

* What is computer network

A computer network is a set of devices connected through links. A node can be computer, printer, or any other device capable of sending or receiving the data.

* What are the types of computer network

there are four types

1. LAN (Local Area Network)
2. PAN (Personal Area Network)
3. MAN (Metropolitan Area Network)
4. WAN (Wide Area Network)

* What is IP address

IP address is a short form of "internet Protocol Address".

it is a unique number provided to every device connected to the internet network such as Android phone, laptop, Mac, etc. An IP address is represented in an integer number separated by a dot(.) for ex. 192.168.12.46

* What is a software

Software is a set of programme (Sequence of instructions) that allows the user to perform a well defined function or some specified task.

* What are the types of Software

There are two types

1. System Software

2. Application software

* What is IPv4 and IPv6

IPv4 is version 4 of IP. It is a version 3 of the most commonly used IP address. It is a 32 bit address written in four numbers separated by a dot (.) for ex:- 66.94.29.13

- * **What is a database**
is a place or medium in which we store data in a systematic & organized manner.
- * **What is a DBMS**
is a software which is used to maintain & manage the database.
Security & authorization are the two important features in the DBMS.

Types of Database Management System

1. centralized Database
2. NO SQL Database
3. Relational "
4. Object oriented "
5. Distributed "
6. Cloud "
7. Network "
8. Hierarchical "

* What is client - server architecture
client - server architecture is a computing model in which the server hosts, delivers & manages most of the resources & services to be consumed by the client.
This type of architecture has one or more client architectures connected to a central server over a network or internet. Connection is called client server architecture.

- * What is a software bug

The bug is the informal name of defect which means that software or application is not working as per the requirement.

A software bug can also be issue, error, fault, or failure. The bug occurred when developers made any mistake or error while developing the product.

- * What is middleware

Middleware is a software that acts as an data intermediary between two applications or services to facilitate their communication.

You can think of it as a proxy that can act as a data accumulator, translator or just a proxy that forwards requests.

- * What is a application server

An application server contains Web & EJB containers it can be used for servlet, JSP, struts, jstl, ejb etc.

it is a component based protocol
lies in the middle tier of a server
centric architecture

* what is a load balancer

load balance is a core networking
solution used to distribute traffic
across multiple servers in a server
farm.

Load balancers improves application
availability & responsiveness by prevent
server overload. each load balancer
site b/w client devices & backend servers
selecting & then distributing incoming
requests to any available server capable
of fulfilling them.

