- Introduction to IT
- Recent advancement in IT
- Big data and machines
- Data analysis
- Servers
- Search engines
- Sources (Open, close and free)
- Web browser
- IOT
- Intranet, extranet
- Protocols
- Ports
- LAN, WIFI, GPRS
- Cloud computing
- Google cloud
- Amazon web services
- OSI model
- Prototyping
- Apache
- HTML, CSS
- Animations

(FIT)

INTRODUCTION TO DATABASES :-

- Database :- a software to store data
- language to understand database or code for databases is 'SQL'

Q. How to store data?
Q. How to communicate with database?

=> Last year, a database named Mongo Dibi was not based on SQL.

=> Every database based on SQL will store data in form of 'tables' having rows & columns.
rows carry record (core data)
columns carry attribute

=> Database software also facilitate its open them & then store data on them.

eg of databases:-

1. MS Acess.
2. My SQL.
3. MS SQL server.
4. Oracle (most popular)
5. IBM DB2.
6. SQL lite

RELATIONAL DATABASES:-

=> Almost all databases used in the world are relational because there are some columns/rows which have some relations. (could be related to each other).

=> Android apps:- to store data, they use SQL lite.

=> Rows & columns always make relations due to their unique IDs.

=> Before making database, it is designed called designing database

=> For designing database, a diagram is generated called ERD (entity relationship diagram)

- Search ERD images

Members required:-

1) Project leader/manager
2) Programmar/developer. (uses SQL)
3) Database designer. (creates ERD only)
4) QA/Tester (quality assures)
5) DED (data entry operator).

- Database management system (DBMS) ⟶ create database & also protect it by password. & making backup of it etc.

To understand SQL ⟶ w3schools.com

* → for all tables/data columns.

Client could be
(Desktop PC / laptop / Tablet / Smartphone)

⇒ Security on all above prospectus is maintained in IT security.
⇒ data security
⇒ IT Audit
CISA ⇒ certified information Services Auditor.

⇒ Any software based on .net framework you need to have windows.
⇒ If you want to run software on any O.S without framework you need to have it coded in 'python'

Data Analyst :-
softwares for this are :-
- Google data visualization Tool.
- Excel
- Q Lik view
- SD card.

& language is HTML 5.

⇒ Normally humans requests from Server i.e. machine & this communication is called H2M (Human to machine) but IOT concepts is this that they replaced humans by machines & made them as M2M communication.

⇒ Those hardwares replaced by humans are of two types :-
(i) need O.System
(ii) doesn't need O.system

⇒ UK introduced a new hardware that has installed O.S which is compact computing device (Raspberry Pi, Orange Pi, Groove Pi)
⇒ Some also introduced "controllers" which don't need O.S for eg :- Arduino.

INTRODUCTION TO NETWORKS :-

Technologies a S/W engineer should know.

P.L :-

1. C.
2. C++
3. C#
4. Python.
5. ASP.Net
6. Php ✓
7. Java.
8. HTML ✓
9. CSS ✓
10. Java script ✓
11. XML.
12. Mean stack.
13. SQL ✓

⇒ Above 5 languages used 'word press' tool for web designing.

→ Agile Project management (methodology)

⇓

SCRUM

NETWORK :-

⇒ Two computers hook up together form a network.

⇒ They could be connected by means of medium i.e. wired or unwired.

⇒ Then they communicate each other through their IPs. of them & also by a software called TCP. (Transmission control protocol)

TYPES :-

LAN ⟶ Intranet.
MAN ⟶ Extranet (Private)
WAN ⟶ Internet (Public)

eg :- Simple whole NED network is intranet & when its all campuses' networks combines forms extranet.

⇒ Desktop application :- download on desktop & can't communicate with other.

COMPUTER NETWORKS :-

→ Application.
→ Operating system.
→ BIOS :- manages the flow of data b/w O.S & Hardware.
→ hardware.

