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1) LAN(LOCAL AREA NETWORK): is used in school,office,home etc. LAN is typically faster and more secure than WAN. So, Data transfer can be done easly with LAN.One LAN can be connected to other LANs over any distance by telephone lines and radio waves.WI-FI is a example for LAN.

WAN(WIDE AREA NETWORK): is used large area as cities,countries(big geographic). Approximitly,Less speed of LAN is 150 mbps. WANs have a lower data transfer rate compared to LANs.Internet is a example for WAN.

1)Most important thing is distance in this between computer. If Computers are closer each other,they can be LAN ,other ways is WAN.
2)First,we must ask to ourself why we use Internet which is used for connected far communication.(WAN)
3)VPN(VIRTUAL PRIVATE NETWORK) is connected internet with different IP adress which is encryped. Briefly,this feature is for Internet.(WAN).
4)If We are using network in small area , communication should be fast. Beause, we can connect easily each computer with LAN. (LAN).

2)OSI(OPEN SYSTEM INTERCONNECTION)

Layer 1	Physical	Layer 1 conveys the bit stream. It provides hardware sending or receiving data with cable etc.
Layer 2	Data Link	data packets are encoded and decoded into bits. 1) The Media Access Control (MAC) layer 2)the Logical Link Control layer. The MAC sub layer controls how a computer on the network gains access to the data and permission to transmit it. The LLC layer controls frame synchronization flow control and error checking.
Layer 3	Network	IP protocol works in this layer. At network level, messages are addressed and logical addresses are translated into physical addresses.
Layer 4	Transport	TCP, UDP work in this layer. The transport layer provides end-to-end delivery of data. Data is checked for errors and whether it arrives on time.
Layer 5	Session	This layer establishes, manages and terminates connections between applications.
Layer 6	PRESENTATION	In this layer translated sending messages that must be clearly understood by other computer. Example: JIP,ASCII ETC.
Layer 7	APPLICATION	The application layer provides an interface between the computer application and the network. Only this layer among OSI layers does not provide service to other layers.

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3)Before TCP sends a messages , it sends a information about sender informative messages to sending layer. It is waiting in order to send until applying message comes to. UDP sends messages directly giving adress then it is not care of with message what it is delivered or not.

Sending layers TCP,feedback and resend works together if messages has lost a knowledge. But UDP hasn't got a like secure protocol.

TCP hasn't sent serial messages in order to avoid clogging so, it has a control system.

Youtube:With the conventional HTTPs progressive download method, files can be downloaded as a whole file only. HTTPs is dealing with public security,emergancy management,cyber security,crime prevention...etc.

4)a) A-D-E=(4 COST)
A-D(2 COST)+D-E(2 COST)

b) C-E-D=(3 COST)
C-E(2 COST)+E-D(1 COST)