Data Flow Diagram

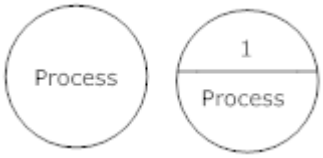
A **data flow diagram** (**DFD**) is a graphical representation of the "flow" of data through an information system, modeling its *process* aspects. Often they are a preliminary step used to create an overview of the system which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).A DFD shows what kinds of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It **does not** show information about the timing of processes, or information about whether processes will operate in sequence or in parallel (which is shown on a flowchart).Data flow diagrams illustrate how data is processed by a system in terms of inputs and outputs.

Data Flow Diagram Notations

You can use two different types of notations on your data flow diagrams: *Yourdon & Coad* or *Gane & Sarson*.

Process

A process transforms incoming data flow into outgoing data flow.

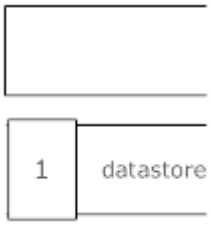


Yourdon and Coad Process Notations

Gane and Sarson Process Notation

Data Store

Data stores are repositories of data in the system. They are sometimes also referred to as files.

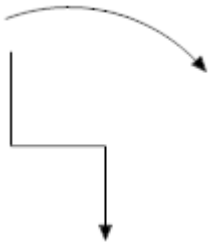


Yourdon and Coad Data store Notations

Gane and Sarson Data store Notations

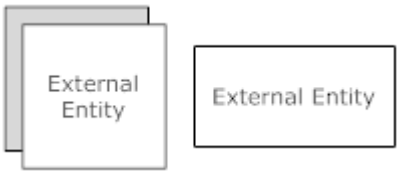
Dataflow

Dataflows are pipelines through which packets of information flow. Label the arrows with the name of the data that moves through it.



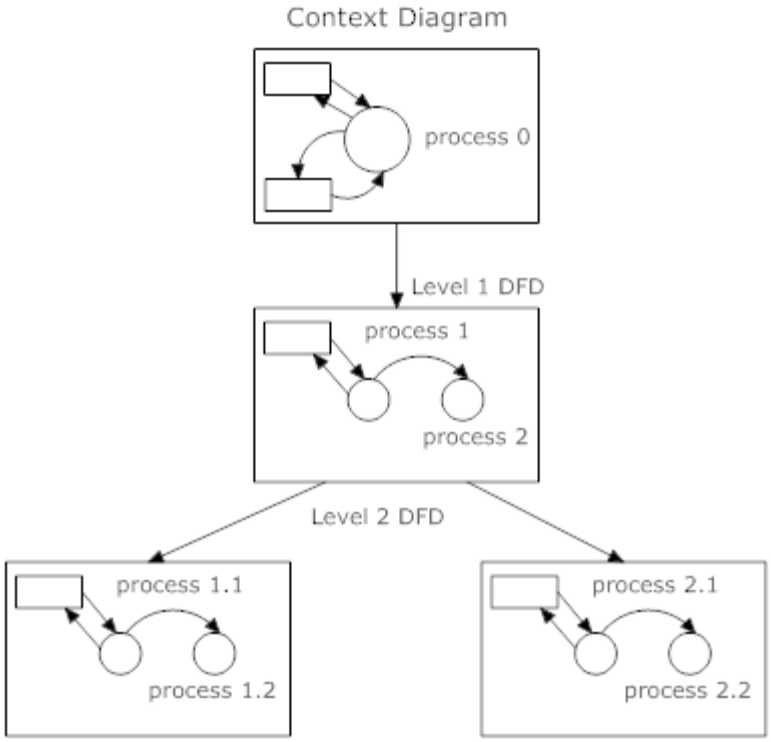
External Entity

External entities are objects outside the system, with which the system communicates. External entities are sources and destinations of the system's inputs and outputs.



