

Slide 05 : Decision Tree and Decision Table

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Decision Tree

A decision tree provides a graphical view of the processing logic in decision-making and corresponding actions taken.

- **Edges** – represent the conditions that are evaluated.
- **Leaf nodes** – represent the actions taken when conditions are met or not met.

Example – Consider a Library Membership Automation Software System (LMS) where it should support the following three options:

1. New Member:

- **Decision:** When "New Member" is selected, prompt for member details (name, address, phone, etc.).
- **Action:** If details are valid, create a membership record and print a bill for annual membership fee + security deposit.

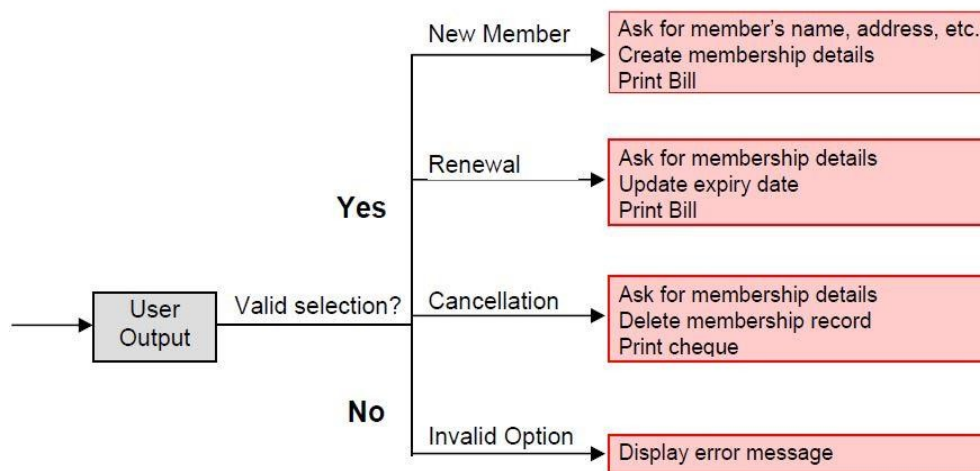
2. Renewal:

- **Decision:** When "Renewal" is chosen, ask for member name and membership number to check whether he is a valid member or not.
- **Action:** If membership is valid, update expiry date and print annual membership bill; otherwise, display an error message.

3. Cancel Membership:

- **Decision:** When "Cancel Membership" is selected, prompt for member name and membership number.
- **Action:** Cancel membership, issue a cheque for the remaining balance, and delete the record from the database.

Decision Tree of LMS



Decision Table

A decision table represents complex processing logic in a tabular/matrix form.

- **Upper rows** – Conditions to evaluate.
- **Lower rows** – Actions taken based on conditions.
- **Column (Rule)** – If a condition is true, then the corresponding action to be executed.

Decision table for LMS

Conditions				
Valid selection	No	Yes	Yes	Yes
New member	-	Yes	No	No
Renewal	-	No	Yes	No
Cancellation	-	No	No	Yes
Actions				
Display error message	X	-	-	-
Ask member's details	-	X	-	-
Build customer record	-	X	-	-
Generate bill	-	X	X	-
Ask member's name & membership number	-	-	X	X
Update expiry date	-	-	X	-
Print cheque	-	-	-	X
Delete record	-	-	-	X

From the above table we can easily understand that, if the valid selection condition is false then the action taken for this condition is 'display error message'. Similarly, the actions taken for other conditions can be inferred from the table.