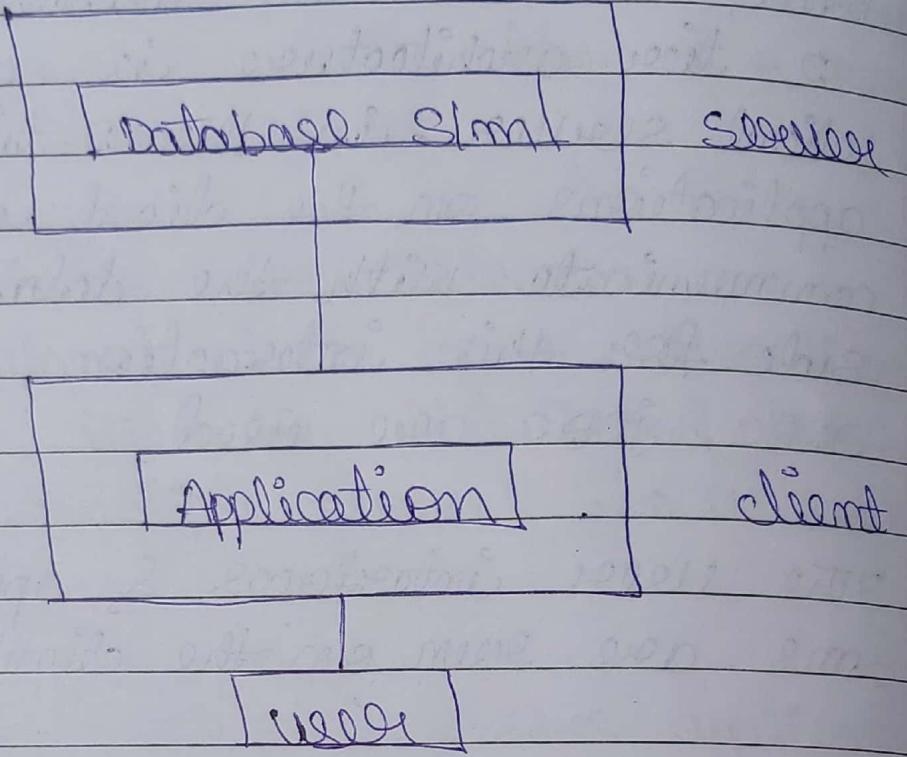
* What is a 2-tier architecture

2-tier architecture is same as basic client server. In the 2-tier architecture applications on the client end can directly communicate with the database at the server side. For this interaction, API's like: ODBC, JDBC are used.

The user interfaces & application programs are seen on the client-side.

The server side is responsible to provide the functionalities like: query processing & transaction management.

To communicate with the DBMS client-side application establish a connection with the server side.

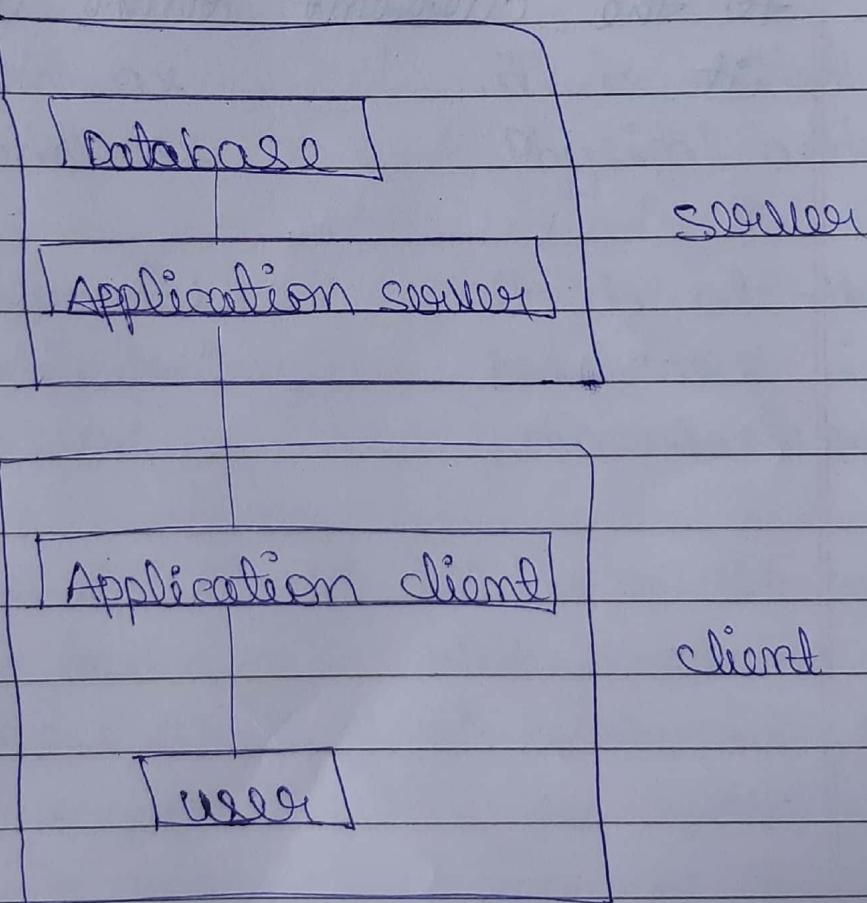


* What is 3-tier architecture

The 3-tier architecture contains another layer b/w the client & server. In this architecture client can't directly communicate with the server.

