LECTURE 7
MID SEM SUMMARY

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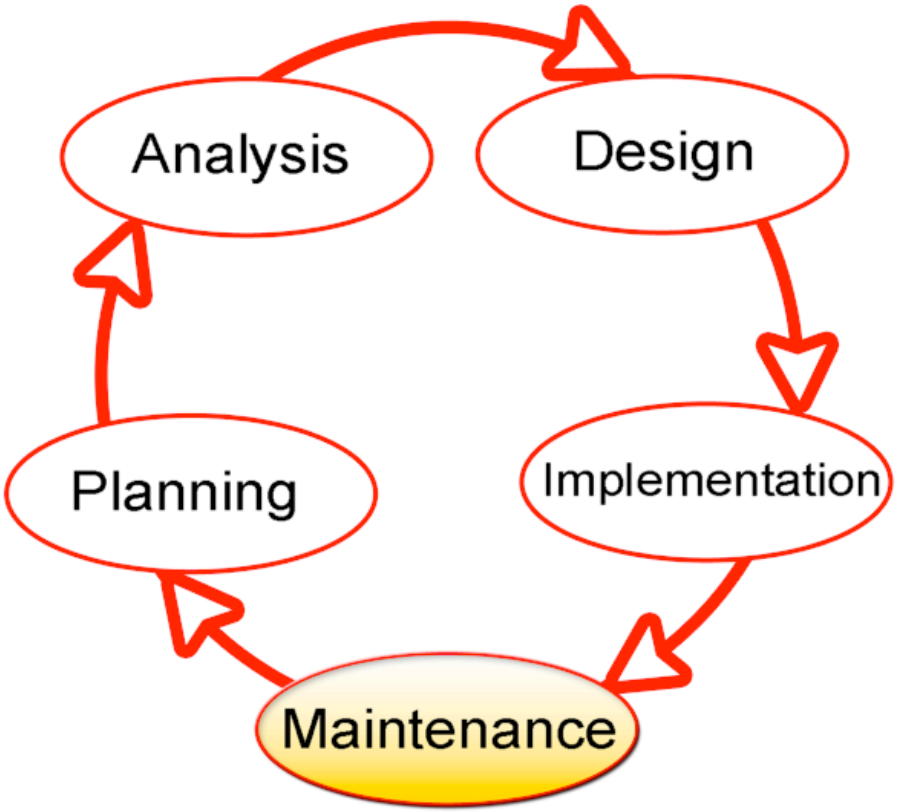
LEARNING OBJECTIVES

At the end of this lecture, you should better appreciate how the diagrams covered so far support the planning and analysis phase of a typical Systems Development Life Cycle (SDLC)

SYSTEMS DEVELOPMENT LIFE CYCLE (SDLC)

The development life cycle does not only involve coding

In fact, implementation is only one of the phase



PLANNING PHASE

Planning Phase

- Be careful not to think that SDLC is just about drawing diagrams + coding
- The UML diagrams introduced is just tools to guide the process
- Ultimately, it is about gathering and analyzing the requirements that matters (at this stage)
- So, realistically before we go ahead and gather the requirements, it is important to **establish the scope of the system**

GROUP DISCUSSION 1 : ESTABLISHING SCOPE

Suppose we are designing an online bookstore portal (like Amazon Books)

1. **Discuss in groups and identify who are the stakeholders (different types of users for such a system)**
2. **Post your list onto Canvas discussion forum**

GROUP DISCUSSION 1 : ESTABLISHING SCOPE

Questions to think about (you are free to design the system according to how you would like it to be?

1. **Who is selling the books? This company (that is maintaining this website?) or do they just provide a marketplace for book publishers to sell on this platform?**

What are the diagrams/tables we have covered so far?

