MIT-WPU

॥ विश्वशान्तिर्ध्रुवं ध्रुवा ॥

CS233: Software Engineering and Project Management

Computer Science and Engineering

S.Y. Semester III

2022-23

Assignment List

Assignment No.	Contents	Workload in Hrs	
		Theory	Lab
1	Prepare/Write the software requirement document(SRS) for given problem statement.		02
2	Perform the Structured Systems Analysis and Design (SSAD)- Draw the DFD MODEL (Level 0, Level 1 and Level 2). Choose an open source tool for the same.		02
3	Object Oriented Analysis and design using UML diagrams: Use case, Class Diagram, Object diagram.		02
4	Object Oriented Analysis and design using UML diagrams: Activity diagram, Sequence Diagram.		02
5	Object Oriented Analysis and design using UML diagrams: Timing diagram, Communication diagram, state machine diagram		02
6	Draw Gantt Chart for software project management.		02
7	Choose an appropriate testing tool and implement for black box. automation testing.		04
8	Study any DevOps tool for project management.		04

Data Flow Diagram

Perform the Structured Systems Analysis and Design (SSAD) - Draw the DFD MODEL (Level 0, Level 1 and Level 2). Use an open source tool for the same(draw.io)

Data Flow Diagram

- Aim: Perform the Structured Systems Analysis and Design (SSAD) - Draw the DFD MODEL (Level 0, Level 1 and Level 2). Use an open source tool for the same.
- Problem Statement :

Example of LMS

- Draw DFD of level 0, level1 and level 2 for library management system using open source tool like draw.io
- A student comes to a library to borrow a book. The student makes the book request by giving book title and author name.
- The student has to submit his details/credentials to the library. Sometimes students may simply give topic and demand for a book.
- The library information system maintains a list of authors, list of titles, and list of topics.
- This system also keeps records of topics on which books are available with the system.
- The system maintains information about the shelf number on which books are located.
- Finally the list of demanded books should be displayed on the console for ease of selection.

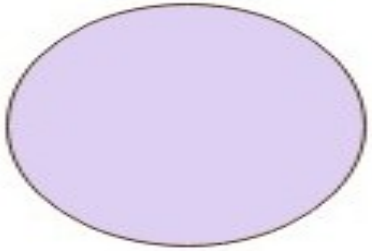
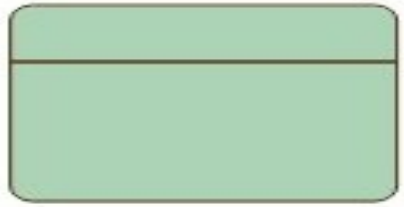
Data Flow Diagram

- Objectives:
- 1. To understand the different levels of DFD.
- 2. To choose and use levels DFD .
- 3. To learn and understand the different concept structured system design.

Data Flow Diagram Symbols and Notation

- **Data Flow Diagram Symbols**
- DFD symbols are consistent notations that depict a system or a process. It entails the use of short-text labels, arrows, circles and rectangles to describe data flow direction. Also forming part of DFDs are varied sub-processes, data storage points, and data inputs and outputs.
- A data flow diagram has four basic elements. The elements include external entities, data stores, processes, and data flows. The elements are best represented by the two main methods of notation used in DFDs – **Yourdon & Coad**, and **Gane & Sarson**. DFD symbols vary slightly depending on methodology. Even so, the basic ideas remain the same.

