Question 25   Transaction Processing Systems

a) i) Batch processing is the collection of transactions to be processed at a later date as a group or as batch when the it economical or at a quieter period.

If transactions are processed as batch it is cheaper individually when all processed together.

Batch processing is appropriate:

Cheque clearance.

~~Cheques~~ Cheques ~~can are~~ ~~paid~~ made ~~batch processed~~ payable to the receiver but before that it needs to be cleared by the bank to see if the person ~~writing~~ issuing the ~~check~~ cheque has enough funds in their bank account. It is economical to collect all cheques and process them together rather than do it in real-time.

The cheques are collected then d processed and cleared when most suitable & economical for the ~~poo~~ bank.

Then three working days the person (recipient) can cash the cheque if cleared.
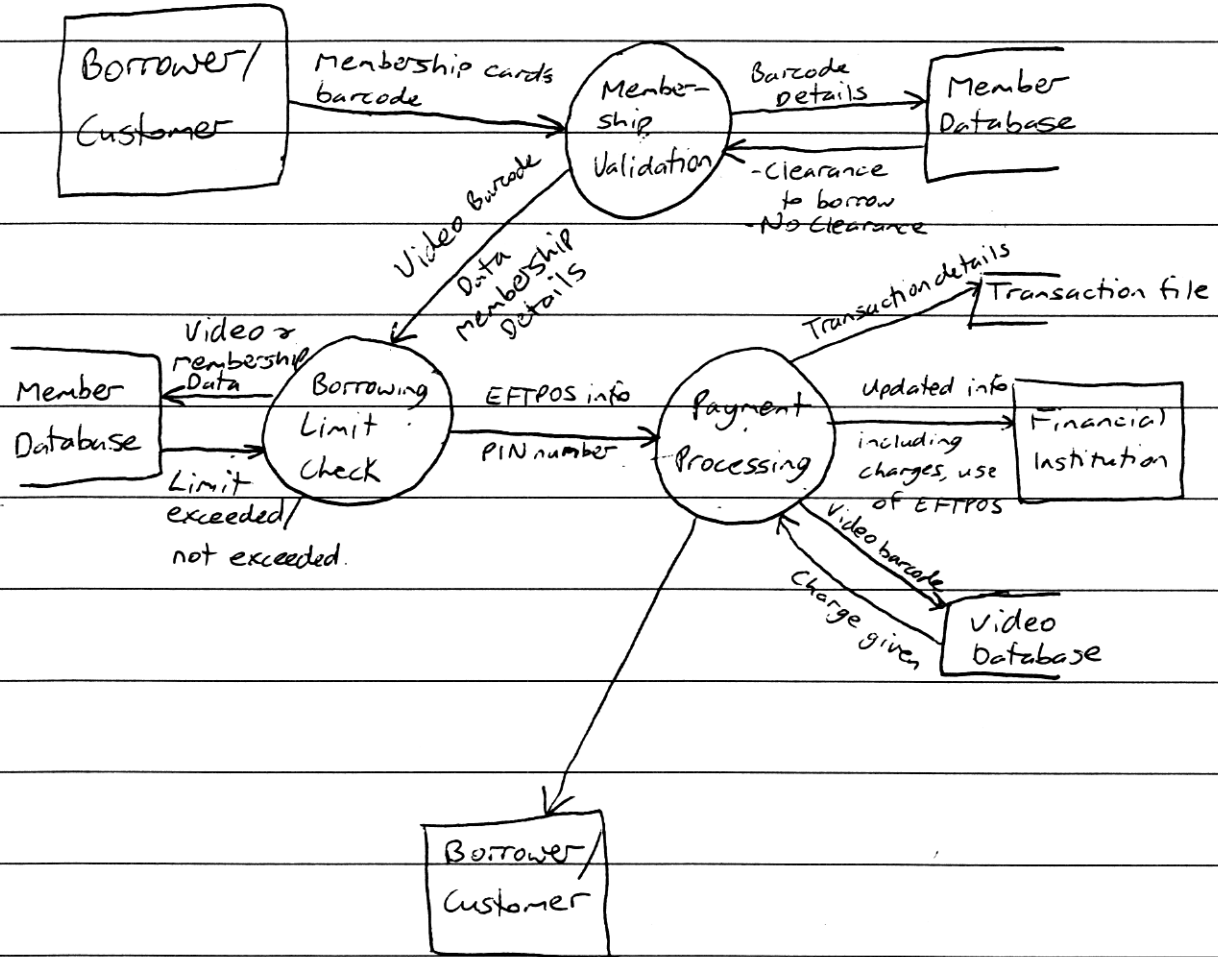
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Q.25 aii

II) data accaracy is the extent to which the data is free from errors data integrity is the reliability of the data including its relevance and if it up to date

An example to show the differece is to concider MrsSmith entering her name into a hata base. Data accuracy would refer to her name being correctly entreed into the datatbase (ie Mrs Smith not MrsSmmth). Data integrity refers to her data being up to date ie changing the data if she get married an changs name.

