(i)

DATE __/__/____
PAGE NO _____

Unit - 1

mycompanion 43304

Q-1) What is DS? Give the important goal to build the DS?

Ans) A Distributed System is a collection of independent computers that appear to the user of the system as a single computer.

Goals to build DS →

1. Resource Availability - A DS should make resources (printers, files, computers, etc) available easily.

2. Transparency - A DS should hide the fact that resources and processes are scattered across a network.

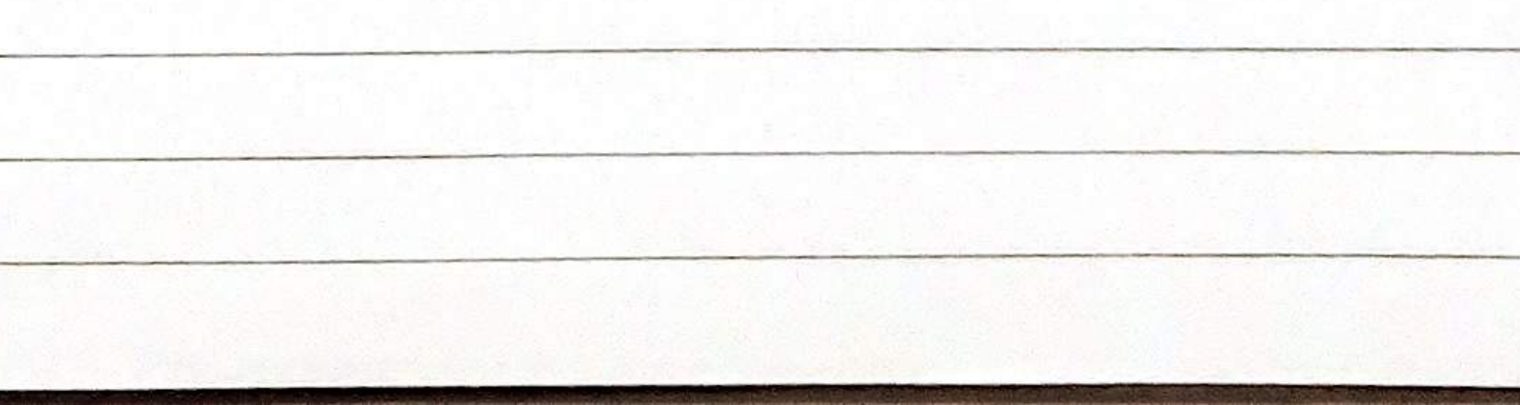
3. Openness - An open DS is a system that offers services according to standard rules that describe the syntax and semantics

4. Scalability - It can be measured along at least 3 dimensions: size, geographical distance and administration

Q-3) What is software architecture and explain the layered architectural style with layered communication protocol.

Ans) Software architecture is a description of subsystem and components of a software system and the relationship between them.

The basic idea for the layered style is; components are organised in a layered fashion, where component at ~~layer~~ layer L_i can make a down call to a lower level L_i.