→ OSI Model (Open system Interconnect Model)
– maintains sessions.
– has 7 layers

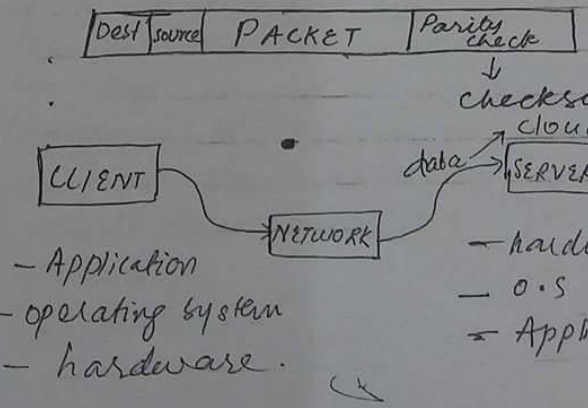
- Physical – (hardware) NIC card, cables.
- Data – data (has it is packaged?)
- Network – IP
- Transport – TCP
- Session – Connectivity.
- Presentation – data compression/encryption
- Application – web browser

GRAPHICS MODES :-

gif – 256 colours. (graphical interchange format) ;: loss compression?
jpeg – 16 million colours (joint photographic expert group)
png (portable network group)

TYPES OF NETWORKS :-

→ CIRCUIT SWITCHING NETWORKS.
eg :- Telephones.
→ PACKETS SWITCHING NETWORKS.
eg :- computers.



Data Transmission Means / Networks:-

⇒ Bluetooth
⇒ LAN (wired network)
⇒ wifi
⇒ GPRS
⇒ GPS

GSM

⇒ RFID

↓

8-10 satelites that monitors latitude or longitude of every location

GPRS → global packet resource system

GSM → global system for mobiles.

GPS → global position system.

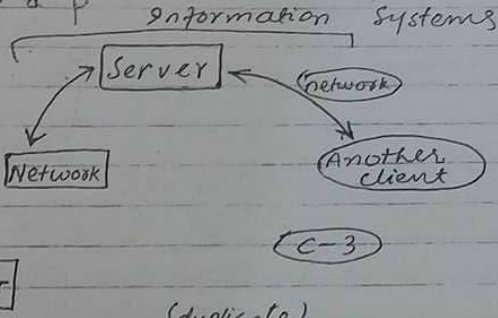
⇒ When gsm provides facility w.r.t net then it becomes GPRS.

⇒ They also make some IDE with controllers & its programming is just like 'C' to control them & sensors too.

⇒ Most widely used programming type in IOT is 'C'.

⇒ 'Compact computing device' programing is of much high level than controllers

Dcap



(duplicate)

⇒ Google has replica of his services through out the world.

⇒ 9.8 use networks.

⇒ Camera stores video in form of frames as images.

↓

One image in a sequence of images

eg:- On youtube speed of videos is 20-30 frames/sec.

VIDEOS:-
A sequence of images, put together one after another, to stimulate motion.

videos/images are recorded with help of optical device eg:- camera & animations are created with help of animator software, also set their speed.

Basically, video is real character placed in motion while animation is created.

ANIMATION TOOLS:-

- Powtoon
- GoAnimate

ANIMATION:-
One or more images when displayed in rapid sequence, one after another, provides the illusion of continuous motion

VIDEO:-
A sequence of images.

IMAGES:-
An artifact that reproduces the likliness of some object.
→ images are captured while graphics are created on software eg:- adobe photoshop
↓
flagship product: which makes alott money for company.

⇒ Adsense is flagship product of google, maybe
⇒ Google Adwords → people make accounts here

IP → internet protocol.

SaaS :- software as a service (don't need to download a s/f in it & use it direct on internet)

DNS :- (domain name system).

⇒ converts IP address into recognizable IP.

⇒ 12 computers are on internet that recognizes IP addresses of searched things. eg (gmail.com)

⇒ ISP → connects link with server.
↓
internet service provider.

⇒ When TCP recognizes that searched thing is of http:/ then they understand that communication is b/w web server & web browsers.