The application on the client and interacts with an application server which further communicates with the database system

End user has no idea about the existence of the database beyond the application server. The database also has no idea about ~~me~~ any other user beyond the application. The 3-tier architecture is used in case of large web application.



* what is n-tier architecture

The n-tier or multi-tier architecture is where clients, middleware, applications & servers are isolated into tiers.

* what is localhost

localhost is a hostname that refers to the current device used to access it.

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* What is protocol

Protocol is a set of rules for communication

The internet Protocol suite, which is used for transmitting data over the internet contains dozens of protocol

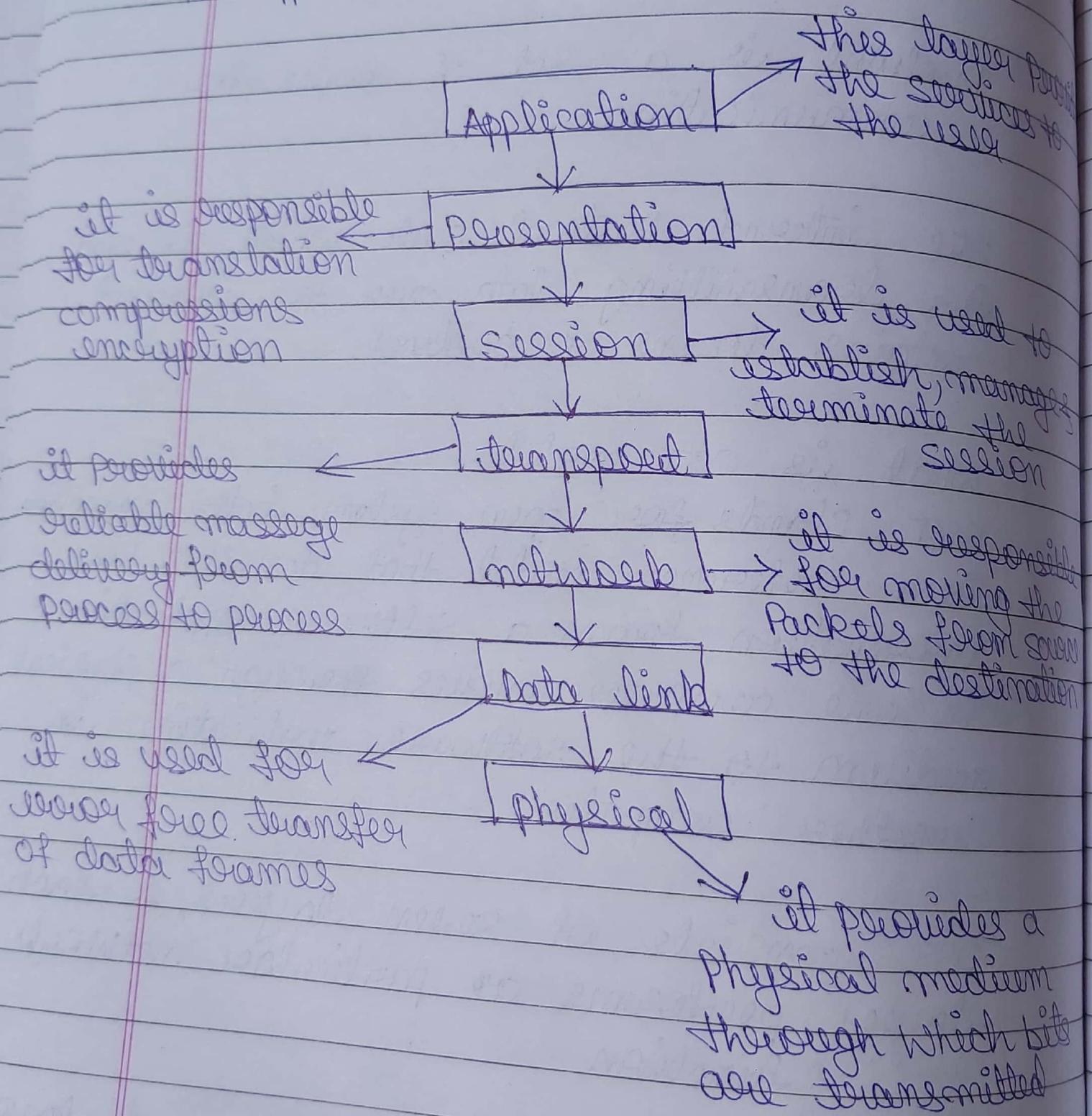
* What is OSI model

OSI stands for open system interconnection is a reference model that describes how information from a software application in one computer moves through a physical medium to the software application in another computer

OSI consists of seven layers, & each layer performs a particular network function

1. Physical layer
2. Data link layer
3. Network layer
4. Transport layer
5. Session layer
6. Presentation layer

7. Application Layer



* What is TCP/IP model

The TCP/IP model was developed prior to the OSI model. The TCP/IP model is not exactly similar to the OSI model.

The TCP/IP model consists of five layers:

1. Application layer
2. Transport layer
3. Network layer
4. Data link layer
5. Physical layer

* What is http

HyperText Transfer protocol is an application layer protocol for transmitting hypermedia documents such as HTML. It was designed for communication between web browser & web servers.

* what is HTTPS
is an internet communication protocol that protects the integrity & confidentiality of data between the user's computer & the site. Used to protect a sense of private online experience when using a website

* what is SSL

SSL stands for secure sockets layer & in short, it's the standard technique for keeping an internet connection ~~safe~~ secure.

* what is encryption
is a method of encoding data so that only authorized parties can send or access that data

Encryption software uses complex algorithms to scramble the data being sent.

* What is the difference b/w IP address & MAC address

IP address

MAC Address

1. internet Protocol address media access control address
2. it is called as logical address it is called as physical address
