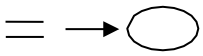
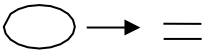
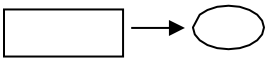
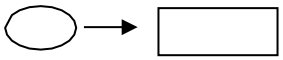
a) DFD(Data flow diagram)-

* It is an important tool used by an analysist.
* DFD is first time develop by “Lary Constiane”.
* It is a way of expressing system requirement in graphical thought.
* It is based on structure analysis of the system.
* It is also known as Bubble chart.
* A DFD consist of series of bubble joint by line.
* Bubble represent the data transformation of process and line represent the data flow in the system.

Symbol used in Data Flow Diagram (DFD)-

* Computer File ⇨ To represent the Process.
* Unit Price / Label line ⇨ To represent the data flow.
* Customer ⇨ To represent the name of rectangular entity or external interface.
* Cost file ⇨ To represent the data store or File parallel line.

Data flow can take Place

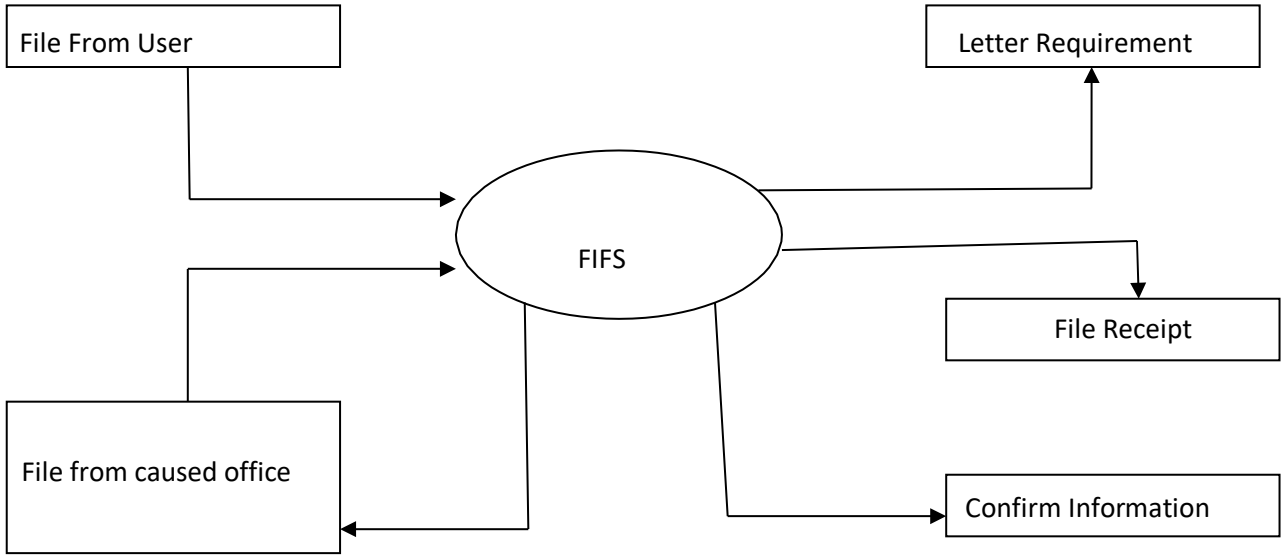
1) Between Process 
2) File to process 
3) Process to file 
4) External Entity to process 
5) Process to External Entity 

❖ Process

* Process so that what system do.
* Each process as one or more inputs and produce one or more output.
* Each process has a unique name or number.

❖ File

* A file and data store is a repository of data they contain data i.e; written in the system. Process can enter data into the a data store or retrieve data from the data store.