⇒ Hackers enters through ports of computers

⇒ Web browser connection need port '80' & also skype.

CLOUD COMPUTING :-

Current infrastructure available

Pay as you use
- IaaS → Infrastructure as a service
- Paas → Platform as a service
- SaaS → S/f as a service.

⇒ companies providing cloud
S/f - Microsoft → AZURE.

⇒ virtual private network (VPN).
Google → Google cloud
Amazon → AWS (Amazon web service)
↳ an E-business.
IBM → Blue mix.

S/W Maintenance.

→ Removing errors.
→ Adding new functionalities. (Enhancement)

⇒ Web Hosting

⇓

one keyword where all webs are displayed & all companies give money to google to display there web frontly. & they give 8 dollars on just one click of opening their web to google.

⇒ Two popular technologies on server side are.
open sources → PHP] main
MS → asp.net
Python.
JSP (Java)

⇒ When you download a game or an app then you don't need any software on server side.

⇒ For gaming you need 2 languages.
Java & C#

GAME DESIGNING SOFTWARE :-

- unity 3D → C# & Java should learnt.
- unreal.

⇒ For searching you need search engine → best egs of IT.

⇒ Databases are used on server.

SEO :- search engines optomizers.
(They have capability to replace webs / placing webs in a new sequence on any search engines).

ASO :- App Search Optomization.

(Adobe Photoshop)

* Sheet of clear transparent film is called layer

size of pixel = $\frac{1}{72}$ inch

zooming power = 1600% (max)

- open source is a community which makes softwares & free to use.
eg :-
Apache → software
My SQL → database
PHP → language

⇒ Apache can't be accessed without installing "XAMPP for windows".

⇒ XAMPP using particular area or folder before accessing the files. Its folder is 'ht.docs' where all files are stored before accessing.

⇒ In competition with XAMPP, there is another 'WAMPP' & its particular folder is 'www'.

⇒ Apache engine basically makes html code from php file & send to browser.

⇒ My SQL → default username : root , password : blank.

SEARCH ENGINES :-

An internet based tool that searches an index of documents for a particular search tool

keyword → web pages

⇒ Search engines didn't own web pages.

⇒ Google didn't share ranking of links & its ranking is done by a top secret program that

decides which webpage/link is to rank 1st & so on.

⇒ Data for search engines is webpages.

How website become a part of index of search engine like google?

Google has an option to "Submit a site". By submitting on that option, your website, google will look / check your web & decides whether to take it as a part of its index or not.

OR

'dmoz.org' has also ability to receive a new web and all search engines remain checking this web that whether a web is submitted or not.

Web Bot:-

When a web is submitted then it enrolls that web. It is basically a robot installed on web. Then it opens that web & goes to its homepage & make list of keywords.

⇒ Then it lists all webs in index of documents with ranking in its database (It is automatic database)

- To rank 1st, a link company gives money to google & google will show their link on:-
  (i) google.com.
  (ii) Its all affiliates / partners.

⇒ Affiliates are those who have signed up their adsense

⇒ google will pay a short % from money taken by link company to its affiliates for

showing link on them.

ASO → app search optomization
make adds

- if people only see their add, they will give money & if they click on their add of app, app company will give more money.

SEO → search engine optomization.

⇒ App/web ranking is based on their content & their content must be unique & fresh.
"CONTENT IS KING"

⇒ Most appropiate content is of wikepedia & all search things always have a link of wikepedia due to its large & unique content.

⇒ The biggest problem to remote the access of database is 'security'.
⇒ Globally, softwares are firstly 'drawn' either they are run on android etc & r maked on different languages.
⇒ Screen saftware which are displayed are 'drawn' with help of peneil etc. is called 'STORYBOARDING' technique.
⇒ To produce realistic look, a technique is used, called "prototyping".

⇒ Prototyping is done before programming & its tools are 'AXURE' & 'JUSTIN ANMIND'

⇒ Google has 140+ tools & many of them are free to use.
⇒ google product
Data studio :- generate reports of data.
⇒ open source, free source, close soure
MS word etc