Computer Networks

- Business Applications
- Home Applications
- Social Media Applications
- Using mobile device

# Home Network Applications

- Access to remote information
- Person-to-Person Communicate
- Interactive entertainment
- Electronic commerce (E-Commerce)
- Chats and Blogs

# Types of Networks

By Network Size :

- LAN (Local Area Network)
- WAN (Wide Area Network)
- MAN (Metropolitan Area Network)

By Transmission media : Wired or Wireless

By Communicate method : P2P or Client/Server

By Network Topology type : Ring – Bus – Star – Cube – Mesh

# LAN

LAN or Local area network : small group of devices used in short distances .

- Room
- Floor
- House
- Building

Limited by **number of devices** and **distance covered** , And usually used to covering departments or campus within a large organization .

# LAN



Maybe wired or wireless .

# WAN

**WAN or Wide area network** : uses long-range telecommunication links to connect 2 LANs or more .

Examples :

- Internet
- Telephone network in cities and towns



# Types of Networks by methods

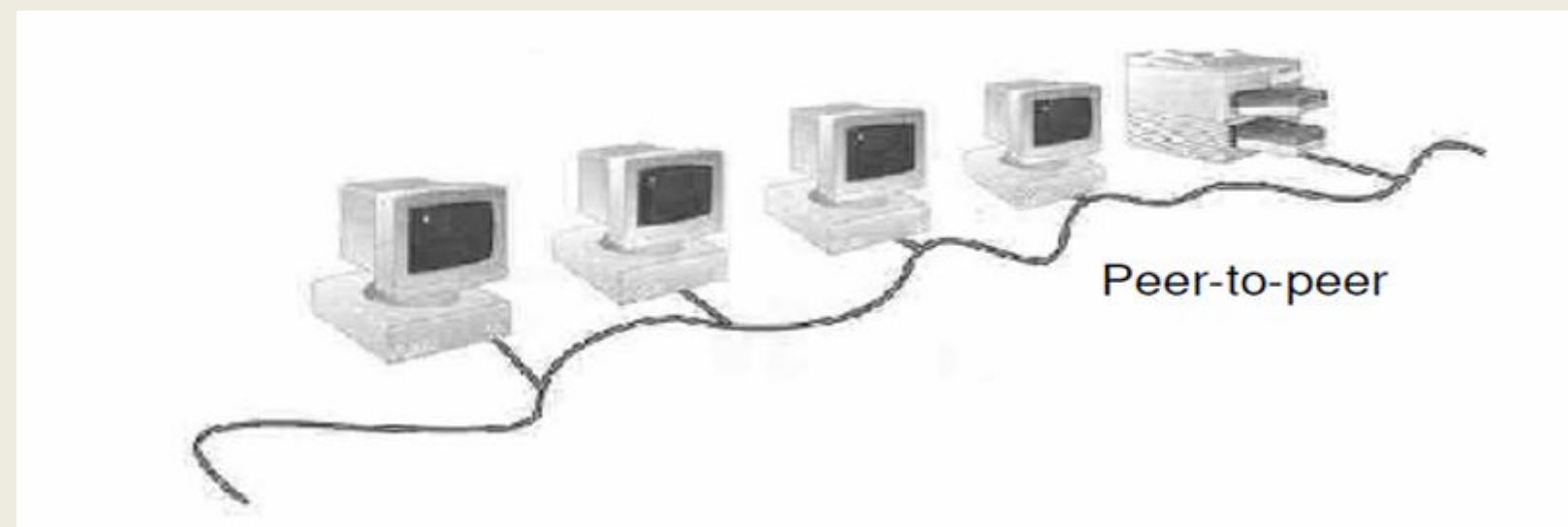
There is two main methods to management and communicate in networks :

- P2P or Peer to Peer
- Client and Server

Peer to Peer (Workgroup) :

