Software Engineering

T.E – B

Unit 2

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What is DFD? How to build DFD?

- 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 uses the system. The DFD is also called as a data flow graph or bubble chart.

The following observations about DFDs are essential:

1. All names should be unique. This makes it easier to refer to elements in the DFD.
2. Remember that DFD is not a flow chart. Arrows is a flow chart that represents the order of events; arrows in DFD represents flowing data. A DFD does not involve any order of events.
3. Suppress logical decisions. If we ever have the urge to draw a diamond-shaped box in a DFD, suppress that urge! A diamond-shaped box is used in flow charts to represents decision points with multiple exists paths of which the only one is taken. This implies an ordering of events, which makes no sense in a DFD.
4. Do not become bogged down with details.

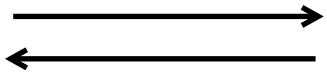
DFD provides an overview of

- What data is system processes.
- What transformations are performed.
- What data are stored.
- What results are produced , etc.

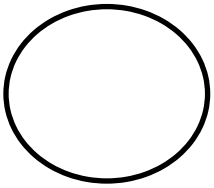
Symbols Used in DFD

- **Square Box:** A square box defines source or destination of the system. It is also called entity. It is represented by rectangle.

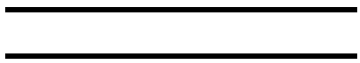
- **Arrow or Line:** An arrow identifies the data flow i.e. it gives information to the data that is in motion.



- **Circle or bubble chart:** It represents as a process that gives us information. It is also called processing box.



- **Open Rectangle:** An open rectangle is a data store. In this data is store either temporary or permanently.



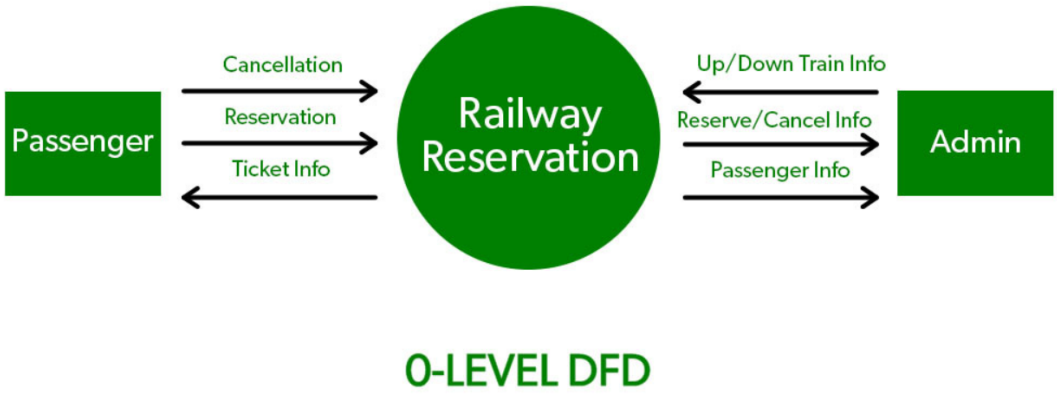
Levels in DFD:

- The DFD may be used to perform a system or software at any level of abstraction.
- Infact, DFDs may be partitioned into levels that represent increasing information flow and functional detail.
- Levels in DFD are numbered 0, 1, 2 or beyond.
- Here, we will see primarily three levels in the data flow diagram, which are: 0-level DFD, 1-level DFD, and 2-level DFD.

Level-0:

- It is also known as fundamental system model, or context diagram represents the entire software requirement as a single bubble with input and output data denoted by incoming and outgoing arrows.

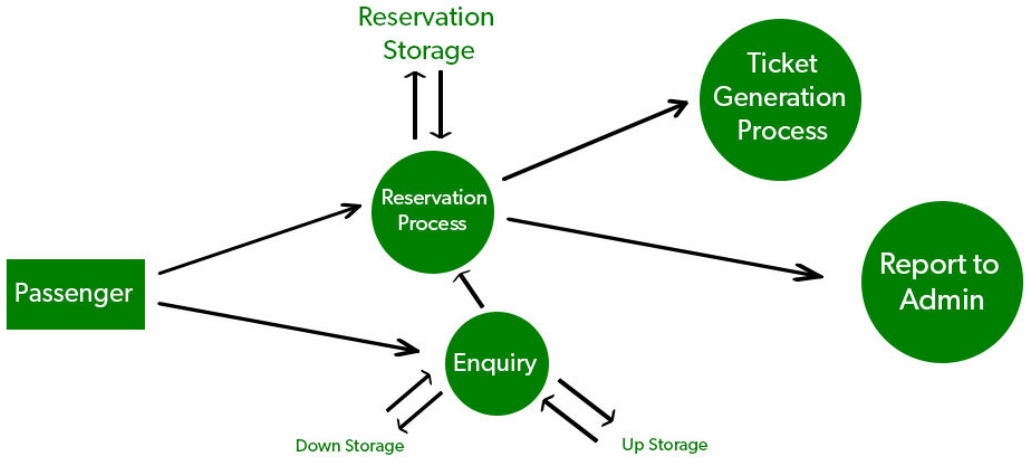
Example:



0-LEVEL DFD

Level-1:

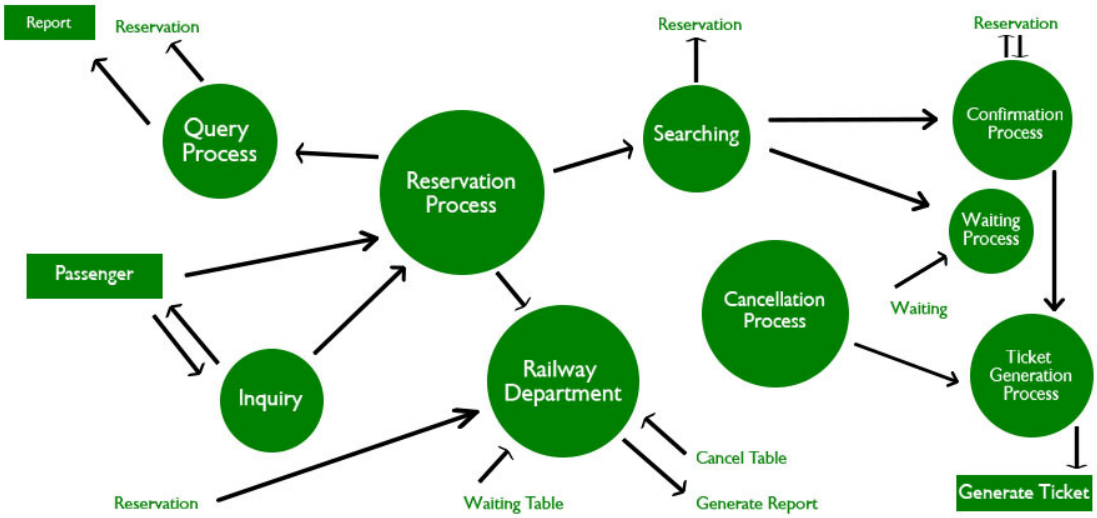
In 1-level DFD, the context diagram is decomposed into multiple bubbles/processes. In this level, we highlight the main functions of the system and breakdown the high-level process of 0-level DFD into sub processes.



1-LEVEL DFD

Level-2:

- 2-level DFD goes one step deeper into parts of 1-level DFD. It can be used to plan or record the specific/necessary detail about the system's functioning.



2-LEVEL DFD