Layered communication protocol →

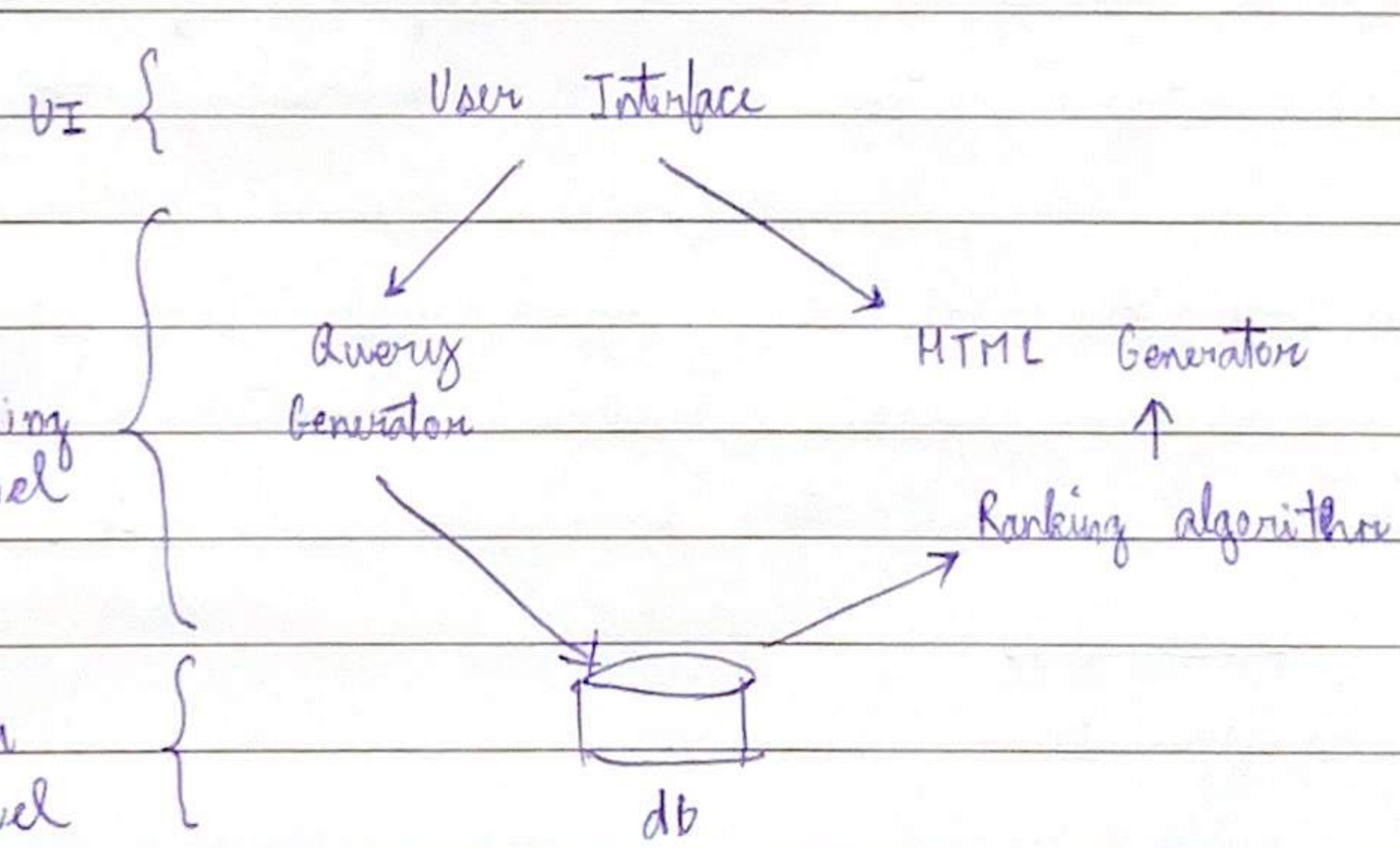
1. Such services generally ensure that messages are delivered in the same order as they were sent.
2. Service is made available in the form of a relatively simple programming interface containing calls to setup connection, send and receive messages.

Q.4) Explain the concept of application layering with suitable example

Ans) 1. Applications can often be constructed from roughly 3 different pieces - a part that handles interaction, a part that operates a DB, and a middle part that generally contains the core functionality of the application.

2. Consider a decision support system for stock brokerage. Analogous to a search engine, such a system can be divided into 3 layers - (i) Implementing UI
(ii) Back end for accessing DB
(iii) The analysis program

3. Example :



Simplified organisation of an internet search engine

Q.5) Describe 2 techniques that provide relocation transparency.

Ans) 1. Leaving a follow me address behind and letting the reply use the reverse route, i.e, no pointer fusion

2. Using home agent in mobile IP, provided the mobile device specifies its home address. Although a triangular communication pattern arises, the client is not aware of this.

Q6) Compare some aspects of client server and P2P computing model. What is the main challenge of communication in P2P.

Ans)

Client Server	P2P
i) It is n/w a dedicated path is implemented in which 2 n/w nodes establish a dedicated communication channel through that n/w nodes may communicate.	i) Source and destination nodes are directly connected
ii) Client request for service, and server responds with service	ii) Each node can request for service and provide services
iii) Does not require extensive hardware to setup the n/w.	iii) Expensive to implement.

Main challenges of communication in P2P →

1. P2P model assumes that each machine has somewhat equivalent capabilities, that no machine is dedicated to serving others.

2. Their join and leaving of the nodes of their will and it makes management of topology and resource searching more challenging.