3. it is assigned by user / administrator, it is at the time hardware is manufactured
DHCP, or TSP
4. IPv4 uses 32-bit address in dotted notation where as IPv6 uses 128 bit address in hexadecimal notation
- decimal notation it is 48 bit address which contains 6 groups of 2 hexadecimal digits, separated by either hyphens (-) or colons (:) - ing
5. IPv4 uses A,B,C,D & E classes for IP addressing No classes are used in MAC address

* What is the default port for apache
During installation, port 80 is required to install the apache web server, if you have another product installed that uses port 80, you must change the Apache HTTP port to another port number before you start the app that is using port 80

* What is JDK

The Java Development Kit is a software development environment which is used to develop Java applications & applets. It physically exists. It contains JRE development tools.

* What is JRE

Java run time environment (JRE) is the part of the Java development kit. It is freely available S/W distribution which has Java class library specific tools, of a stand-alone JVM. It is the most common environment also.

- Table on devices to seen jalla peerer
ans.

1. Microcontroller: A microcontroller is a computer system on a chip. It consists of a central processing unit (CPU), memory, and input/output (I/O) ports. Microcontrollers are used in various applications such as home automation, robotics, and industrial control systems. They are designed to be easy to program and integrate into existing systems.

2. Power Management: Power management refers to the way a device uses and conserves energy. It includes features like battery management, power supply regulation, and power saving modes. Power management is crucial for portable devices like mobile phones and tablets.

3. Display: A display is a device that shows information to the user. It can be a liquid crystal display (LCD) or a light-emitting diode (LED) screen. Displays are used in various applications such as mobile phones, laptops, and televisions.

4. Processor: A processor is the brain of a device. It performs calculations and controls other components. Processors are available in different types such as central processing units (CPUs) and graphics processing units (GPUs). They are used in various applications such as desktop computers, servers, and mobile phones.

5. Memory: Memory is used to store data and instructions. It can be volatile (RAM) or non-volatile (ROM, flash memory). Memory is used in various applications such as mobile phones, laptops, and servers.

