

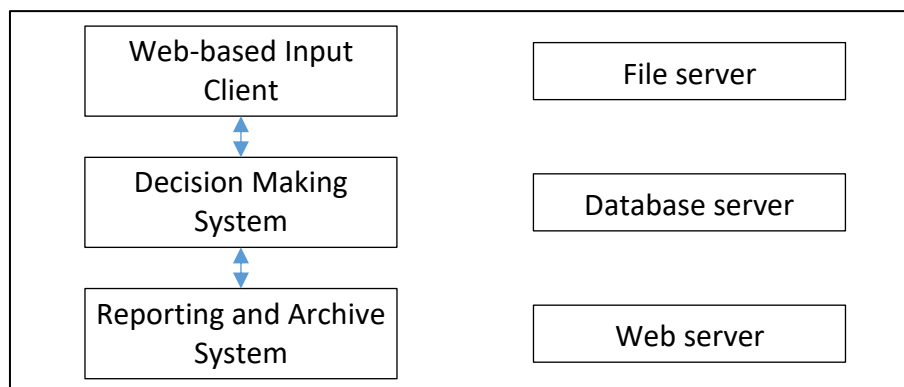
**UEEN3113 / 3413 Server Configuration and Management
Quiz**

Duration: 50 minutes

Total: 30 marks

Answer all questions.

1. A company is using a system to analyse customer's information and propose a customised financial plan that suite the customer's needs and conditions. The system can be divided into three sub-systems as illustrated in the figure below. A web-based client which can run on any web browser is used to enter customer's information. The web-based client is hosted in a web server. The customer's information will be stored in a database server and the Decision-Making System will access and analyse the information in order to propose a suitable financial plan. All the financial plans will be stored in file server. The Reporting and Archive System will generate various reports upon request. The system will access the file server or/and database server in order to generate and store reports. The company is well-known and it has to serve a huge amount of customer daily. Customer's information is their important asset.



- a. Identify the client type of the web-based input client in the above system. (1 mark)

Answer:

Thin client

- b. Briefly explain **FOUR (4)** benefits of dividing the above system into three sub-systems and using different types of server. (8 marks)

Answer:

Making changes to the system will be easier because we have to make changes to only a specific sub-system. (2 marks)

The web-based client is used for data entry without processing, thus it doesn't require an expensive high-specification computer for execution. (2 marks)

It is easier to maintain, secure or upgrade a specific server. (2 marks)

The servers can be distributed in different locations and avoid bottleneck. (2 marks)

*** Other appropriate benefits and explanations are acceptable.*

- c. Identify **TWO (2)** risks in the above system. (4 marks)

Answer:

Failure of any sub-system can cause the whole system unworkable. (2 marks)

Failure of the server or the network can cause the system inaccessible. (2marks)

**UEEN3113 / 3413 Server Configuration and Management
Quiz**

d. The system involves a lot of data storing and accessing, briefly explain the suitability of implementing the following RAID levels in the server.

i. RAID 4 (4 marks)

Answer:

Each update in RAID 4 requires four I/O operations which will affect the system performance. Recovery is impossible if there are two disks failed. (3 marks)

Thus, it might not be suitable for this system. (1 mark)

ii. RAID 6 (4 marks)

Answer:

Although the performance might be affected by two different parity calculations, it is possible to recover data even if two disks failed. (3 marks)

Thus, it might be suitable as the data is the company's important asset. (1 mark)

2. List **THREE (3)** advantages of client-server model. (3 marks)

Answer: Any three of these

Centralised system administration.

Data accessibility.

Data integrity.

Scalability.

System interoperability.

Client independence.

Distributed workload improves performance.

3. The table below shows the data bits in three disks.

Disk A	Disk B	Disk C
110010	011100	100110

Assume that the three disks are configured as RAID 3, explain how the data could be re-generated if Disk A is corrupted. Show the parity bits and relevant calculations for parity bits generation and data bits re-generation in your explanation. (6 marks)

Answer:

Parity bits:

110010 XOR

011100 XOR

100110

001000

(2 marks)

Data bits in Disk A can be re-generated by performing exclusive OR operation to the data bits in Disk B, Disk C and the parity bits. (2 marks)

Data bits for Disk A:

011100 XOR

100110 XOR

001000

110010

(2 marks)