DIAGRAMS/TABLES

Planning Phase

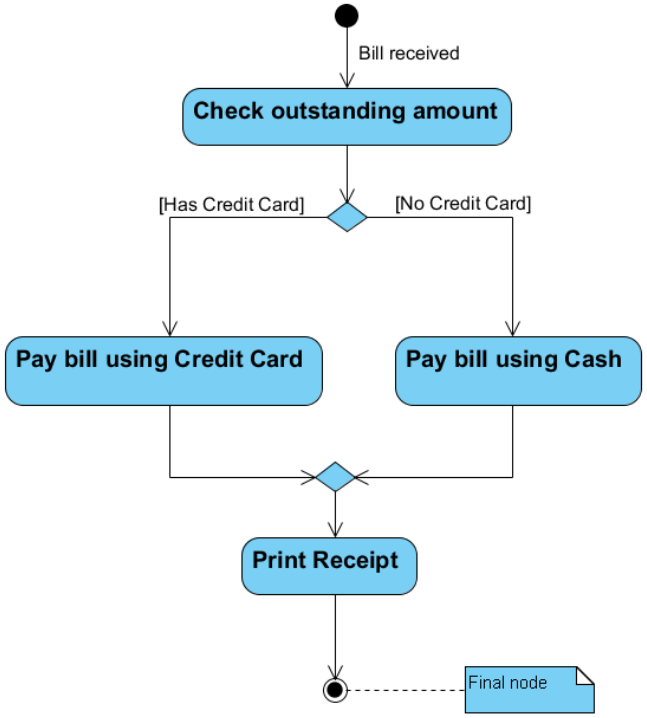
- Initial stage of the project: understand the company, identify the project objective/scope, etc
- **Activity Diagram, Use Case Diagram, Role Map**

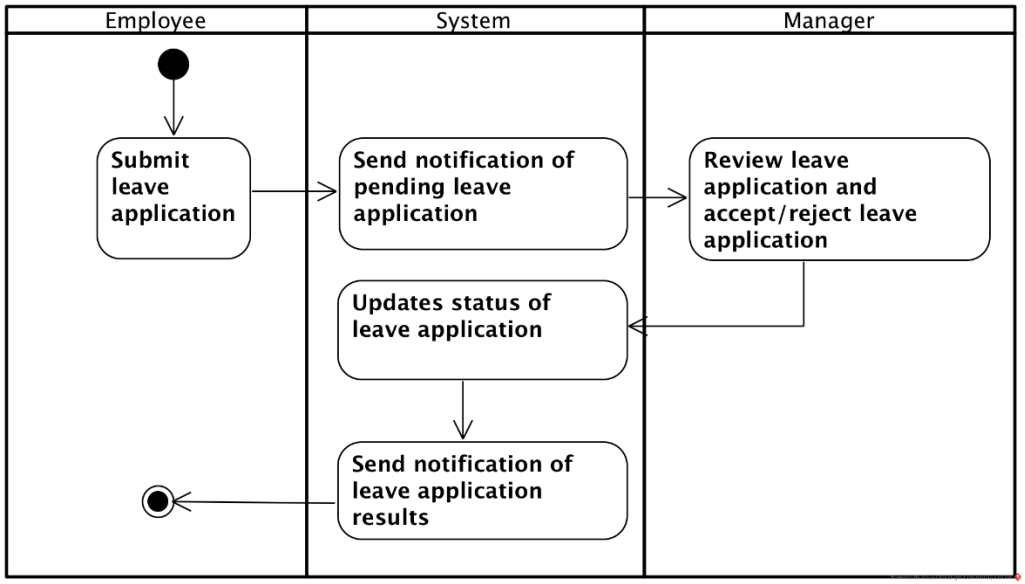
DIAGRAMS/TABLES

Swimlane approach is preferred

Planning Phase

- **Activity Diagram (use to model workflow : general business workflow or system use case flow)**





BUSINESS PROCESSES

Before we produce the use cases, it is often helpful to identify the major business processes

This allows us to have better clarity about whether the stakeholders we have identify earlier is realistic and what the interaction between the different stakeholders will be like

- I.e. difficult to just sit down and list out users without mentally visualizing how each stakeholder talk to each other

GROUP DISCUSSION 2 : IDENTIFY MAJOR BUSINESS PROCESSES

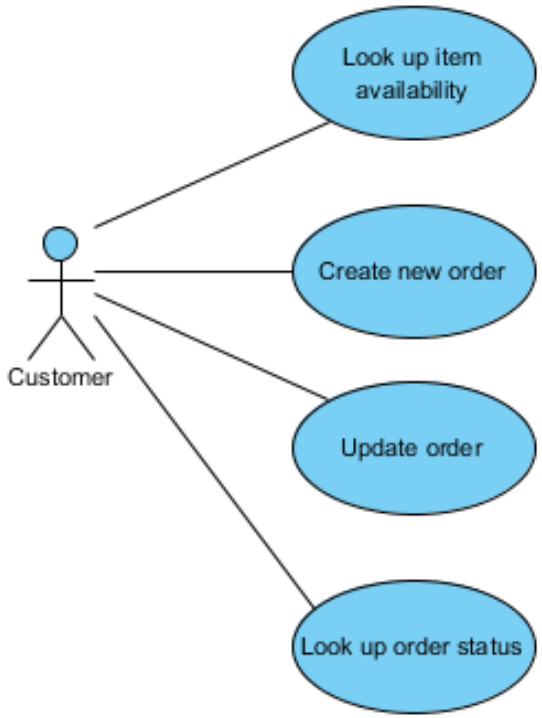
Next step is to identify the major business processes