6. Connectivity: Connectivity refers to the ability of a device to connect to other devices or networks. It includes features like Wi-Fi, Bluetooth, and cellular connectivity. Connectivity is important for devices that need to communicate with other devices or the internet.

7. Sensors: Sensors are used to detect physical phenomena such as light, sound, temperature, and motion. They are used in various applications such as mobile phones, cameras, and robots.

8. Storage: Storage is used to store data and files. It can be internal (hard drive) or external (USB drive). Storage is used in various applications such as mobile phones, laptops, and servers.

9. Power Source: A power source provides the energy required by the device. It can be a battery or an AC adapter. Power sources are used in various applications such as mobile phones, laptops, and cameras.

10. Case: A case protects the internal components of the device. It can be made of plastic, metal, or wood. Cases are used in various applications such as mobile phones, cameras, and laptops.

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* What is 127.0.0.1 IP address

The address 127.0.0.1 is the standard address for IPv4 loopback address traffic - less if it is called the local host or loopback address. All computers use this address as their own, but it doesn't let computers communicate with other devices as a real IP address does.

* What is port

Port is a connection or a jack provided on a computer to connect external or peripheral devices to the computer, for example, you will need a port on your device to connect a keyboard, mouse, pen-drives etc.

* What port is reserved for http
port 80 is used for HTTP traffic

e.g:- We want to visit some websites on an internet then we use http protocol

* What port is reserved for https

The HTTPS transmits the data over port number 443

* What are reserved ports

Port numbers in the range 1 to 1023 are considered "reserved" or "privileged".

TCP/IP conventions require that a connection using such low port numbers have special privileges, such as root privileges on the originating machine.

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* What is a data center?

A data center is a facility that provides shared access to applications and data using a complex network, compute, and storage infrastructure.

A data center is the department in an enterprise that houses and maintains back-end IT systems and data stores - like mainframes, servers and databases etc. In the days of large, centralized IT operations, this department and all the systems resided in one physical place, hence the name data center.

* What are the different types environments discussed in the class?

* Who are Deployment / Build engineers?

A Deployment Engineer is responsible for the deployment of releases into the production environment.

A Deployment engineer is responsible for the safe deployment of one or more releases into the production environment.

Build engineers builds, tests and deploys ready code changes.

Build engineers focus on building stable software for a specific purpose.

* What kind of work is done by developers?

Someone who creates applications, an Ops, deploys and monitors the applications, and a

* What kind of work is done by testers?

The key function of a tester is to conduct both manual and automated tests to software products. No matter what company they work for, their ongoing goal is to reduce the number of bugs in software and identify as many mistakes as possible.

They will conduct automated and manual tests to ensure the software created by developers is fit for purpose and any bugs or issues are removed within a product before it gets deployed to every day users.

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* What is Java Archive file?

Java Archive is a platform-independent file format that aggregates many files into one. Multiple Java applets and their requisite components (class files, images and sounds) can be bundled in a Java archive file and subsequently downloaded to a browser in a single HTTP transaction, greatly improving the download speed.

* What do you mean by compiling a code?

That converts / translates computer code written in one programming language (the source language) into another language (the target language). The name compiler is primarily used for programs that translate source code from high level programming language to a lower level language (e.g. assembly language, object code, or machine code) to create an executable program.

* What happens when you compile a code?

* What are JAR, WAR, EAR files and their differences?

JAR

- A JAR file is a file with Java classes, associated metadata, and resources such as text and images aggregated into one file.

WAR

A WAR file is a file

that is used to

distribute a

collection of JAR

files, JSP, Servlet,

XML files, static

web pages like

HTML and other

resources that

constitute a web

application

EAR

An EAR file is a standard

JAR file that

represents the

modules of

the application

and a metadata

directory

called

META-INF

which contains

one or more

deployment

descriptor.

