



Topic 04 02:

Business Process Modeling

using

Activity Diagrams

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from previous resources by

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References

- [1] Dennis, Alan, et. al., System Analysis and Design with UML 3rd Edition, John Wiley & Sons, 2010. (Chapter 5 Use Case Diagrams)
- [2] Larman, Craig. Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development, 3rd Edition, Pearson Education International, USA, 2005. (Chapter 6 Use Cases)

Activity Diagram

- There are some level of detail for activity diagrams:



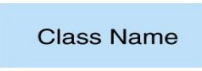

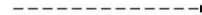



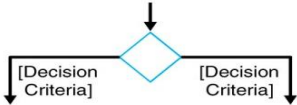
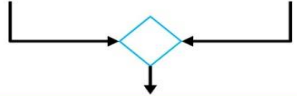
- ❖ **Business Process level**

The activity diagram can show high-level actions chained together to represent a process occurring in your system

- ❖ **Use Case Level**

The use case specification could also be visualized using an activity diagram

Activity Diagram Notation

<p>An action:</p> <ul style="list-style-type: none"> Is a simple, nondecomposable piece of behavior. Is labeled by its name. 	
<p>An activity:</p> <ul style="list-style-type: none"> Is used to represent a set of actions. Is labeled by its name. 	
<p>An object node:</p> <ul style="list-style-type: none"> Is used to represent an object that is connected to a set of object flows. Is labeled by its class name. 	
<p>A control flow:</p> <ul style="list-style-type: none"> Shows the sequence of execution. 	
<p>An object flow:</p> <ul style="list-style-type: none"> Shows the flow of an object from one activity (or action) to another activity (or action). 	
<p>An initial node:</p> <ul style="list-style-type: none"> Portrays the beginning of a set of actions or activities. 	
<p>A final-activity node:</p> <ul style="list-style-type: none"> Is used to stop all control flows and object flows in an activity (or action). 	
<p>A final-flow node:</p> <ul style="list-style-type: none"> Is used to stop a specific control flow or object flow. 	
<p>A decision node:</p> <ul style="list-style-type: none"> Is used to represent a test condition to ensure that the control flow or object flow only goes down one path. Is labeled with the decision criteria to continue down the specific path. 	
<p>A merge node:</p> <ul style="list-style-type: none"> Is used to bring back together different decision paths that were created using a decision node. 	

Actions and Activities

- Performed for a specific business reason
- Names begin with a verb and end with a noun
- “Make Appointment”
- For a **business process level**, each activity normally associated with a use case
- For a **use case level**, each activity normally associated with a step in the use case specification

Object Nodes

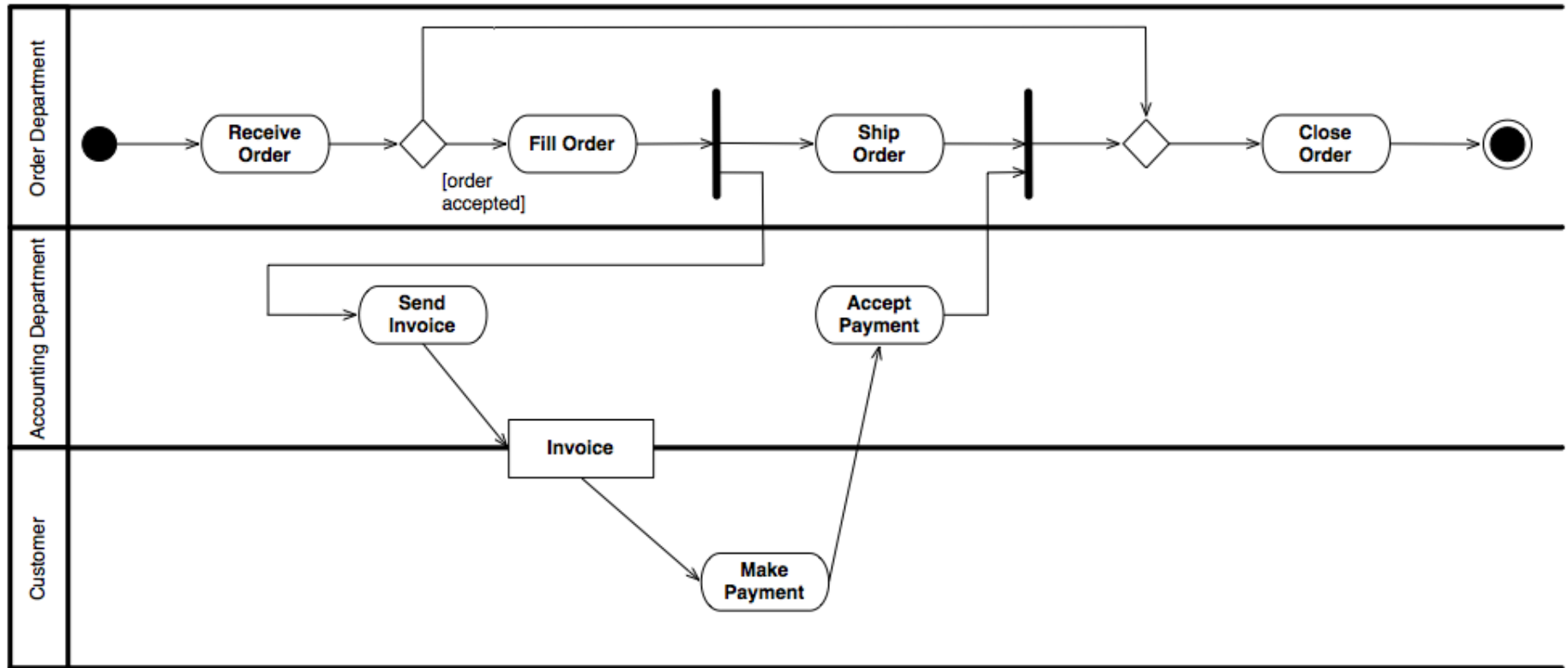
- Activity and Actions usually modify objects
- Object nodes model these objects
- Objects represent a flow of information from between activities or actions