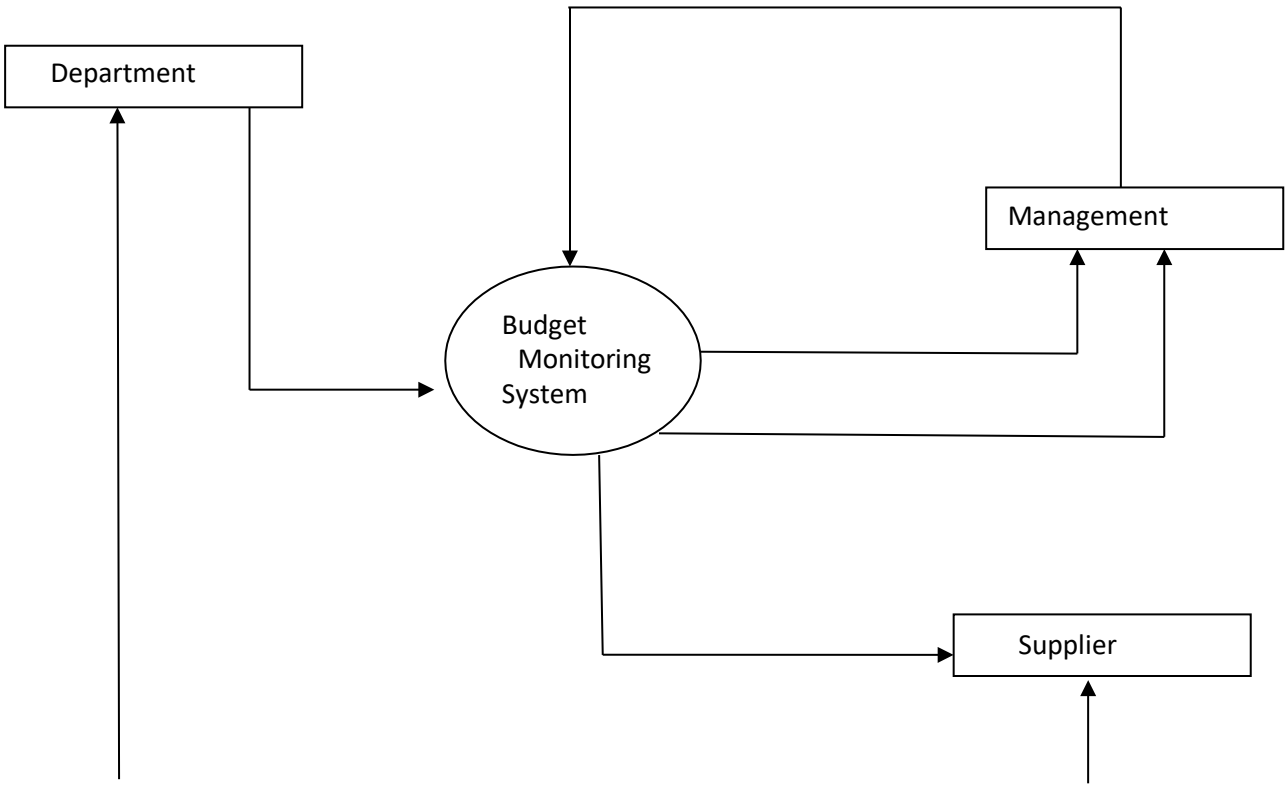


File information flow system

There are two type of DFD.

