Software Testing [Assignment]

Student Name : Foram Dholiya

MODULE – 1 [Fundamental]

- What is SDLC ?
  - ⇒ **Software Development Life Cycle**
  - ⇒ SDLC is a structure imposed on the development of a software product that defines the process for planning, implementation, testing, documentation, deployment, and ongoing maintenance and support. There are a number of different development models.
  - ⇒ A Software Development Life Cycle is essentially a series of steps, or phases, that provide a model for the development and lifecycle management of an application or piece of software.

- What is Software Testing ?
  - ⇒ Software Testing is a process used to identify the correctness, completeness, and quality of developed computer software.

- What is Agile Methodology ?
  - ⇒ Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product.
  - ⇒ Agile Methods break the product into small incremental builds.

- What is SRS ?
  - ⇒ **Software Requirements Specification**
  - ⇒ (SRS) is a complete description of the behavior of the system to be developed.
  - ⇒ It includes a set of use cases that describe all of the interactions that the users will have with the software.
  - ❖ Types Of Requirements :
    1. Customer Requirements
    2. Functional Requirements
    3. Non-Functional Requirements

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- What is OOPS ?
  - ⇒ **Object Oriented Programming**
  - ⇒ Object Oriented Programming is a computer programming model that organizes software design around data, or object, rather than function and logic.
  - ⇒ An object can be defined as a data field that has unique attributes and behavior.

- Write basic Concepts of OOPS :
  - ⇒ Inheritance
  - ⇒ Encapsulation
  - ⇒ Polymorphism
  - ⇒ Data abstraction

- What is Object ?
  - ⇒ It is an instance of a class.
  - ⇒ An object represents an individual, identifiable item, unit, or entity, either real or abstract, with a well-defined role in the problem domain.
  - ⇒ E.g. A Chair, Pen, Table
  - ⇒ An "object" is anything to which a concept applies.
  - ⇒ This is the basic unit of object oriented programming (OOP).
  - ⇒ That is both data and function that operate on data are bundled as a unit called as object.

- What is Class ?
  - ⇒ it is a collection of data-members and member-functions which will have its own unique attributes and behavior.
  - ⇒ It's a blueprint of object.
  - ⇒ A class represents an abstraction of the object and abstracts the properties and behavior of that object.

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- What is Encapsulation ?
  - ⇒ it is wrapping up of all the data into the single unit is called Encapsulation.
  - ⇒ e.g capsule
  - ⇒ Encapsulation is the practice of including in an object everything it needs hidden from other objects. The internal state is usually not accessible by other objects.
  - ⇒ Encapsulation in Java is the process of wrapping up of data (properties) and behavior (methods) of an object into a single unit; and the unit here is a Class (or interface).

- What is inheritance ?
  - ⇒ Inheritance means that one class inherits the characteristics of another class.
  - ⇒ Inheritance describes the relationship between two classes. A class can get some of its characteristics from a parent class and then add unique features of its own.
  - ⇒ It is acquiring the properties of parent class into the child class.

  ❖ Types of Inheritance

  1) Single-level Inheritance
  2) Multi-level Inheritance
  3) Multiple-level Inheritance
  4) Hierarchical -level Inheritance
  5) Hybrid -level Inheritance

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- What is polymorphism ?
  - ⇒ **“having many forms”**
  - ⇒ It allows different objects to respond to the same message in different ways, the response specific to the type of the object.
  - ⇒ The ability to change form is known as polymorphism.
  - ⇒ combination of many forms
  - ⇒ poly -> many
  - ⇒ morphism -> forms
  - ⇒ e.g bird and airplane.