Swimlanes

- The business process may be broken into persons of responsibility
- Identify this with swimlanes

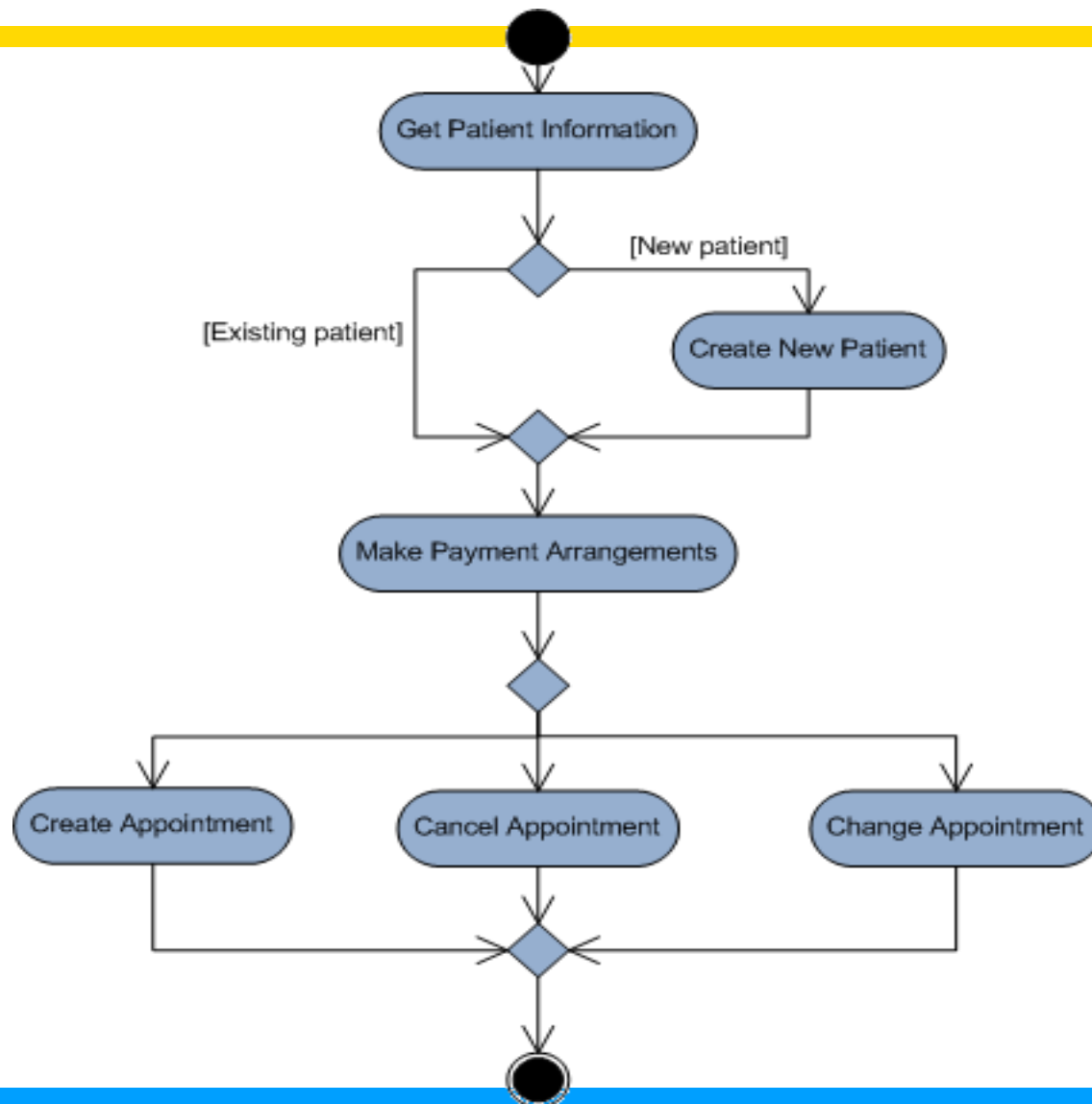


Example of Activity Diagram