1. Context Diagram
2. Top Level Diagram

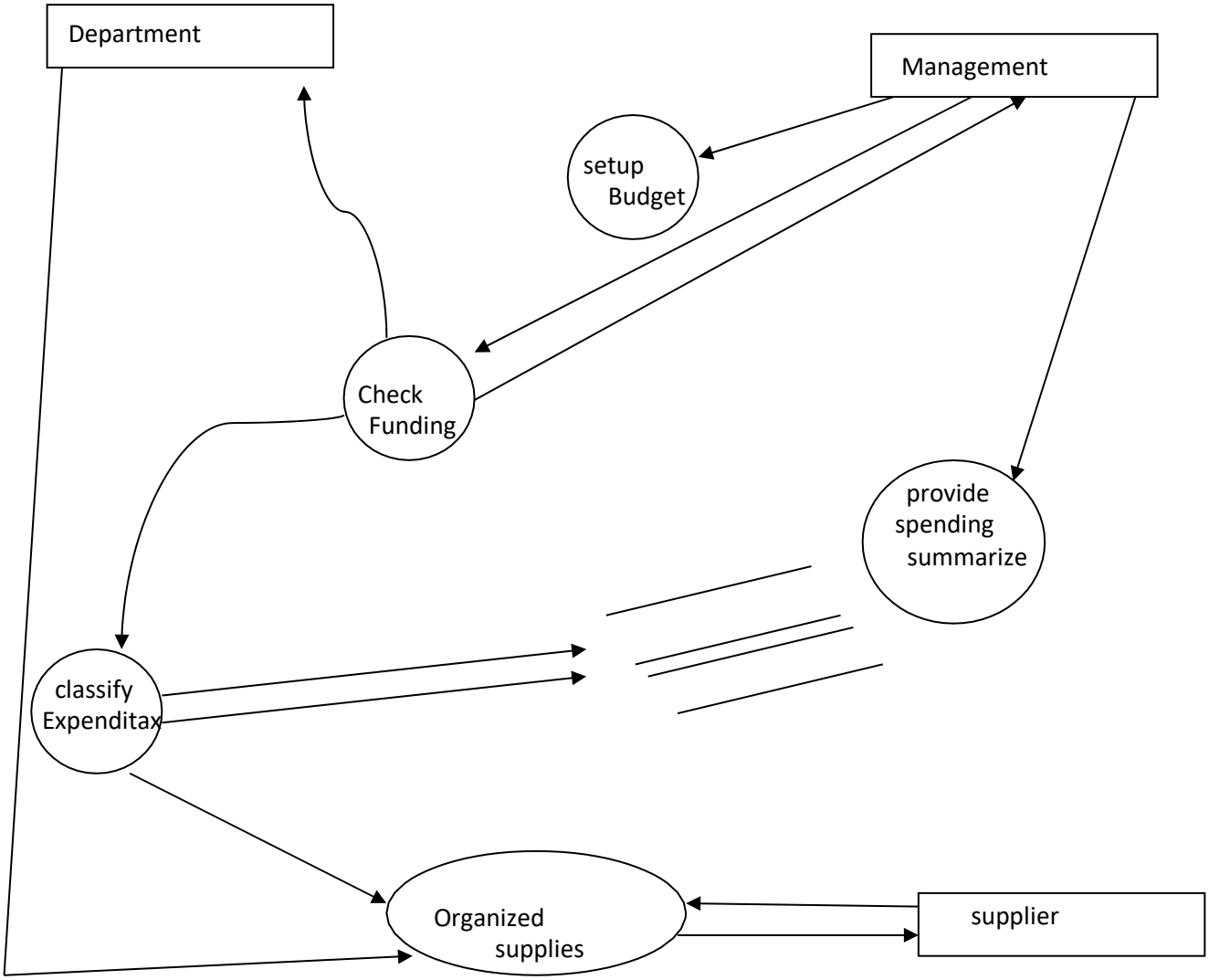
1. Context Diagram-
   - On entire system is deprecated/represented by one DFD, which gives a system as over view, it is called context diagram.
   - Context diagram tries/treats entire system as a single process will all its inputs, outputs linked and source are identified.
     Example- The context diagram for budget main tracing system diagram.



- The context Diagram for budget monitoring system.
- This interact with three external entity department management & supplier.
- The main data flows for department data are “spending request in response department get reject request or for opprovale. For with respond management also sent “budget allocation. Data flows to the system and get spending summaries” and returned the delivery note.

❖ Top Level DFD

* The top level DFD if the context diagram does not describe the system in details for more details, it is necessary to identified the measure system process and draw DFD showing this processes and Data Flow between then the DFD that source measure process is called top level DFD monitoring system.



Budget Monitory DFD (Top Level)

- Data Dictionary
  - In DFD data item that flows between the process are identify by unique name.
  - Data Dictionary is a repository of various data flow define in a DFD.
  - It contains the details of the structure of the data item (entity) and File used in DFDs.
  - Enteries in a data dictionary include the name of the data item and attributes such as DFD where it is used its purpose/drivel from, its sub items and any nodes that may be appropriate each name data item. On each DFD should appear in DD such as Data Flow , files process, entity such data dictionary define department.

