COMPUTER NETWORKS :→

- Computer Network K Syallbus Ko hum do parts mein divide Karsakte hai

- Pahala OSI Model , Kaha se padna hai from Tannanbaum Aur TCP-IP, yeh Kaha se padna hai from TCP-IP from E Forogen.

Ques:- What do you meant by Computer Networks ??
Ans: Computer Network is a interconnection of two or more system.

- Aapne Simply do System Ko connect Kar diya. toh Kya yeh Computer network form hogaya, ya phir aapko aur bhi Kuch Karna paraga , Computer Network Ko established Karne K liye.

- Joh aapne do System Ko wire se connect Kiya, data - transfer Start bhi hogaya , but problem kya hogi reciever end par ki kaha Sender ne Kya send Kiya , usko Kaise interprut Kiya jaye.

- Kaise interprut Kiya jaye iska Kya matlab hai, jaise humne pada hai Ki ek character Ko hum 8 bit ascii value se represent Karsakte hai or we can represent a character by 16 bit unicode.

- Joh ~~Sender~~ Sender ne joh send Kiya hai , woh ascii code send Kiya hai Ki unicode code send Kiya yeh Kaise pata Chalega.

- Joh reciever ek character Ko 8 bit long mane

ya phir 16 bit long mane.

- Agar hamne data-transfer Start kiya aur agar data-transfer nahi Start bhi hogaya, toh problem kya aayegi ki reciever kaise interpret ki sender ne kya send kiya hai.

- Problem kya hai problem of interpretation.

- Isliye network extablish karne se pahale hum kya extablish karte hai

- Isliye network extablish karne k baad hum, sabse pahale kya extablish karte hai, kya set karte hai, set of rules, ki hum ascii code send karegey, isase jada bada message hum send nahi karegey.

- Aur yahi set of rules kya kahalata hai, protocol

- Toh basically what is network protocol ??
  Network protocol is a set of rules or a network protocol is a way of communication.

- Humne kuch rules bana liye ki hum character ko represent karne k liye ascii standard use karegey, aur hum itane dur tak transmit karegey, 10kb se jada ka data send nahi karegey.

- Computer Network extablish karne k liye sabse pahale required hardware toh thi hi, ki aapko data-transfer karne k liye wire chahiye. yeh

Sab hardware required tha. Par uske pahale hamari software required kya hai, hamko kya banana hai set of rules.

- Joh hamne kya design karna hai protocols. Toh thik hai hamne kuch rules bana liye aaise transmit karegy, ascii code use karegy, 15 Kb se jada ka data hum send nahi karegy. Aaise hamne kuch rules bana liye.

- Now in rules ko implement kon-karega, kaise implement karega, system, toh obviously system par kohi bhi rule implement karna hai toh hum uske liye software design karte hai.

- Joh basically, joh yeh hamare, TCP/IP Model aur OSI-Model hai, woh kya hai toh they are nothing but software.

- Jo implement network protocol, us use /OSI/TCP

- Now hamne network protocol design kar liya, toh aab hamko kya chahiye a software which implements that rules.

- Hamne bahut - Saare rules bana liye ki hum aaise transmit karegy, aaise nahi karegy, aaise bahut Saare rules bana liye hai, now un rules ko implement karne k liye humko kya karna, ek Software design karna hai.

- Aaisehi hum do Software discuss karegy yaha

Iske · Pahala hai OSI- model aur dusra TCP/IP Model.

- Joh OSI - Model and TCP-IP Model kya hai they are a Software to implement a protocol.

- OSI Stands for OPEN SYSTEM INTERCONNECTION and widely used protocol konsa hai TCP/IP, TCP/IP Stands for Transmission control protocol and Internet Protocol.

- OSI Model is theorical Model, practically implemented model is TCP/IP Model.

- Hamne Software ko design karne ki bahut saari techniques hai, jaise object - oriented programming hoti hai.

- Structured - programming hoti hai · C ki programming Style kaise kahati hai Structured programming.

* Aaise hi Software ko design karne ki approach hoti hai layred approach.

- yeh dono networking model, kis Software approach se design kiye gaye hai layred - approach se.

- Sabse pahale hum discuss karegi ki OSI- model mein kon- kon se layers hai aur har layer ka kya task hai, phir hum discuss karegi ki TCP/IP mein kon- kon si layer hai aur un layer ka kya- kya task hai.

- Hamne bahut saare networking task banaye huye hai, aur hamne har layer ko kohi na kohi task assign kiya hua hai.

- Sabse pahale hum OSI-model ki layers ko discuss karrahai hai.

- OSI-model is a seven layer Model, and topmost layer is Afplication layer.

- Afplication layer k baad it is presentation Layer, presentation layer k baad session Layer, Session Layer k baad it is transport Layer and after transport layer it is network-Layer, network-Layer k baad data-link layer aur uske baad finally it is physical layer.