Data Flow Diagram Symbols and Notation

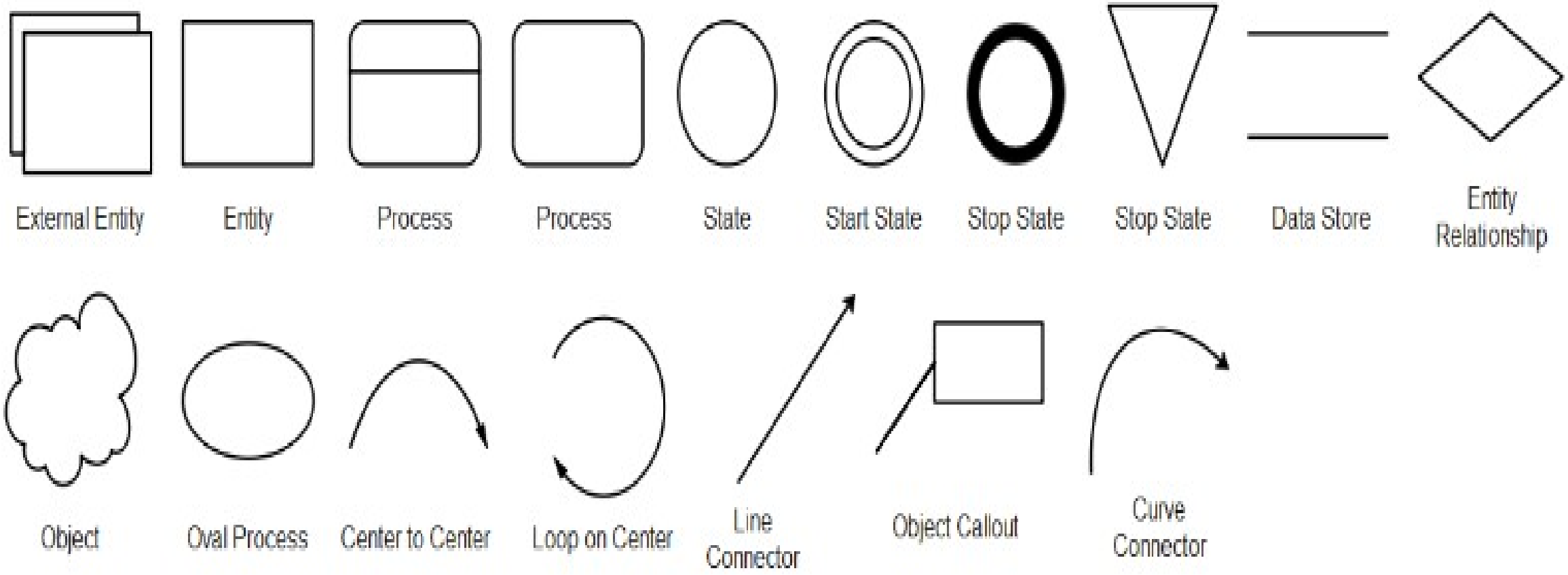
	Yourdon & Coad	Gane & Sarson
External Entity		
Process		
Data Store		
Data Flow		

Continue…

- **External entities** are represented by squares as the source or destination of data.
- **Processes** are represented by rectangles with rounded corners.
- **Data Flows** are referred to by arrows to denote the physical or electronic flow of data.
- **Data Stores** are physical or electronic-like XML files denoted by open-ended rectangles.