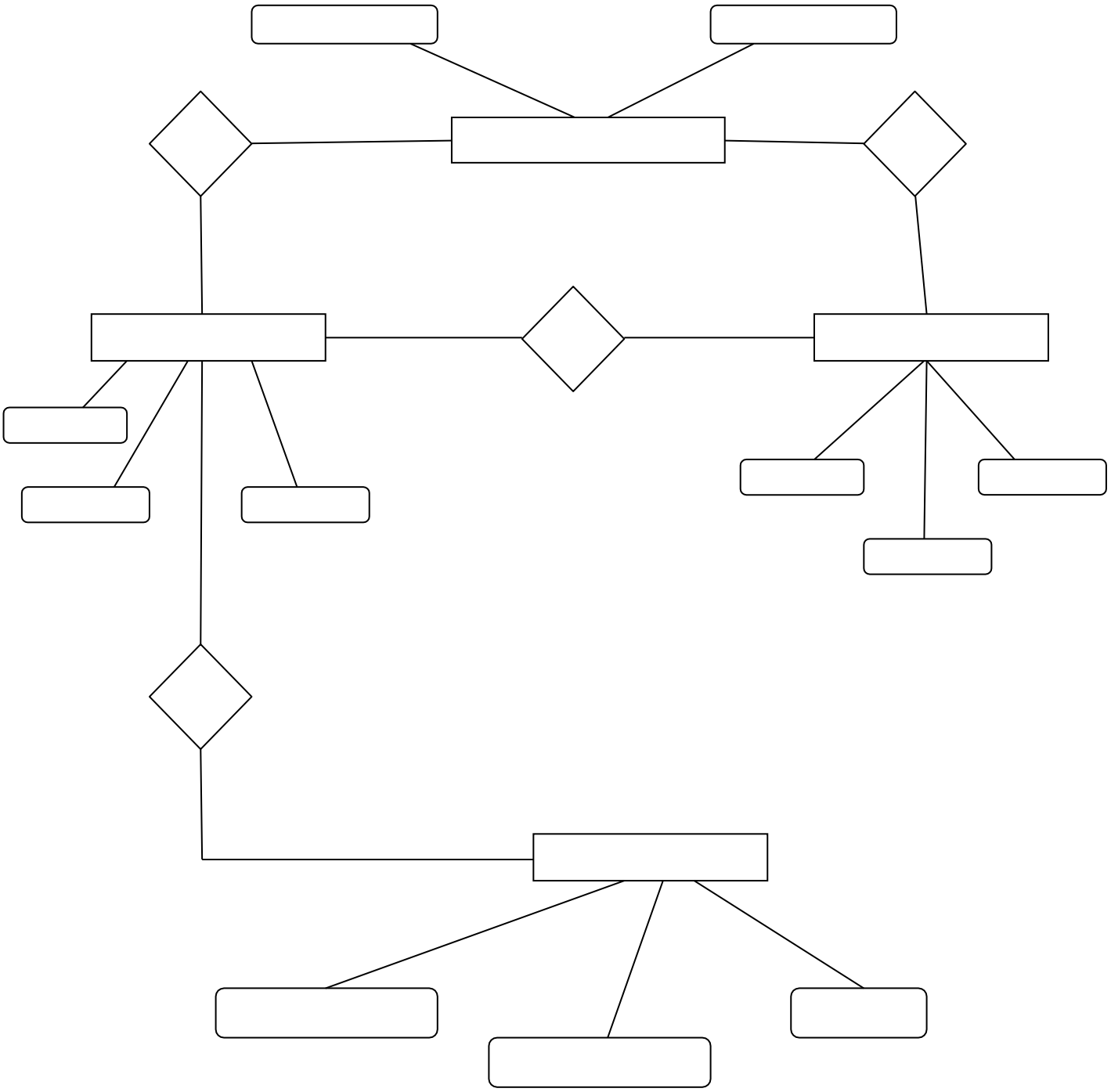
- Symbols used in Data Dictionary
  1. + ⟶ AND
  2. = ⟶ Equivalent to
  3. [ ] ⟶ Either OR
  4. ( ) ⟶ Optional