**Advantages** : Low cost – Simple configuration – Users have full access to computer

**Disadvantages** : Hard to implement security policy – Difficult to handle uneven work load



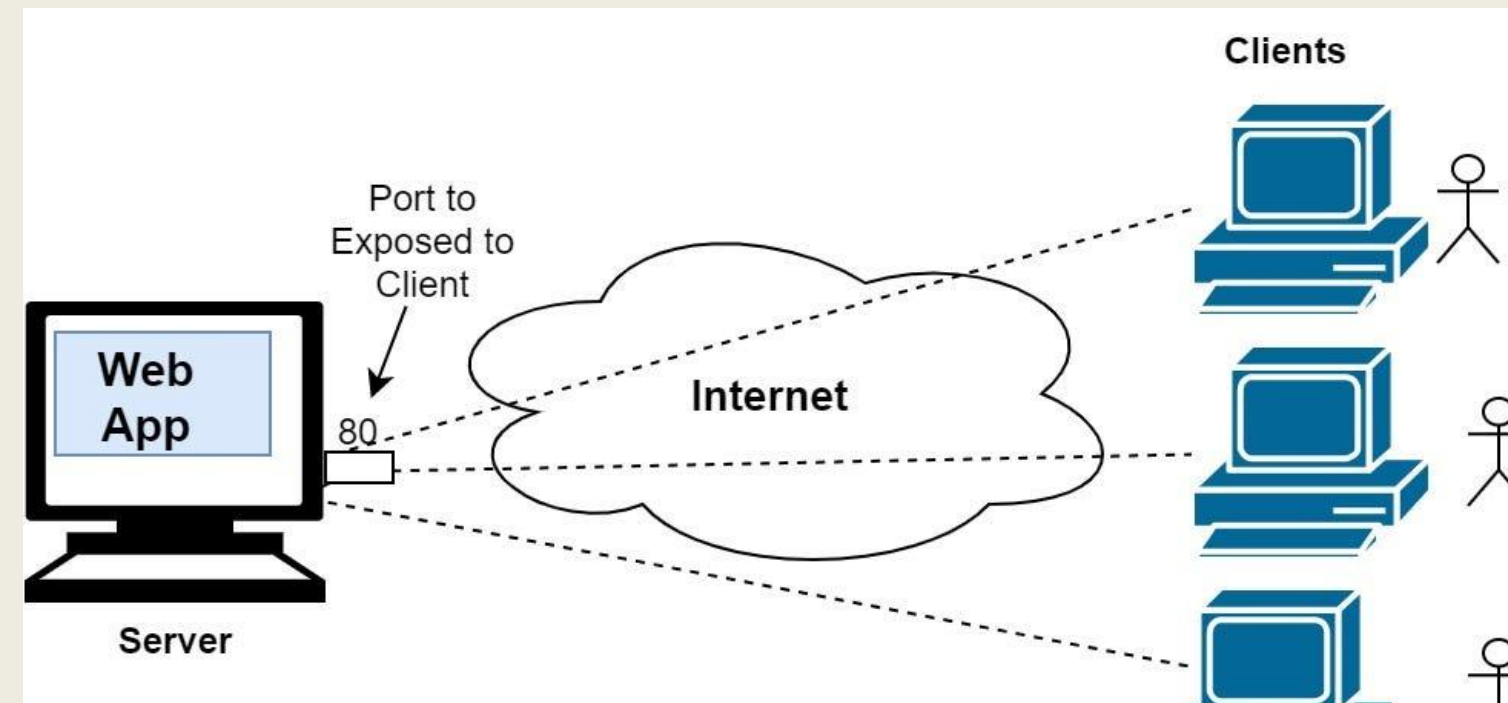
# Types of Networks by methods

## Client and Server (Workstation) :

Client request service or resource from system , The server will Directly response through network.

**Advantages** : Supports many users – Have system backups – Enhancing security and privacy.

**Disadvantages** : High cost – Need expert to configuring the network



# Types of Networks by Topology

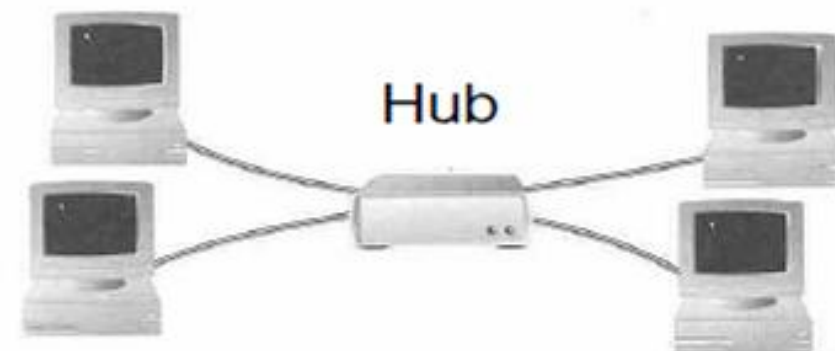
Many types :

- Bus
- Ring
- Star
- Mesh
- Cube

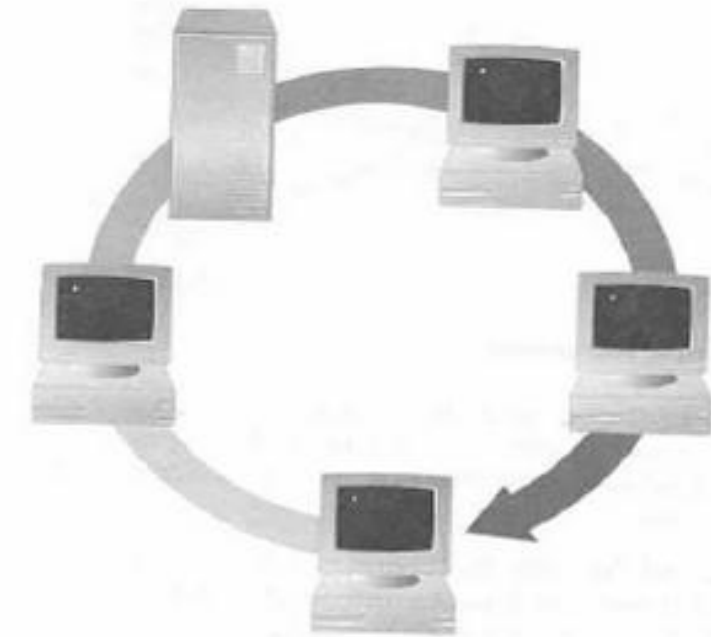
Bus Topology



Star Topology



Ring Topology



# Sources

- Taif University – Computer Networks ch.1
- Fundamentals of Network Communication – University of Colorado Boulder , Coursera
- Data Communications and Networking By Behrouz A.Forouzan
- Networkchuck – What is network ?

**Thanks to listen**