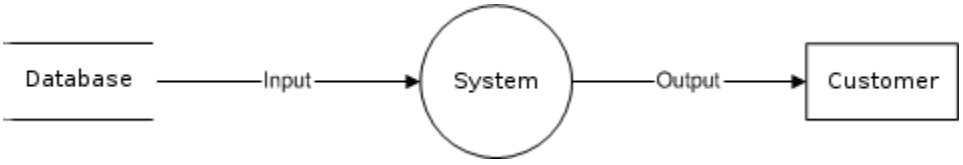
Data Flow Diagram Layers

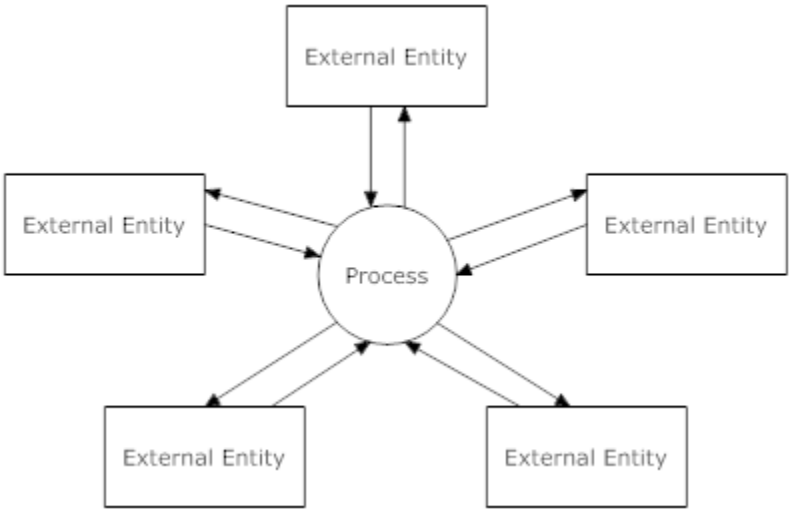
Draw data flow diagrams in several nested layers. A single process node on a high level diagram can be expanded to show a more detailed data flow diagram. Draw the context diagram first, followed by various layers of data flow diagrams.



Context Diagrams

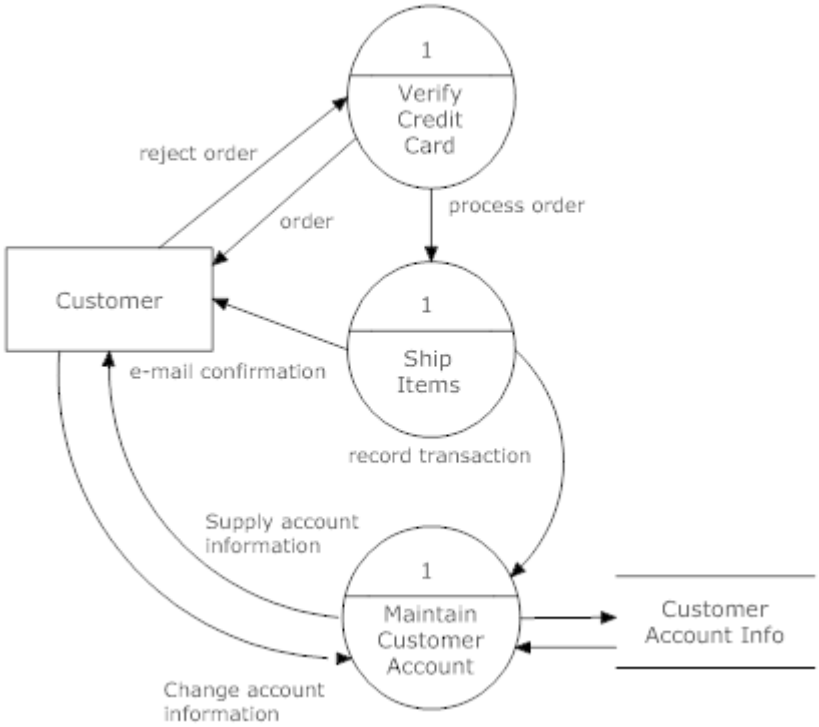
A context diagram is a top level (also known as Level 0) data flow diagram. It only contains one process node (process 0) that generalizes the function of the entire system in relationship to external entities. Which shows the interaction between the system and external agents which act as data sources and data sinks. This helps to create an accurate drawing





DFD levels

The first level DFD shows the main processes within the system. Each of these processes can be broken into further processes until you reach pseudocode.



An example first-level data flow diagram