Example of Data Dictionary of Department

Department = Department – Name +
Department – Address +
Department – Phone +
(Department-Contact No) + Department – email

To generate E-R Model-

1. Identify the Entity
2. Find Relationship
3. Identify the key attribute for every entity.
4. Identify other relevant attributes.
5. Complete E-R Diagram.
6. Preview your result with your business user.



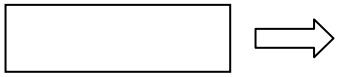
- E-R Diagram- We see that spending request from department goes to “check Funding process”. This process check whether & “spending request” for approval is required or not. if a spcial approval required is needed, it places the request for approval the classify a expenditure process received the approved request and data they are entered into data store department A/C & type A/C/
- Finally, top required order with the supplier and get the delivery.

Entity Relationship Diagram-

* Entity Relationship Diagram was first defined in 1876 by P.P Chain since the Charles Bachman and Jamep Martine have added some small refinement to basic E-R diagram due to its simplicity and case of use this techniques attracted considerable attention during 1990 in both industry and research community.
    1. It is a logical too.

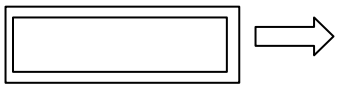
2. It is use to DB design to use the DB,
3. We can show all entities & relationship among entity. We can use the E-R Diagram for ER modeling.

1) Rectangular Box



Which represent Entity set.

2) Double Rectangular Box

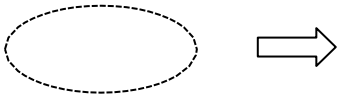


Which represent weak Entity set

3) Oval/Ellipsis

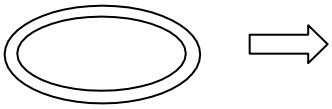
Which represent Attributes

4) Desired Attribute



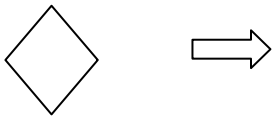
Which represent Derived Attributes

5) Double Ellipsis



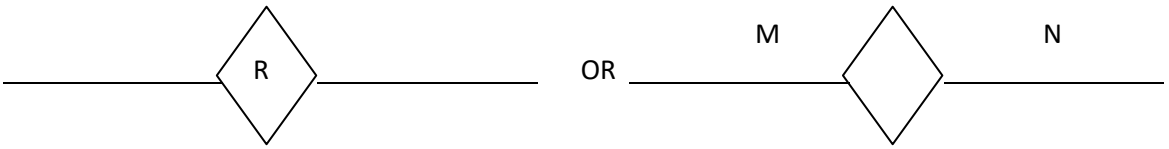
Which represent multi values Attributes

6) Diamond Shape

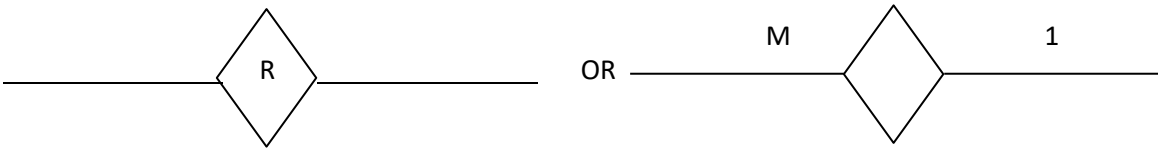


Which represent Relationship

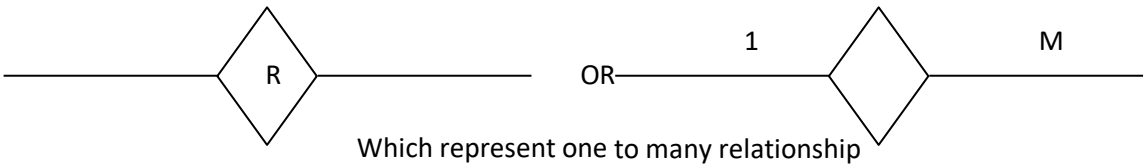
Relation Diagram so how to entities share information in the data base.