  ❖ There is **two type**s of polymorphism in Java

  1. **Compile time polymorphism (Overloading)**
  2. **Runtime polymorphism (Overriding)**

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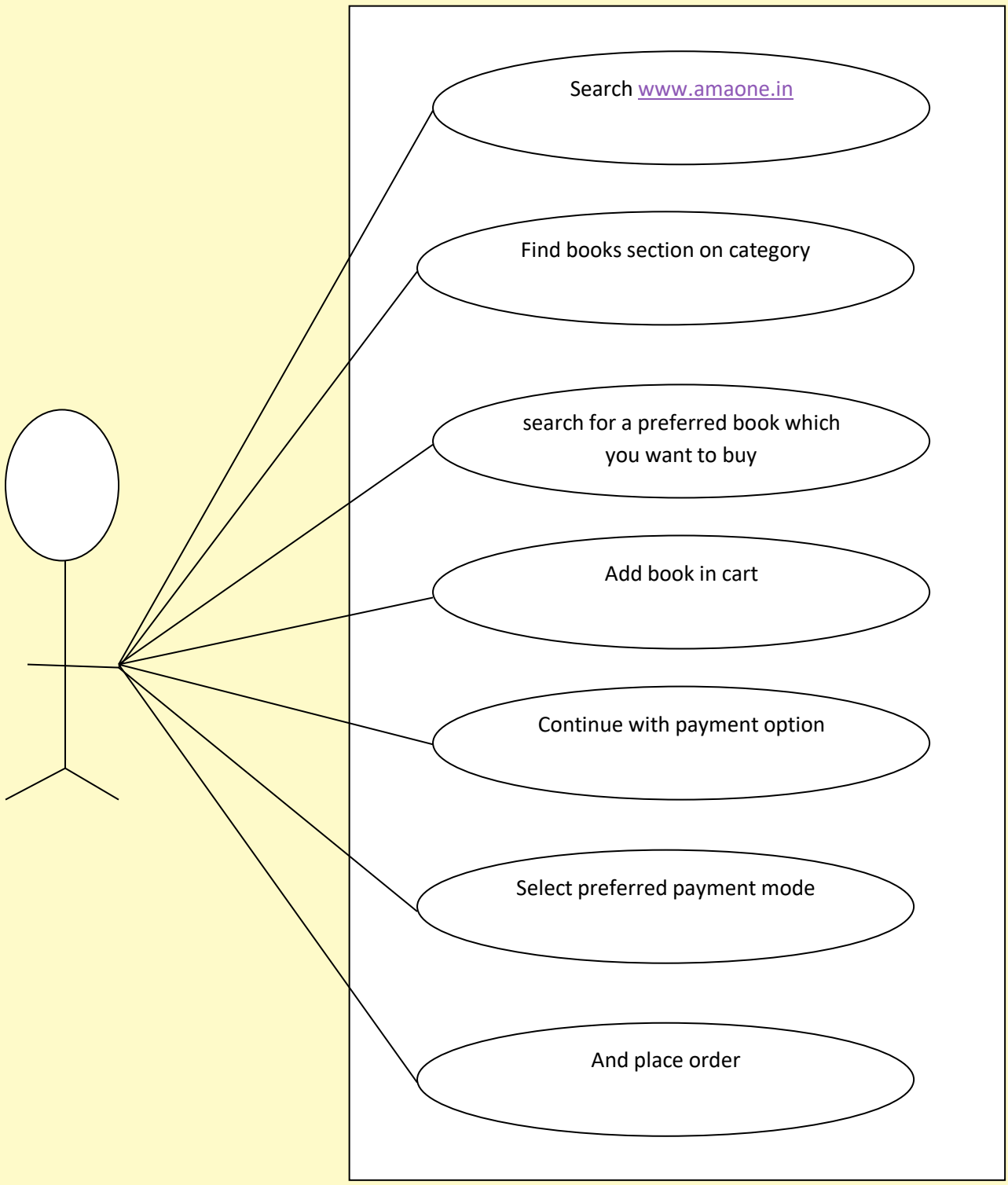
- Draw Usecase on Online book Shopping