1. **Discuss without your group and identify the major business processes and the interaction between different stakeholders**
2. **Consider using ChatGPT to guide you if you need help**
3. **Draw multiple activity diagrams (one for each major business process) to encode this information**
4. **Embed your activity diagrams onto a forum post**

DIAGRAMS/TABLES

Planning Phase

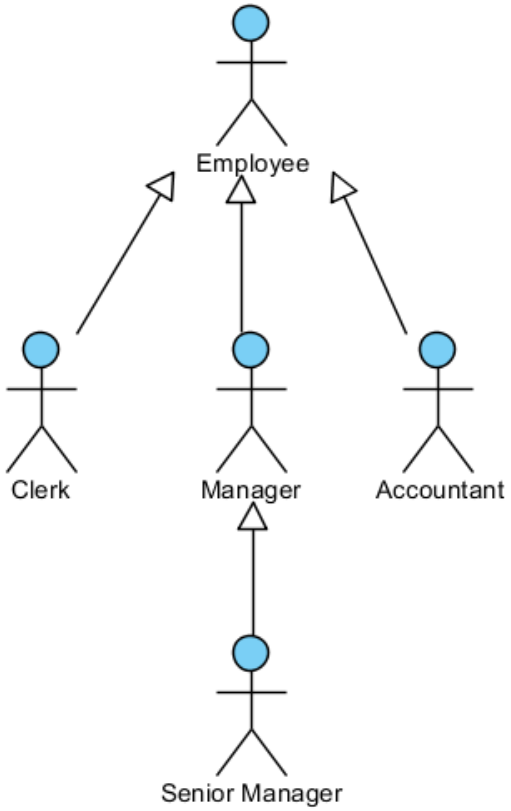
- **Use case diagram**



DIAGRAMS/TABLES

Planning Phase

- **Role Map (identify the relationship between the different actors – potential users of the system)**
- **Usually, we will embed this information in the use case diagrams we draw rather than draw the use case diagrams and rolemaps separately**



GROUP DISCUSSION 3 : PRODUCE USE CASE DIAGRAMS

Next step is to produce the use case diagrams

1. **As there will be many use cases, you might want to produce the use case diagram by subsystems (1 use case diagram for each subsystem)**
2. **What this means is that potentially you might need to first identify what are the subsystems**

GROUP DISCUSSION 3 : PRODUCE USE CASE DIAGRAMS

3. (Due to time constraint) In your group, choose one subsystem and produce the use case diagram for that subsystem
4. Consider using ChatGPT to guide you if you need help but you should verify that it is giving you proper use cases
5. Make sure you indicate which subsystem your group is working on
6. Embed your use case diagram onto a forum post

GUIDE FOR IDENTIFYING USE CASES

1. **Need to identify all the actors of this system**
   - Note that actors need not be just human users, they can be **other systems** that interact with this system
2. **A use case must be a system function/interaction**
   - E.g. clerk calling a customer is NOT a use case - it's not a system function
3. **A use case should fulfil a business objective**
   - E.g.
     Actor: Student
     Use case: View list of enrolled courses

GUIDE FOR IDENTIFYING USE CASES

4. **While a use case is a system function/interaction, need to know how to differentiate between a use case vs a step of a use case**
   - Note that a use case is a high-level system function
   - We will derive the individual steps of a use case in future phases (not now)
   - Do NOT try to list out the individual steps of a use case
5. **Use cases are not just a function in code. It should be seen from a point of view of an actor**
   - E.g. “check password during login”, “send email confirmation”, “add to database”, etc are not use cases. They are what the system/code does

GUIDE FOR IDENTIFYING USE CASES

6. **Use cases are seen from the perspective of a user rather than from the perspective of the system**
   - i.e. “get a list of chat messages” rather than “receive a chat message”
7. **A use case diagram should not have this system itself as an actor**
   - Usually, we omit time event in the use case diagram
   - But if you really want to draw, you can create an ”actor” called TIME

DIAGRAMS/TABLES

Analysis Phase

- Go into detailed analysis of the project
- **Use Case Description, Domain Model Class Diagram**