A. 

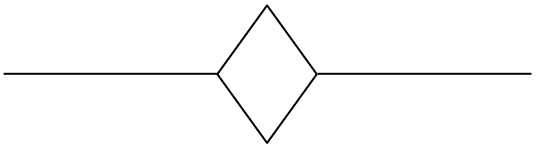
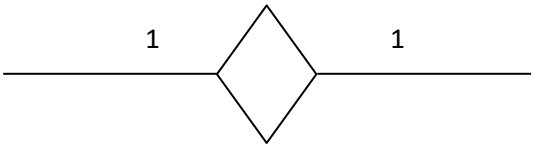
Which represent many to relationship

B. 

Which represent many to one relationship

C. 

Which represent one to many relationship

D.  OR 

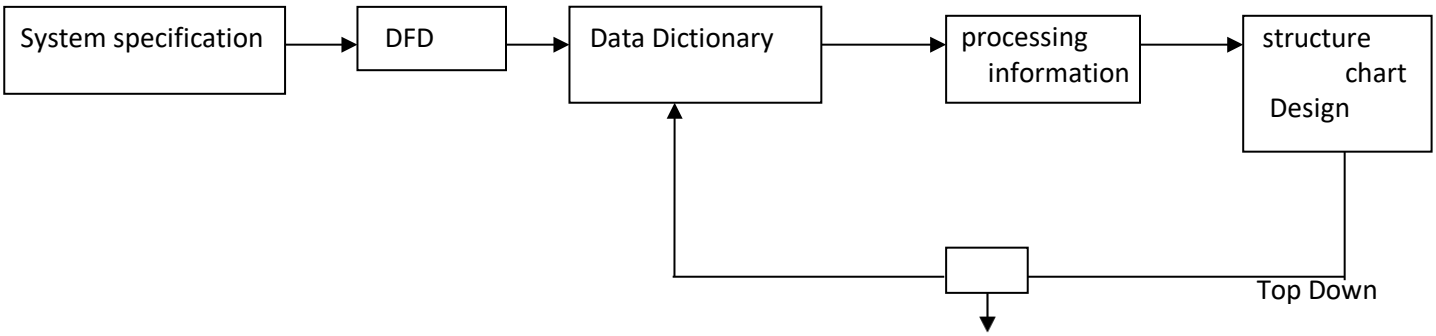
Which represent one to one relationship

- Step in E-R Modeling
  - Module
    - A relationship or scale down structure of an object usually the following six steps are followed.
  - Design Concept
    - System design focuses on what components are required.
    - It defines the general structure of the software. The major module the function of module the interface between module major data structure and output format of the system.
  - Design Strategies
    - A system consist of component we have component of their own in other word a system is hierarchical of components with the highest level of the component to the total system.
    - To such design a hierarchy there is two different approaches possible.

