LAB 5&6 – REQUIREMENT SPECIFICATION

- **Purpose**: Understanding user requirements
- **Submission**: Each group need to submit:
  - Use Case Diagram and Use Case Description
  - Entity Relationship Diagram
  - Class Diagram
- **UML Tools**
  - https://www.visual-paradigm.com/features/
  - https://www.umlet.com
  - https://creately.com/app/

I. Use Case Diagram

Use cases describe the interaction between the system and external users that leads to achieving particular goals.

The use case diagram includes the following main elements:

- **Use cases**: Usually drawn with ovals, use cases represent different use scenarios that actors might have with the system (log in, make a purchase, view items, etc.)
- **System boundaries**: Boundaries are outlined by the box that groups various use cases in a system.
- **Actors**: These are the figures that depict external users (people or systems) that interact with the system.
- **Relationships** are drawn with lines showing different types of relationships between actors and use cases.

Tutorials:

- Tutorial about Use Case Diagram:
  - https://www.visual-paradigm.com/guide/uml-unified-modeling-language/what-is-use-case-diagram/
  - https://creately.com/blog/diagrams/use-case-diagram-tutorial/
- How to draw Use Case Diagram using Visual Paradigm: https://www.visual-paradigm.com/support/documents/vpuserguide/94/2575/6362_drawinguseca.html
- Some examples: https://circle.visual-paradigm.com/category/use-case/

II. Use Case Description

A use case specification represents the sequence of events along with other information that relates to this use case.

A typical use case specification template includes the following information:

- **Title**: title of the use case
- **Identifier**: A unique identifier for this use case
- **User Story:** a documented description of a software feature seen from the end-user perspective.
- **Input/ Output:** Input and possible outputs of this use case
- **Preconditions:** list the state(s) the system can be before this use case starts
- **Basic course:** Describe the normal processing path
- **Alternative course**: Description of the alternative course
- **Postconditions:** list the state(s) the system can be before this use case ends

Example:

Name: Log in the store system

Identifier *UC1*

Inputs:

1. Username
2. Password

Outputs:

1. The home page with user's authorization [If success]
2. The login page [If fail]

Basic Course

Actor: User (Customer/Store Manager)	System
1. Open the login page	1.1.Display the login page
2. Enter username and password	
3. Submit	3.1.Check the user's info. 3.2.If success, return the home page 3.3.Else return the login page

Precondition

1. User has a registered account of online store that is created earlier (ID and password)

Post condition

1. None

User story: As an online shop visitor, I want to log in the shop system so that I can use functions of the shop like buy products, gain the promotion, discuss about the products …

III. Entity Relationship Diagram

- Tutorials about ERD:
    - https://www.visual-paradigm.com/guide/data-modeling/what-is-entity-relationship-diagram/
    - https://creately.com/blog/diagrams/er-diagrams-tutorial/
- How to draw ERD using Visual Paradigm tool: https://www.visual-paradigm.com/tutorials/how-to-model-relational-database-with-erd.jsp
- Some examples: https://circle.visual-paradigm.com/category/entity-relationship-diagram/

IV. Class Diagram

Class diagrams are used when developing an object-oriented system model to show the classes in a system and the associations between these classes. An association is a link between classes that indicates that there is a relationship between these classes.

- Tutorials about Class Diagram:
    - https://www.visual-paradigm.com/guide/uml-unified-modeling-language/uml-class-diagram-tutorial/
    - https://creately.com/blog/diagrams/class-diagram-tutorial/
- How to draw class diagram using Visual Paradigm tool: https://www.visual-paradigm.com/support/documents/vpuserguide/94/2576/7190_drawingclass.html
- Some examples: https://circle.visual-paradigm.com/category/class-diagram/