1.	APPILICATION LAYER	→ Top-most Layer
2.	PRESENTATION LAYER	
3.	SESSION LAYER	
4.	TRANSPORT LAYER	
5.	NETWORK LAYER	
6.	DATA-LINK LAYER	
7.	PHYSICAL LAYER	

Matlab joh bhi hamare networking k rules honge un rules ko implement karne k liye hamne ek software design kiya, aur us software ko hamne seven layers mein divide kiya hai.

- Har layer ko kuch na kuch task assign kiya hai. now aab hum dekte hai har layer ko kya-kya task & assign kiye hai.

- Network mein do type k users hote hai - ek toh sender hota hai jo data ko send karta hai aur ek reciever hota hai jo data ko receive karta hai.

- Joh sabse pahale hum is model ka task dekte hai from senders point of view.

- Joh sabse pahale hum start karte hai from application layer.

APPLICATION LAYER:→

- Joh application layer kya karte hai, toh it provide user interface.

software hai

- Jitane bhi network based jisase bhi aap interact karte ho, browser is a part of Application layer.

- Aaisa koi bhi software jiski help se aap network ko access karte ho, woh sabsi kiska part hai, they are the part of application layer.

- Browser and all other network software are the

example of Application Layer.

- Application Layer ka purpose kya hai it intract with end users. end users.

- Basically data kaha se generate horaha hai, application Layer se, aapko kya letter send karna hai toh aap kaha type kar rahai toh networking based software par, aur yeh software kiska part hai. Application Layer ka.

- Toh basically data kaha se generate horaha hai, application layer se.

- Application Layer kya kar rahai hai, it decide the data to be transmitted.

- Hum intract karte hai application layer se aur baki lower layer ka existence hamare liye matlab end-user k liye invisible hota hai.

- Now Application layer k baad data kiske pass aata hai. presentation layer k pass.

H PRESENTATION LAYER:→
Presentation layer converts the data into network presentable form.

- Now yeh network presentable form se kya matlab hai??

Ans:→ Jaise aabhi hamne pada tha ascii code hote hai uni-code hote hai, system ascii code based hai, par network ka standard kya hai unicode

- Joh ascii-code to unicode conversion kon karta hai, presentation layer.
- Agar System unicode hai aur network ascii code hai toh yeh conversion kon karega unicode to ascii code conversion, presentation layer karega.
- Agar system K data representation mein aur network K data. Representation mein kuch difference hai, toh us difference ko overcome karna kiska kaam hai, presentation - layer ka kaam hai.
- EK format se dusra format mein convert karna kiska kaam hai presentation layer ka.
- Now aur kya task hai presentation layer ka??
  ns→ Joh abhi joh discuss kiya woh toh hai hi, baki do task aur hoti hai presentation layer K, par woh optional hote hai.
- Pahala hota hai :→ DATA ENCRYPTION aur ek aur hota hai Data compression.
- Data compression matlab 1 MB ki file hai usko 20KB mein kar liya, i.e compress.
- Now hum ek scenario leta hai ki suppose aap ek file upload karrahai ho, woh file aapke System se kaha jarahai hai to your mail server.
- Suppose woh file kitane MB hai suppose wo file 1MB ki hai.

- Joh application layer ne kya decide kiya, ki apne ko 1MB ki file transmit karne hai network par, ~~no~~

- Now woh 1MB ki file kiske pass aayi presentation layer k pass aayi, presentation layer ne kya kiya toh joh bhi usko changes karne the, i.e usko network acceptable form mein change kiya aur dusra encrypted kiya aur thisara us file ko compress kar diya.

- ~~Now~~ ~~phir~~ data ~~kiske pass aaya presentation layer~~ k pass ~~aaya~~

- Now phir data kiske pass aaya Session Layer k, now yeh Session Layer kya karte hai.

A SESSION LAYER:→

- Joh Session Layer maintains Session, aur kya word use karte hai it maintains dialog.

- Matlab kya, is layer ka kaam kya sirf information ko load karna, kab se data transmittion start hua hai, kab se agar file transmit horahai hai toh file ka kitana part transmit hogaya hai, aur kitana baki hai, is layer ka kya kaam hai sirf record maintain karna.

- yeh layer data mein kohi change nahi karte hai sirf kya karte it maintain records / dialog / session.

- Now furi 1MB ki file hamari Session Layer se

Kaha aagayi transport layer par.

- Network mein data kabhi bhi ek saath transmit nahi hota hai.
- Matlab jo hamari yeh LMB ki file hai, toh yeh puri LMB ki file ek saath transmit nahi hogi. network par.
- Woh file part mein divide hooke transmit ki jati hai.
- Kyo parts mein divide karte hai uske bahut saare reason hote hai.
- Hum unko ek-ek kar k discuss bhi karte jayegy saath-saath-mein.

Transport layer :→

- Data ka very first division kaha hota hai transport layer par hota hai, kaha par at sender end.
- Transport layer divides the data in the form of segments
- Matlab hamari LMB ki file ko 10;10 KB k segments mein may possible ki 10 segments mein divide kar de.
- Toh sabse pahala question toh yaha hai kyo divide karte hai. Segment 10 KB ka hi kyo 20KB