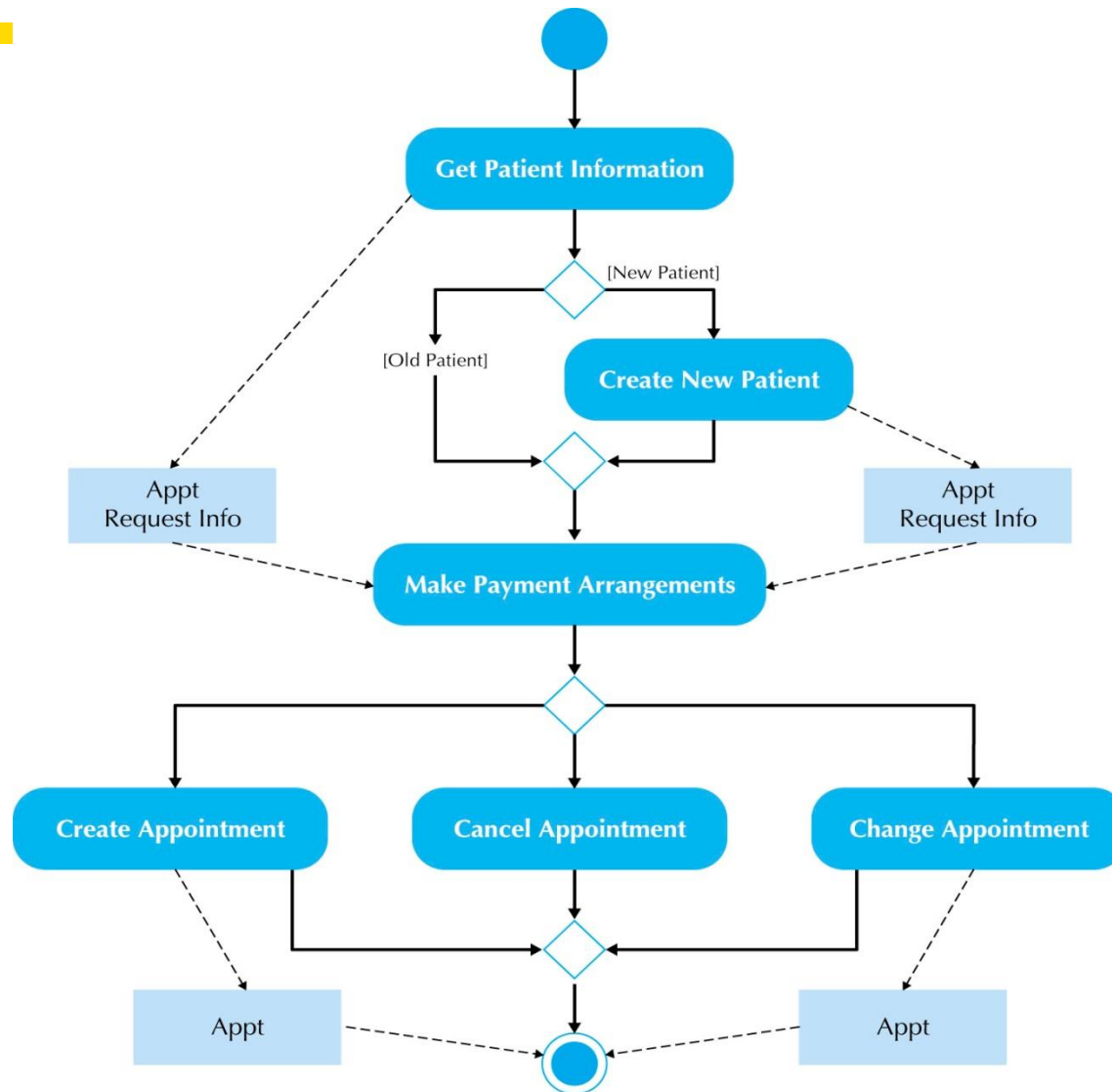


Source: Object Management Group, 2005

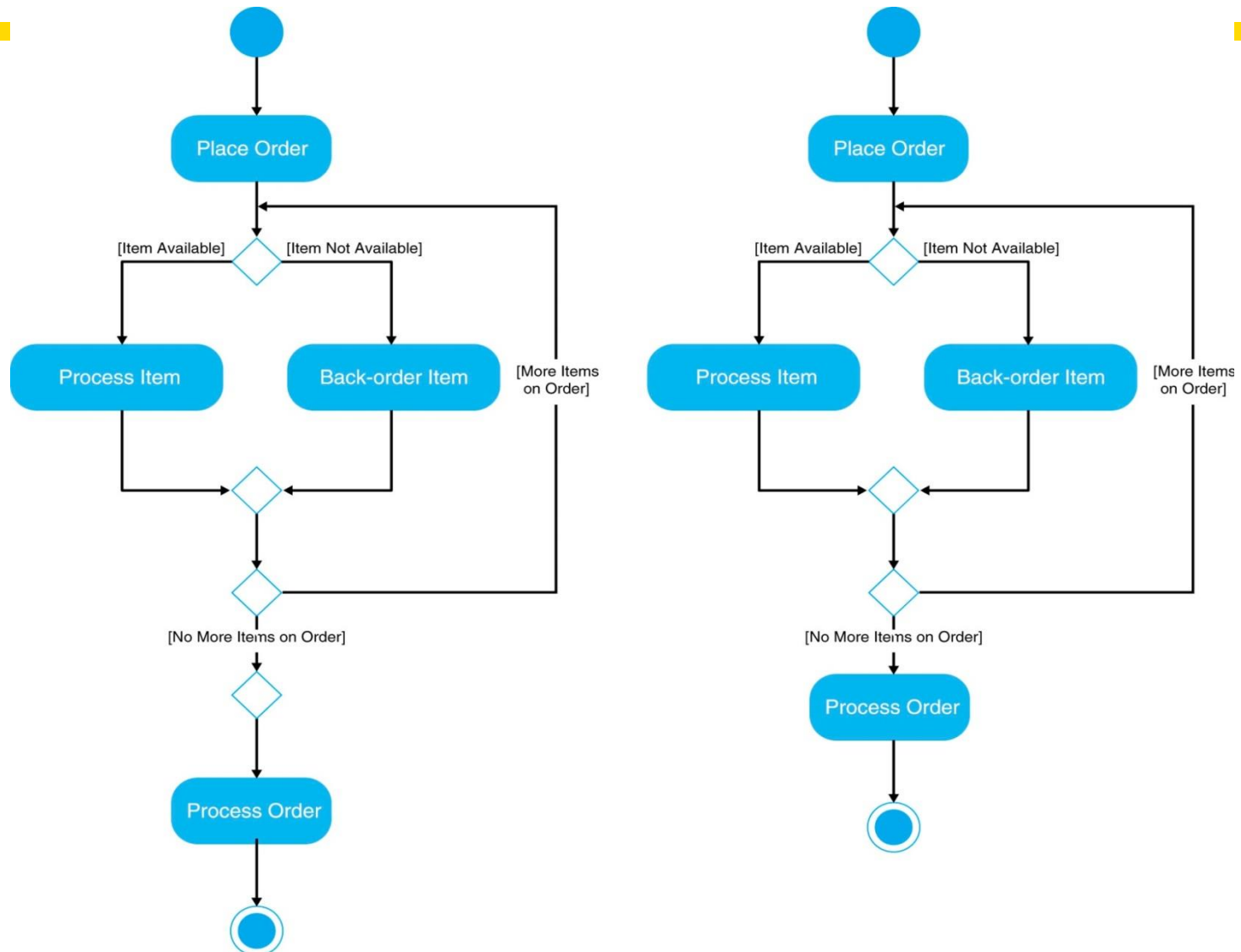
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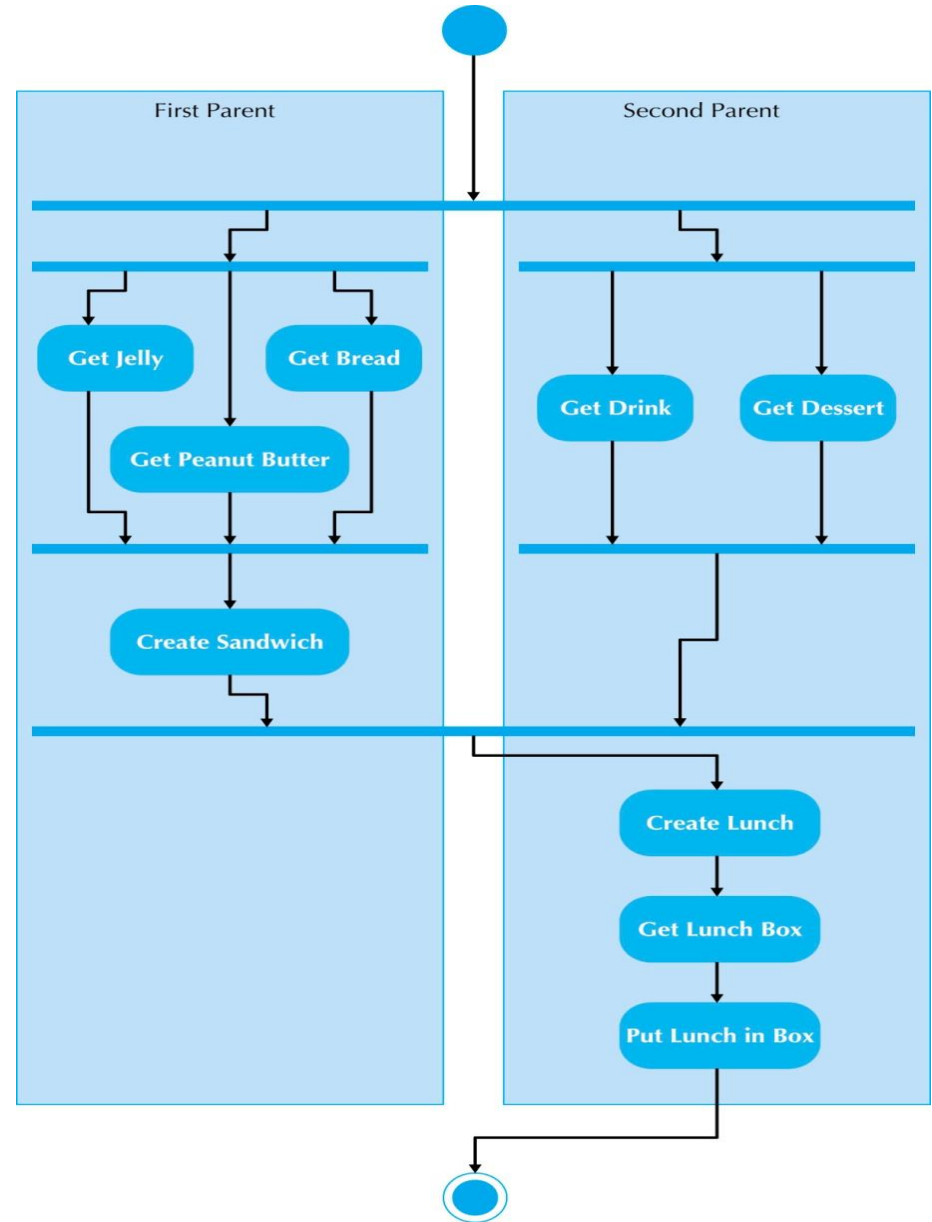


Example of Activity Diagram



Example of Activity Diagram Using Fork

Fork is used to represent concurrent (parallel) actions or activities



Creating Activity Diagrams

- Set the context or scope of the activity being modeled
- Identify the activities, control flows, and object flows between activities
- Identify any decisions made
- Look for opportunities for parallelism
- Draw the diagram

Q & A