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Q 25

b) i)

Borrower/Customer → Membership cards barcode → Membership Validation

Membership Validation → Barcode Details → Member Database

Member Database → -Clearance to borrow / -No Clearance → Membership Validation

Video Barcode / Data membership Details → Borrowing Limit Check

Member Database ← Video & membership Data ← Borrowing Limit Check

Member Database → Borrowing Limit Check

Limit exceeded/not exceeded.

Borrowing Limit Check → EFTPOS info / PIN number → Payment Processing

Payment Processing → Transaction details → Transaction file

Payment Processing → Updated info including charges, use of EFTPOS → Financial Institution

Video Database → Video barcode / Charge given → Payment Processing

Payment Processing → Borrower/Customer

Q 25

ii). Appropriate backup procedures for the video store include the use of backups, journals, checkpoint and restoration managers. The video store should maintain backup copies regularly and stores it in a safe locations. The use of Journals which are audit trail's of changes in video transaction ~~the~~ and the database containing video and customer information, is also relevant. When the DBMS synchronises the processes and the journal entries of the video store transaction database copies of checkpoint records should be obtained which contains relevant information about restarting the system if it goes down, hence it's a backup procedure. By storing the data on secondary storage such as CD-ROMS, magnetic disks and tapes, this another copy of the ~~dist~~ system is vital. To re-process the system when a failure occurs. Another backup procedure that's relevant to the video store's self-checkout transaction is the use of fast recovery and recovery managers to ~~restore~~ restore the lost or damaged database to correct

Q25 continued

condition and restart the transaction process. The use of Grandfather - Father and Son which are generations of backups of masterfiles can also be used by the video store so that if the master file containing the video store's database breaks down, the most recent back up of the Son can be immediately used to rebuild the system.

(c) <u>Collecting</u>: An event or seat selection can be entered using a touch screen. User can select the pre defined buttons allowing easy access such as screens are designed in user-friendly manner.

Customer can also select a button to acquire tickets from an automated ticket machine. This way,

Customers will have to select which seat and event they favour. Entering the seats available can be done by clicking on icons using mouse or enter data/ requests using keyboard as well.

Storage & Retrieval.

Events and seats arrangements are stored in a relational database so that connections between them can be linked thus allowing a faster retrieval /response and minimum time when customer request for the availability of data.

The number of events and seats available OR which transactions from which customers have taken place should be ~~backup~~ stored on an offsite storage using magnetic tape as a backup medium. However, another copy of such data needs to be available online in fast processing and capable in memory storage C DRive (hard disk). This is to ensure rapid response time and consistent data to be retrieved during real time processing.

Partial backups such as incremental and differential

(c)   Cont. Q 25.

backup should be completed weekly to ensure
details about events & seats are updated correctly
so that concurrency and atomicity of data are
maintained. Concurrency of data ensures that no
two customers can have the same seats during the same
event. Atomicity ensures that the transaction of purchasing
ticket and the process of selecting the seat + events are completed
successfully as a group. This prevents disruptions/
errors or failures of the system.

Firewalls and encryptions are enhanced to ensure
data security during transmissions of data. At all points, data
are authenticated and customer details are encoded using public
keys and decoded using private keys.

Processing : Updating of data is done in real time.
Screens available for customers should be
friendly designed so that no mismatch /misentry
of data occur. Once customer enter their
selection, purchase the tickets, the number of seats
are immediately removed from the database for
a particular event. This allows current and relevant
data to be available for future customers using

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system.

Client -server - architecture is used in this system to allow user-friendly approach in purchasing of tickets and selection of seats & events. Client is the customer, enter selection — sending the request to the central database and server (Web-Ticket) ~~access~~ retransmit response ~~to~~ and ticket details to customers.

Web forms will have to be completed to process the required selection & purchase from customer. Web forms should be designed in a user-friendly way, catering an easy access for customers not accustomed with ordering online.

02WB4