    1) Top Down Strategies
    2) Bottom up strategies

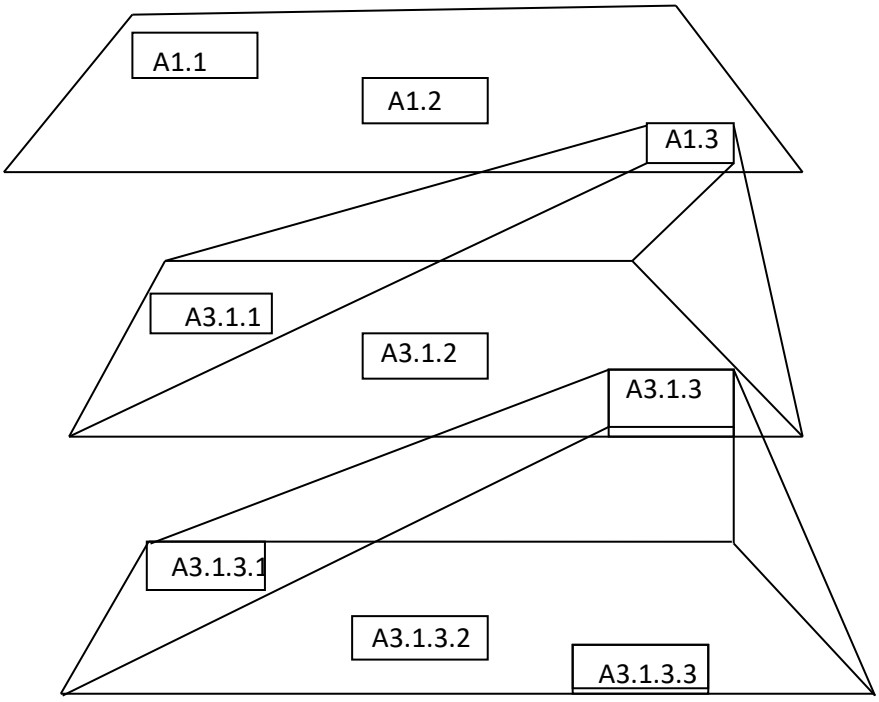
    1) Top Down Strategies-
       - Top Down strategies approaches start form the highest level of the component of the hierarchy and proceeds through to low level.
       - A Top Down approaches strategies start of identify the major component of system, the clown passing their lower level component or illustrating unit.
       - A Top Down strategies is a design method often results in the form of stepwise requirements.

    2) Bottom up strategies-
       - Bottom up approaches start with lower level components of the hierarchical and proceeds through to progressively high level to the top down component.
       - A Bottom up design approaches start with the designing the most basis component and proceed to the higher level component that use there their lower level component/structure.
  - Design Methodology/Tools & techniques.
    - There has been growing move to transfer the “Art” of system analysis and design into an “engineering” type discipline the feeling that there have more clearly define logical method for developing a system that needs/meet users requirement has led to new technique & methodology that fundamentally attempt to design the system.
  - Structure Design
    - It is based on DFD tool or methodology(technique).
    - On the basis of DFD(graphical represent) system design identify and describes the functional aspects of the system.
    - The approach begins with a system specification that identified input & output & describe the functional expect of the system.
    - There are use as a basis for graphical reforestation DFD(of data Flow & processes).
    - From DFD the Next step is the definition of modules and their relationship to one an other in a using a data dictionary or other tools.



It is relationship of ……

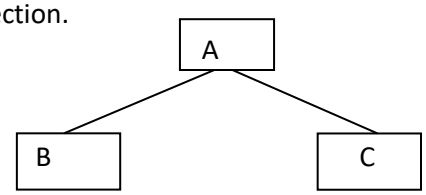
- Structure design method partisan of a program small independent module.
- They are arrange in hierarchy that approximates a moral of business area and is organized in a top manner with the details shown at the bottom.
- The structure design is an attempt to minimize complexity & make a problem manageable by subdividing it smaller system.
- Subdividing into smaller part which called modularization or decomposition.



- Technique and Methodology-
  - The documentation tools for structure design hierarchy or structure chart. It is a graphic tools for representing of hierarchy. It has three elements.

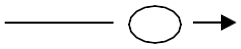
1) Module- It is represented by a rectangle with a name & a contiguous set of statement module- A

2) Connection- It is represented by a vector linking two module and has usually means one module has called another module connection.

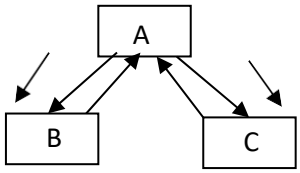


In this figure module A calls module B & C.

