Advanced Software Engineering Lab-Autumn 2022-23

Bishwajit Prasad Gond
222CS3113

Master of Technology
222cs3113@nitrkl.ac.in

Department of Computer Science & Engineering
NIT, Rourkela

October 13, 2022

Data Flow Diagram 2022

SOFTWARE COMPONENT CATALOGUING SOFTWARE

Prepared by
BISHWAJIT PRASAD GOND
222CS3113

Contents

1 Introduction

Data flow diagram is graphical representation of flow of data in an information system. It is capable of depicting incoming data flow, outgoing data flow and stored data. The DFD does not mention anything about how data flows through the system.

DFD Components DFD can represent Source, destination, storage and flow of data using the following set of components

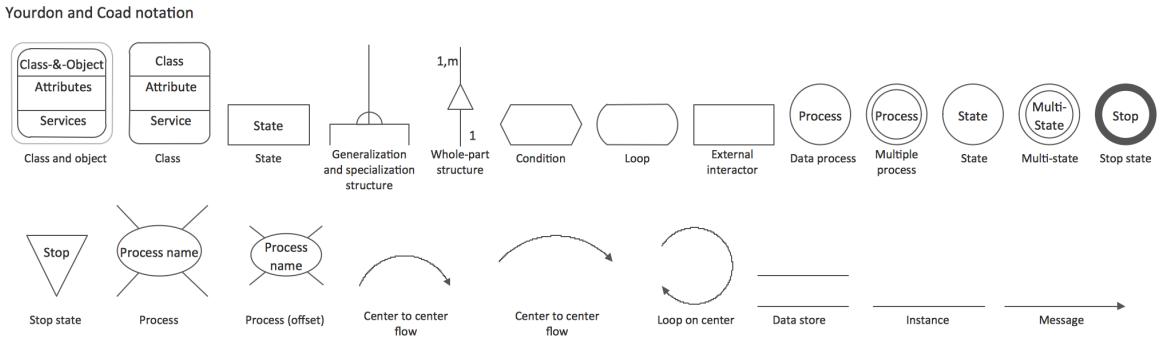

Figure 1: DFD Notations

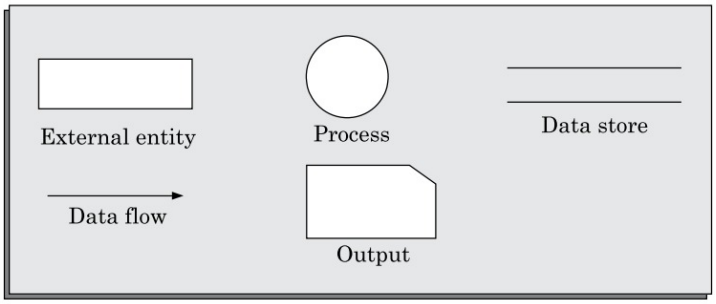

FIGURE 6.2 Symbols used for designing DFDs.

Figure 2: DFD Symbols

- **Entities** - Entities are source and destination of information data. Entities are represented by a rectangles with their respective names.
- **Activities** - and action taken on the data are represented by Circle or Round edged rectangles.
- **Data Storage** - There are two variants of data storage - it can either be represented as a rectangle with absence of both smaller sides or as an open-sided rectangle with only one side missing.
- **Data Flow** - Movement of data is shown by pointed arrows. Data movement is shown from the base of arrow as its source towards head of the arrow as destination.

1.1 Levels of DFD:

- **Level 0** - Highest abstraction level DFD is known as Level 0 DFD, which depicts the entire information system as one diagram concealing all the underlying details. Level 0 DFDs are also known as context level DFDs.
- **Level 1** - The Level 0 DFD is broken down into more specific, Level 1 DFD. Level 1 DFD depicts basic modules in the system and flow of data among various modules. Level 1 DFD also mentions basic processes and sources of information.
- **Level 2** - At this level, DFD shows how data flows inside the modules mentioned in Level1.

Higher level DFDs can be transformed into more specific lower level DFDs with deeper level of understanding unless the desired level of specification is achieved

1.2 DFD Level 0

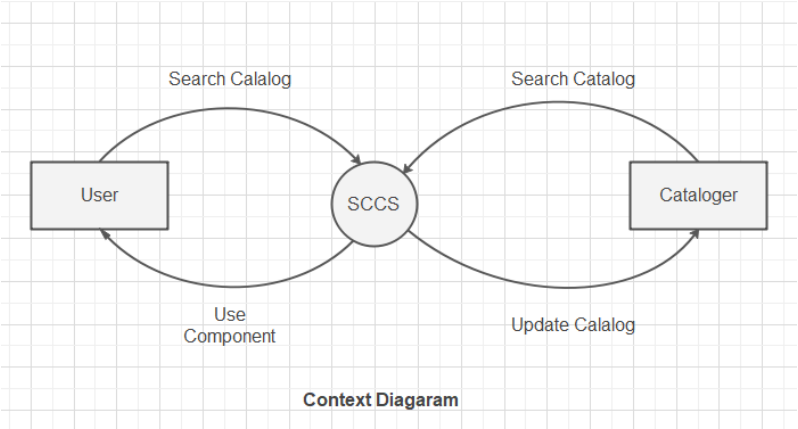

Figure 3: Symbols used in construction of structured chart

1.3 DFD Level 1

Constructing level 1 DFDs

The following steps are suggested to aid the construction of Level 1 DFD:

- Identify processes. Each data-flow into the system must be received by a process. For each data-flow into the system examine the documentation about the system and talk to the users to establish a plausible process of the system that receives the data-flow. Each process must have at least one output data-flow. Each output data-flow of the system must have been sent by a process; identify the processes that sends each system output.
- Draw the data-flows between the external entities and processes.
- Identify data stores by establishing where documents / data needs to be held within the system. Add the data stores to the diagram, labelling them with their local name or description.
- Add data-flows flowing between processes and data stores within the system. Each data store must have at least one input data-flow and one output data-flow (otherwise data may

be stored, and never used, or a store of data must have come from nowhere). Ensure every data store has input and output data-flows to system processes. Most processes are normally associated with at least one data store.

- Check diagram. Each process should have an input and an output. Each data store should have an input and an output.

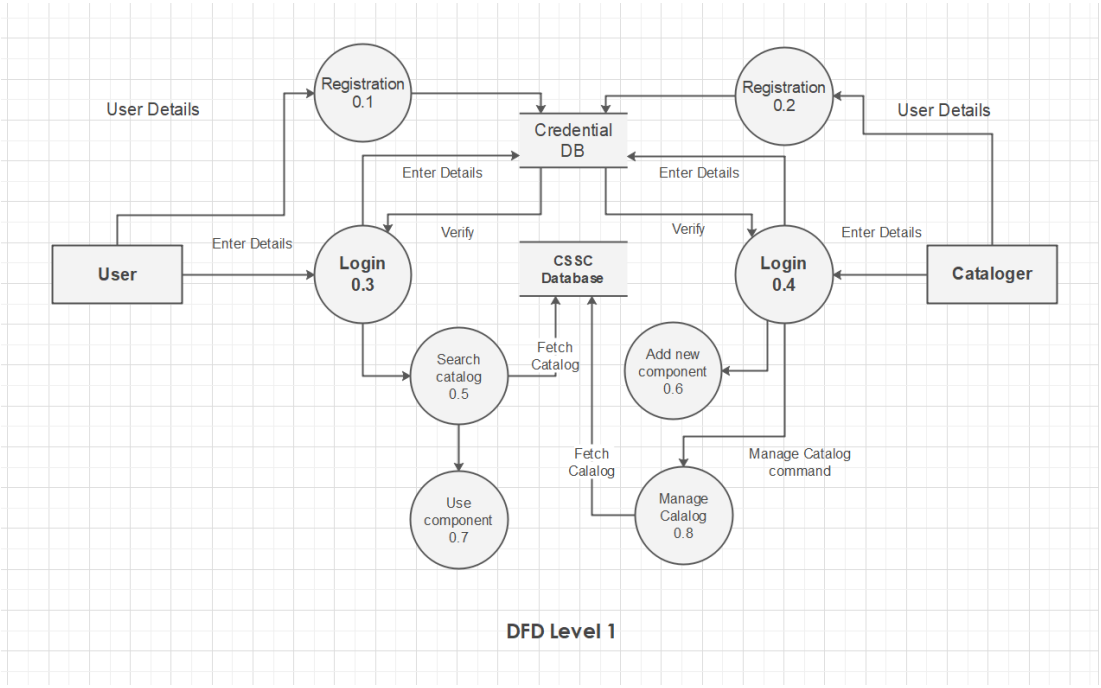

Figure 4: CSSC Level 1 Data Flow Diagram

1.4 DFD Level 2

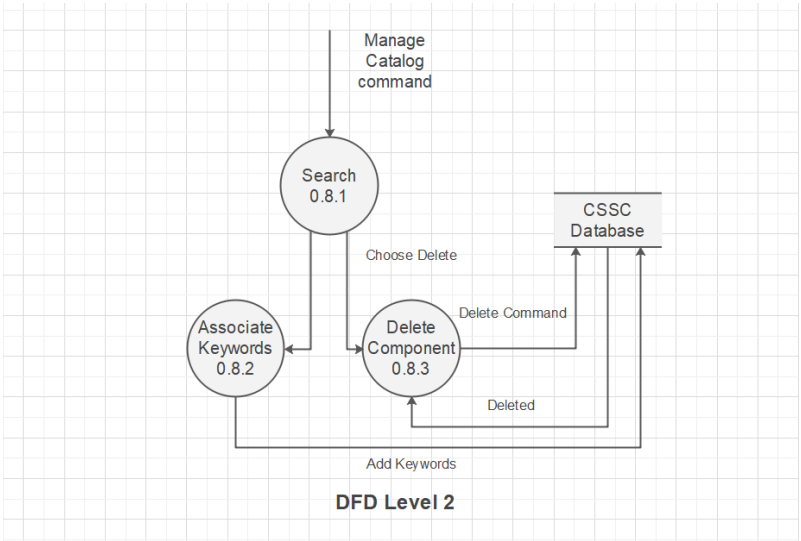

Figure 5: CSSC Level 2 Data Flow Diagram