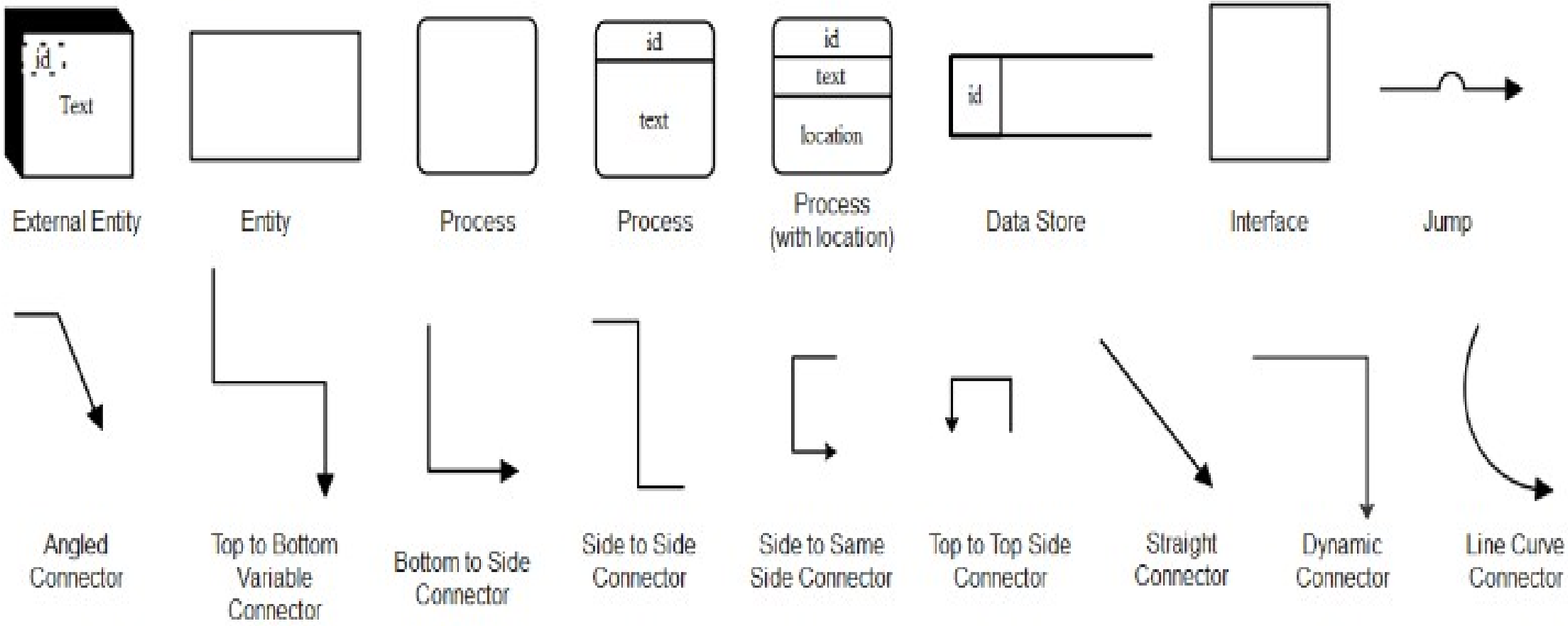
Data Flow Diagram Symbols and Notation

Data Flow Diagram



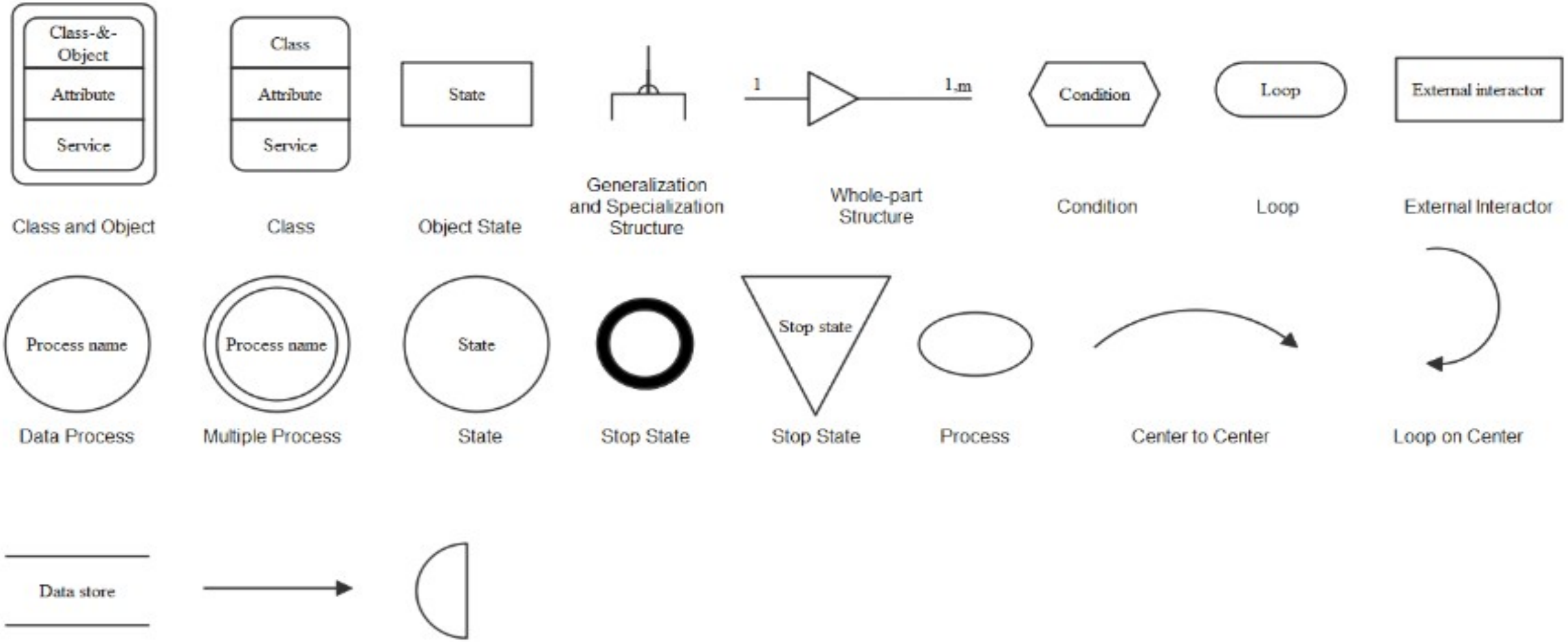
Data Flow Diagram Symbols and Notation

Data Flow Model Diagram



Data Flow Diagram Symbols and Notation

Yourdon and Coad



How to Create a Data Flow Diagram?

- Every single process should have at least one input and one output.
- Each data store should have at least one data flow in and data flow out.
- Every system's stored data has to go through a process.
- Every process in a data flow diagram must link to another process or data store.

Identify the major inputs and outputs in our system

This step gives a macro view of your system and elucidates the broadest tasks the system should achieve. Again, the rest of the DFD is built on these elements.

- **2. Build a context diagram (Level 0 DFD)**

Achieve this by drawing a single process node and connecting it to related external entities. The node represents the general process information undergoes in a system from input to output.

- **3. Expand the context diagram into a level 1 DFD**

Level 1 DFDs are more of a general overview, but they give more detail than a context diagram. Break the single process lump into detailed processes. This brings out where the information starts and what needs to happen to it.

- **4. Expand to level 2+ DFD**

This breaks the processes down into more detailed sub processes. Ensure to add any necessary data stores and flows at this point

- **5. Ascertain the accuracy of your final DFD**

Walk again through our diagram give close attention to the flow of information. If it makes sense and all necessary data stores are included.