3) Couple- it is represented by arrow with a circular tarl and represents data item moved from are module to another couple

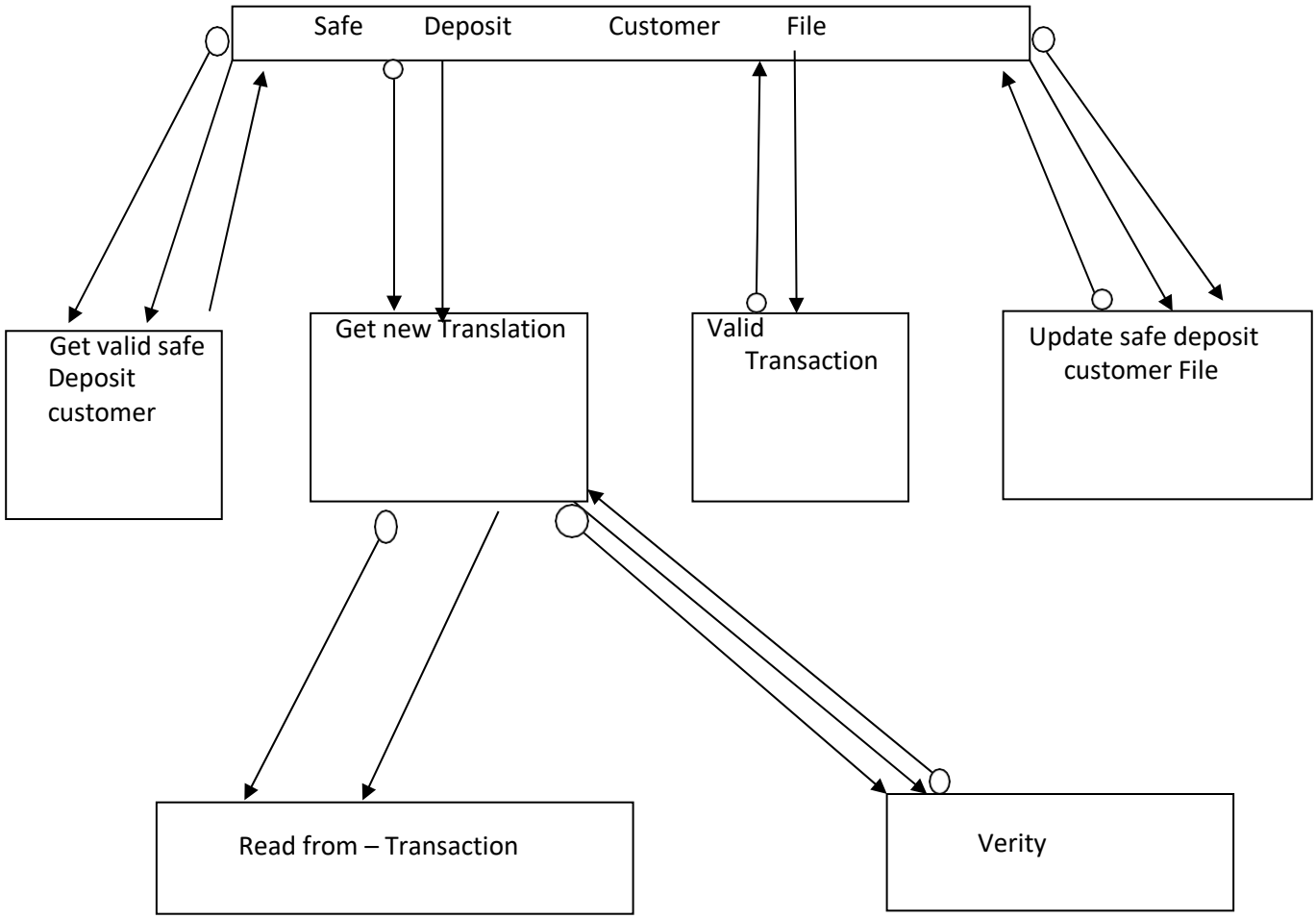


Eg,



In this figure 0 & P , m & n are couple module A call B passing downward like wise module. A calls (passing downward) and receives n back.

Example of a structure chart shown in fig(next page).



* The structure design method partition a program into a small independent module.
* The structure are arranged in a hierarchic of the software(from top to bottom or bottom to top)