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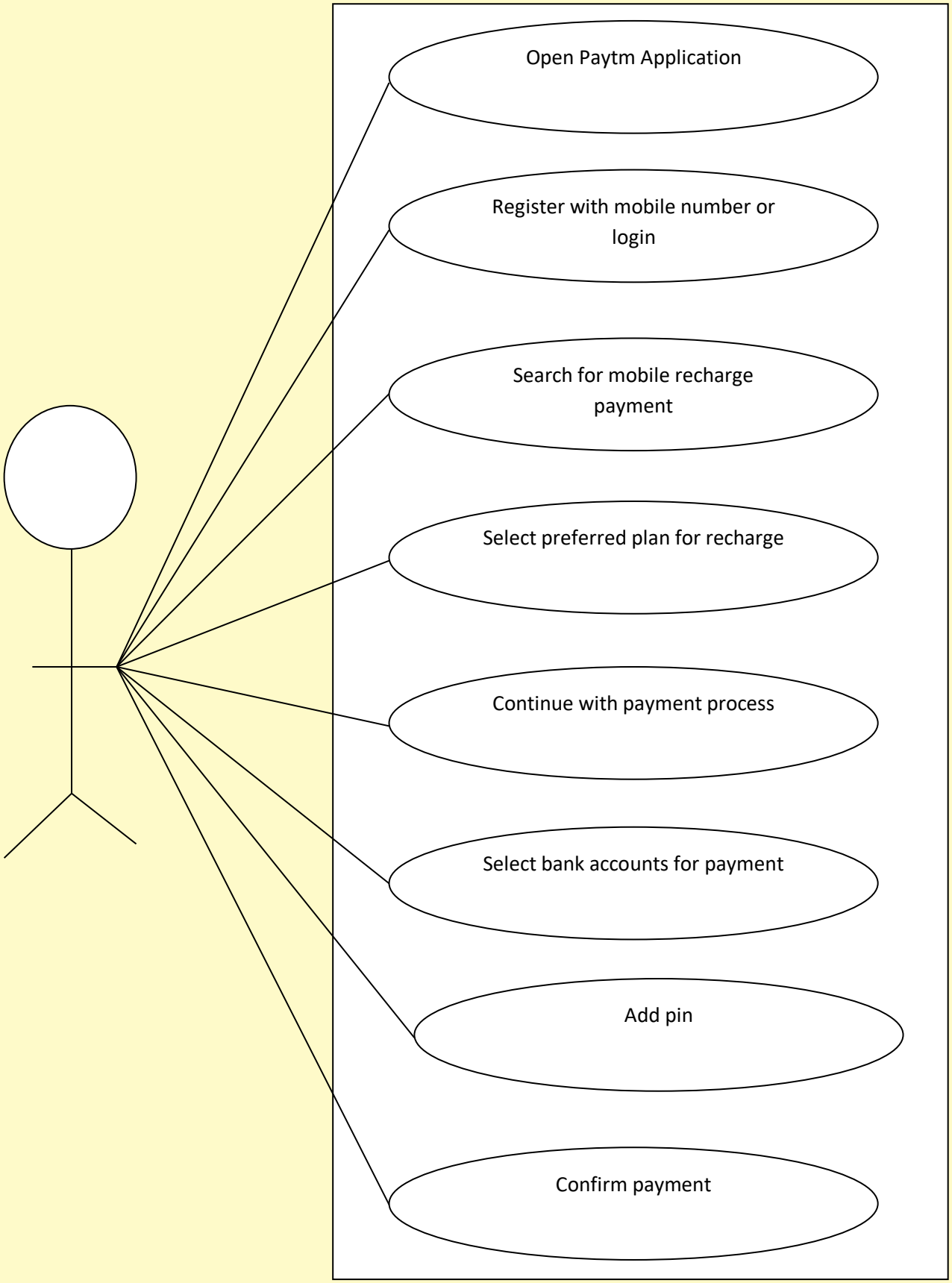
- Draw a Usecase on online bill payment system (Paytm)



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- Write SDLC phase with basic introduction

Requirements Collection/Gathering	Establish Customer Needs
Analysis	Model And Specify the requirements- “What”
Design	Model And Specify a Solution – “Why”
Implementation	Construct a Solution In Software
Testing	Validate the solution against the requirements
Maintenance	Repair defects and adapt the solution to the new requirement

