

AIM: Draw the data flow diagram (DFD) for Transactions from ATM

Theory :

Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It can be manual, automated, or a combination of both.

It shows how data enters and leaves the system, what changes the information, and where data is stored.

The objective of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communication tool between a system analyst and any person who plays a part in the order that acts as a starting point for redesigning a system.

The DFD is also called as a data flow graph or bubble chart.

Symbols Used for DFD:

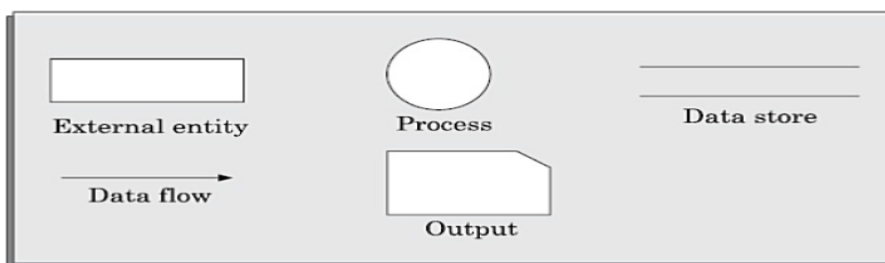
A DFD has four different symbols:

Process: (circle) it denotes transformations of the input data to produce the output data.

Data flow: (arrows/curved lines) represent the movement of data, i.e., leaving one process and entering into another process. Data flows are represented by arrows, connecting one data transformation to another.

Data store: (parallel lines.)Data store is the data at rest.

Actor: (rectangle.) It is the external entity that represents the source or sink (destination of data



Constructing DFD

1. The construction of the DFD starts with the high-level functionality of the system, which incorporates external inputs and outputs.
2. This abstract DFD is further decomposed into smaller functions with the same input and outputs.
3. The decomposed DFD is the elaborated and nested DFD with more concrete functionalities.
4. Decomposition of DFD at various levels to design a nested DFD is called **leveling of DFD**.
5. Sometimes, dotted lines are used to represent the control flow information. Control flow **helps to decide the sequencing of the operations in the system**.
6. Multiple data flow can be shown on single data flow line. A bidirectional arrow can be used as input and outflow (if same data is used) data or separate line can be used for input and output.
7. *External agents/actors and data flow are represented using nouns; for example, stock, pin, university, transporter, etc.*
8. Processes should be represented with verbs followed by nouns. Longer names must be connected with underscores (" _ ") and these should be short but meaningful, e.g. sales_detail.
9. Avoid representation of control logics in the DFD.
10. Each process and data store must have at least one incoming data flow into it and one outgoing data flow leaving it.

DFD for Transactions from ATM:

An initial informal description of a required functionality is usually given by the customer as a *statement of purpose (SoP)*.

An SoP serves as a starting point for the analyst and he proceeds with the requirements gathering activity after a basic understanding of the SoP.

The requirement Analyst will analyze ***this functional requirement.***

R.1: Withdraw cash

Description: *The withdraw cash function first determines the type of account that the user has and the account number from which the user wishes to withdraw cash.*

It checks the balance to determine whether the requested amount is available in the account.

If enough balance is available, it outputs the required cash, otherwise it generates an error message.

R.1.1: Select withdraw amount option

Input: "Withdraw amount" option selected

Output: User prompted to enter the account type

R.1.2: Select account type

Input: *User selects option from any one of the followings— savings/checking/deposit.*

Output: *Prompt to enter amount*

R.1.3: Get required amount

Input: *Amount to be withdrawn in integer values greater than 100 and less than 10,000 in multiples of 100.*

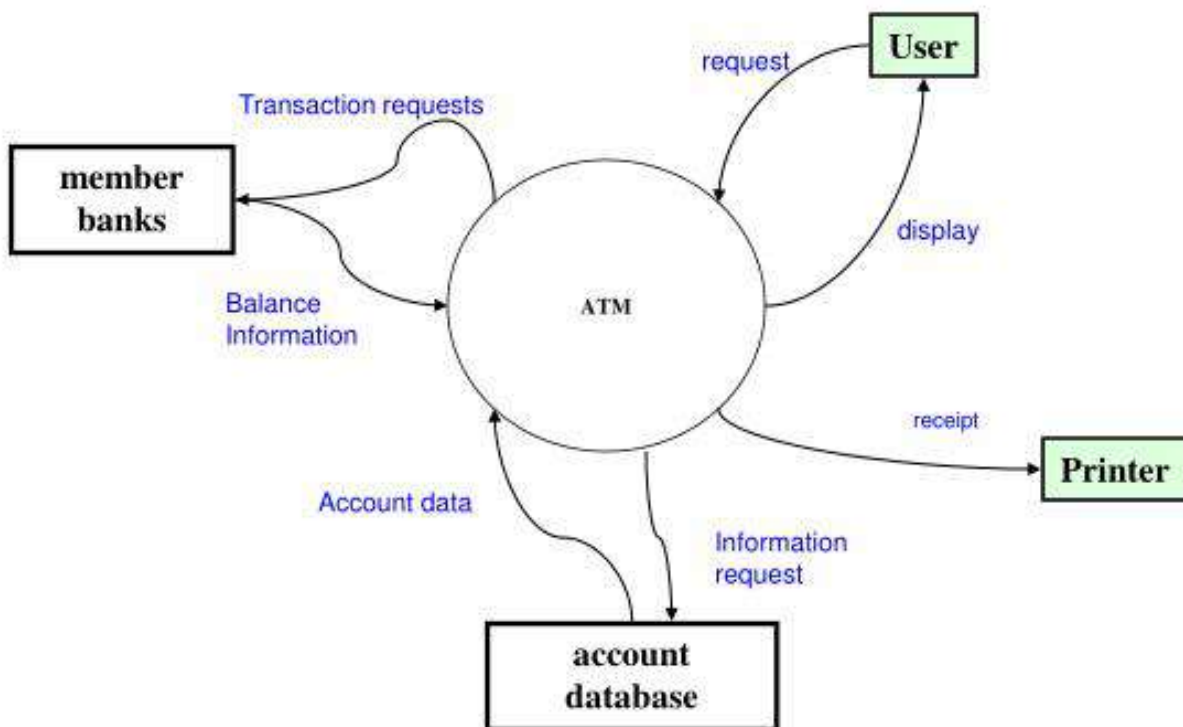
Output: *The requested cash and printed transaction statement.*

