# SYAD Week 5 Tutorial (Chapter 5)

**Chapter 5 –** Data and Process Modeling: Chapter 5 discusses data and process modeling techniques that analysts use to show how the system transforms data into useful information.

**Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Student ID**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Answer the following short questions:**

**Question 1**: What is the difference between a context diagram and diagram 1? Which symbol is not used in a context diagram?

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| Context Diagram vs. Diagram 1:  A Context Diagram is a high-level diagram that represents the entire system as a single process (usually denoted as Process 0). It shows the system's boundaries and interactions with external entities but does not go into the specifics of internal processes.  Diagram 1 is a more detailed view, which breaks down the main process from the context diagram (Process 0) into smaller, more specific sub-processes. It provides a "zoomed-in" view of the system’s functions.  Symbol Not Used in Context Diagram:  In a context diagram, data stores are not used. It focuses on the external entities and data flows only. The data stores are introduced in Diagram 1 and further diagrams. |

**Question 2**: Describe a data dictionary and list the types of information it contains.

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**Question 3**: How would you level DFDs?

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| Leveling Data Flow Diagrams (DFDs) refers to the process of breaking down complex processes into simpler and more specific components. This is done in hierarchical layers, with each successive diagram providing more detail.  Start with the Context Diagram: This is Level 0, representing the entire system as a single process.  Level 1 Diagram: Break down the main process from the context diagram into sub-processes. Each sub-process has more detail than the context diagram.  Level 2 and Beyond: Further break down each process from Level 1 into more detailed processes until you achieve the required level of detail. |

**Question 4**: How would you balance DFDs?

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| Balancing DFDs ensures that the data flows entering and exiting a process in one diagram are consistent with the data flows in the next lower-level diagram.  Check Data Flows: Ensure that all inputs and outputs in a parent diagram are accounted for in the child diagram.  Match Data Flows: The data flows going into and out of a process in the higher-level diagram must be the same in the lower-level diagram. For instance, if a data flow enters a process in Level 1, the same flow should appear in the corresponding process in Level 2.  Maintain Consistency: Any changes in data flow or process name should be reflected in both the parent and child diagrams. |

**Question 5**: Create a Context DFD and Level 1 DFD of a Food Ordering System.

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| Context DFD for a Food Ordering System:  Process 0: "Food Ordering System"  External Entities:  Customer (provides order details)  Kitchen (receives order for food preparation)  Payment Gateway (handles payment processing)  Data Flows:  Customer sends order details to the Food Ordering System  Food Ordering System sends order to the Kitchen  Food Ordering System sends payment details to the Payment Gateway  Level 1 DFD for a Food Ordering System:  Process 1: "Take Order"  Inputs: Customer order details  Outputs: Order sent to the Kitchen, order details sent to Payment Gateway  Process 2: "Process Payment"  Inputs: Payment details  Outputs: Payment confirmation  Process 3: "Prepare Food"  Inputs: Order from Process 1  Outputs: Prepared food ready for delivery |

**Useful Resources:**

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| • https://www.youtube.com/watch?time\_continue=54&v=ztZsEI6C-mI&feature=emb\_logo  • https://www.youtube.com/watch?v=PF40PTJxn4Q&t=1459s |