• Stands for Java

archive

Stands for web

application resource

or web application.

archive

stands for

Enterprise

application

archive

• Has jar file

extension

Has war file

extension

Has ear

file extension

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- * How do you deploy a war file on tomcat server

The simplest way to deploy a war file to tomcat is to copy the file to tomcat's webapps directory.

copy & paste the WAR file into tomcat's webapps directory to deploy WAR file. Tomcat monitors the webapps directory for changes if it finds a new file there it will attempt to deploy it.

- * How do you access a custom html file from tomcat server

Create a folder in webapps folder
for ex: Myapp

Put your html in that folder & name the html file, which you want to be starting page for your application, e.html

start Tomat Tomcat and point your browser to url.

"<http://localhost:8080/myAPP/a.html>" page will pop up in the browser

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* What is virtualization

Virtualization is the creation of a virtual version of something such as a server, a desktop, a storage device, an operating system or network resources.

Virtualization is a technique which allows to share a single physical instance of a resource or an application among multiple customers and organization.

- * Who manages the port
Operating System manages the port
- * Who manages IP address in a network
Router manages the IP address in a network
- * What is a hypervisor
A hypervisor also known as a virtual machine monitor or VMM, is software that creates & runs virtual machines. A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory & processing.
- * What are the pre-requisites for installing hypervisor
A 64-bit processor with second level address translation. To install the hyper-v virtualization components such as windows hypervisor, the

Processor must have SLAT

VM monitor extensions. enough memory
plan for at least 4 GB of RAM

Virtualization support turned on in
the BIOS or UEFI

- * What are the steps required to create a VM

Step 1 :- Prepare your computer for
virtualization

Step 2 :- install hypervisor

Step 3 :- import a virtual machine

Step 4 :- start the virtual machine

Step 5 :- using the virtual machine

Step 6 :- Shut down the virtual
machine

* What are the drawbacks of hypervisor

- 1 CPU is fully utilized.
- 2 memory 60 to 80% utilized.
- 3 harddisk 50% utilized

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* What is cloud

Cloud refers to a network on the internet. It is a technology that uses remote servers on the internet to store, manage, & access data online rather than local devices.

The data can be anything such as files, images, documents, audio, video

* What is the difference between cloud & internet

Internet

It is a network of interconnected devices that are capable of exchanging data over a network.

Cloud

Cloud computing is the on-demand delivery of IT resources & applications via the internet.

The main purpose is to create an ecosystem of

The purpose is to allow access to large amounts of

interconnected things
give them the
ability to sense,
touch, control, &
communicate

computing power
virtually, & offer
- ing a single
System view

The role of IoT
is to generate
massive amounts
of data

cloud providers
a way to store
IoT data &
provides tools
to create IoT
applications

* What are the 2 models available in
cloud.

These are two types of models in
cloud computing called the

1. deployment model
2. service model

* what is a ~~service~~^{Deployment} model.

it works as your virtual computing environment with a choice of deployment model depending on how much data you want to store & who has access to the infrastructure

* What is service models

Service model is based on cloud computing is based on service models there are 3 basic service models
1. IaaS , 2. PaaS , 3. SaaS

* explain SaaS

Software-as-a-service involves the licensure of a software application to customers. Licenses are typically provided through a pay-as-you-go model or on-demand. This type of system can be found in Microsoft Office365

* Infrastructure - as - a - service (IaaS)

Infrastructure - as - a - service involves a method for delivering everything from operating system to servers & storage through IP-based connectivity as part of an on-demand service. clients can avoid the need to purchase software or services & instead procure these resources in an outsourced on-demand service.

In: IaaS system include IBM cloud & microsoft Azure.

* explain (PaaS)

platform - as - a - service is considered the most complex of the three layers of cloud-based computing. PaaS shares some similarities with SaaS, the primary difference being that instead of delivering software online, it is actually a platform for creating software that is delivered via the internet. This model includes platforms like salesforce.com & Heroku.

* What are the advantages of cloud

1. Back-up & restore data
2. improved collaboration
3. Excellent Accessibility
4. low maintenance cost
5. mobility
6. services in pay-per-use
7. unlimited storage capacity
8. Data Security