Processing: *The amount is debited from the user's account if sufficient balance is available, otherwise an error message displayed.*

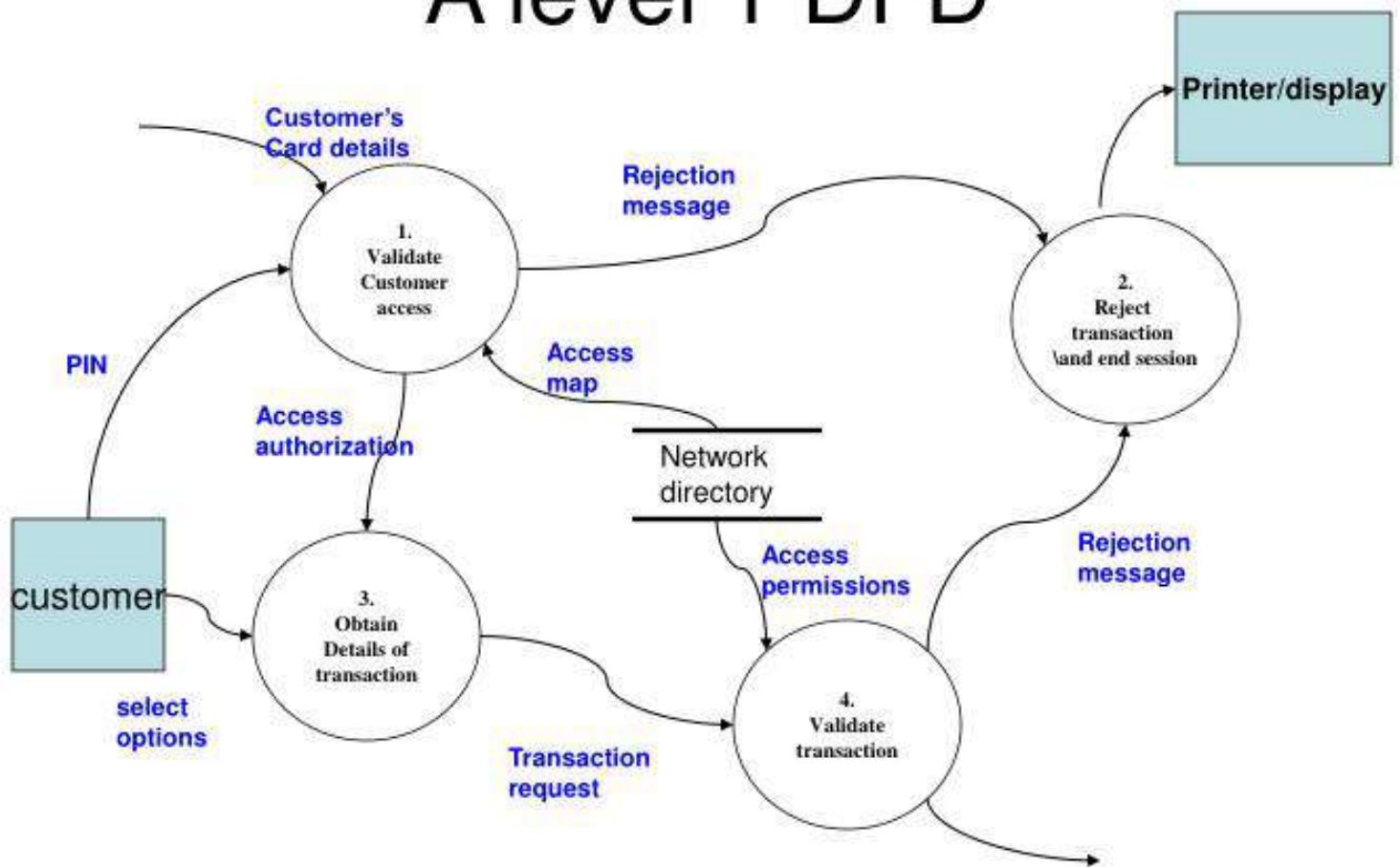
Result :

DFD of an ATM System

Level 0 – DFD ATM



A level 1 DFD



A level 2 DFD

