Homework – 5
(10 points)

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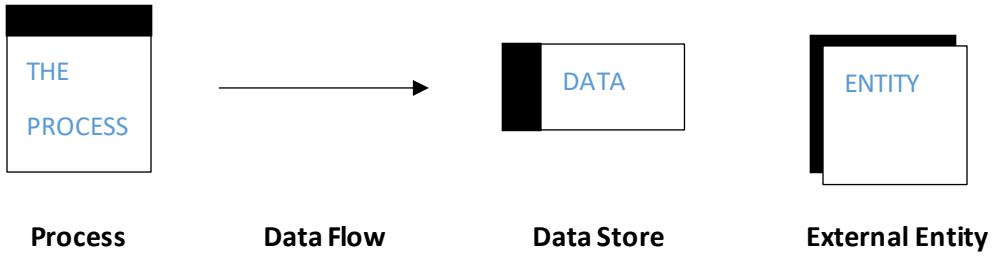
1. What is the relationship between logical and physical models?
   Logical models show what the system must do while physical models describe how they will be constructed. Physical models are created using the information present in the logical models.

2. What is the function of a DFD in the SDLC?
   A Data Flow Diagram (DFD) is a technique to describe an information system using various symbols to show how the system will transform its input data into useful information. In the SDLC's systems analysis phase, a DFD is created to form a visual model of the information system as a sort of explanation.

3. Draw examples of the four basic DFD symbols.



Process **Data Flow** **Data Store** **External Entity**

4. What are the six guidelines to follow when drawing DFDs?
   -Draw the context diagram so it fits on one page
   -Use the name of the information system as the process name in the context diagram
   -Use unique names within each set of symbols
   -Do not cross lines.
   -Provide a unique name and reference number for each process
   -Obtain as much user input and feedback as possible

5. What is the difference between a context diagram and diagram 0?
   Context diagrams are a broad overview of the information system that show a single process in the center with essential entities and data flows around the center process (process 0). Diagram 0's get into the nitty gritty details by showing the details of the major internal processes, data flows, and data stores.

6. Which symbol is *not* used in a context diagram?
   Data stores are the symbol not used in context diagrams, but are used in diagram 0's.

7. How would you level a DFD?
   To level a DFD, begin with the generalized view of a context diagram and create its diagram 0. Then continue creating lower level DFD's until every single process is identified in its primitive form.

8. How would you balance a DFD?
   To balance a DFD, begin with either the context diagram or the diagram 0 and expand the processes contained in the diagram while maintaining the same inputs and outputs into them. Show the lower level processes that make up the overall process, but keep the inputs in the same location and the outputs in the same location, as well as the same number.

9. What is a data element?
   A data element is the smallest piece of data that has meaning within an information system. Data elements are the tiny pieces that make up larger combinations of data such as records and data structures.

10. What is the purpose of a decision table?
    Decision tables are used to lay out every possible combination of data and each possible condition and outcome. With every possibility shown, an analyst can describe the process and ensure that every potential situation is accounted for in the design of the information system.