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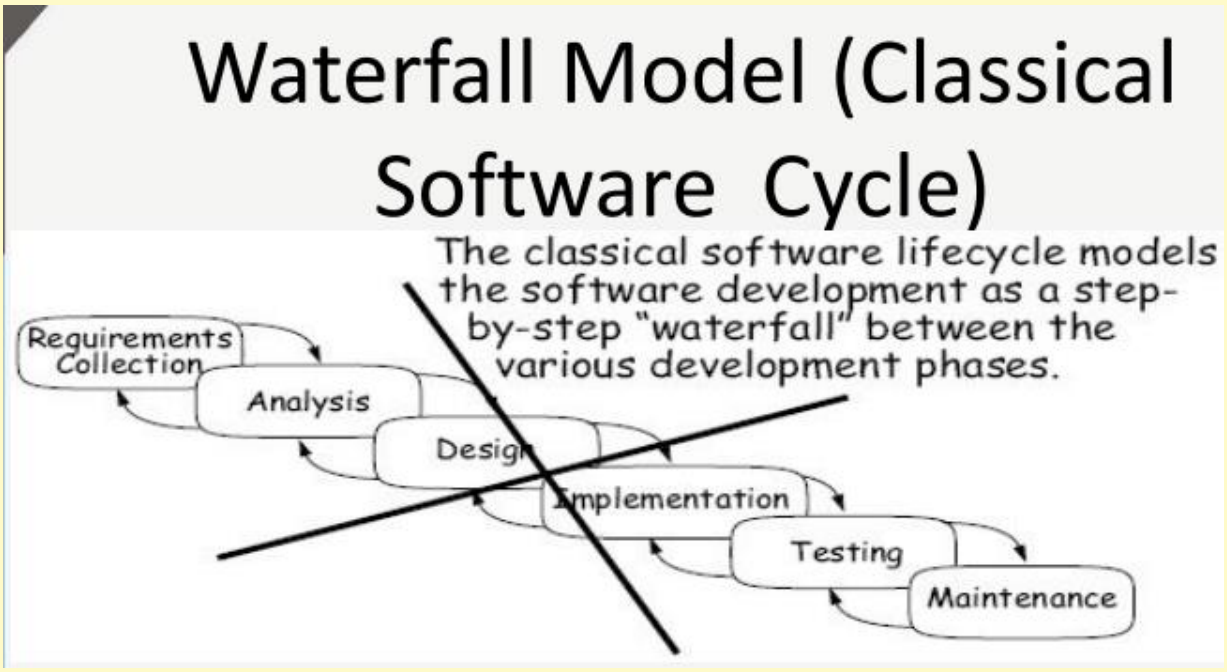
- Explain Phase of the waterfall model



⇒ The waterfall is unrealistic for many reasons, especially:

⇒ Requirements must be "frozen" to early in the life cycle

⇒ Requirements are validated too late

❖ Phase:

1. Requirement Gathering
2. System Design
3. Implementation
4. Integration
5. Deployment
6. Maintenance

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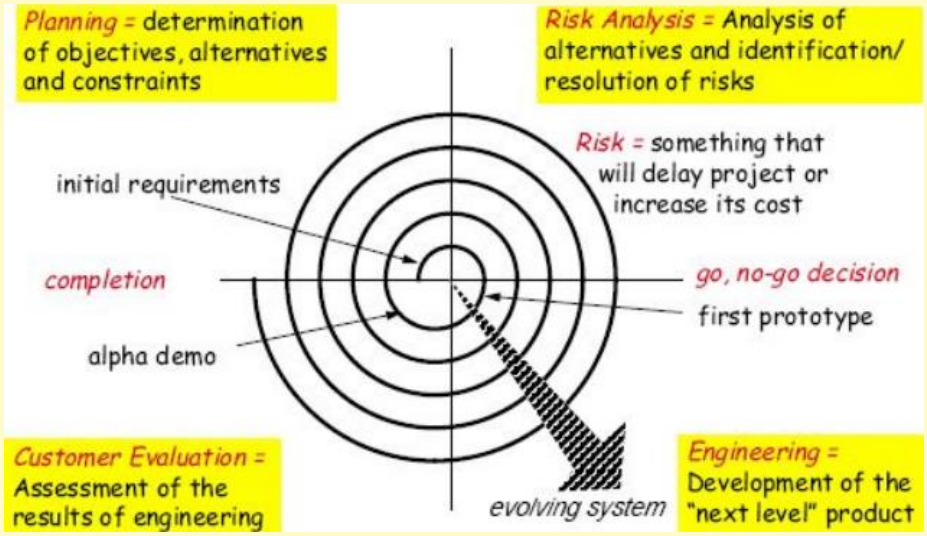
- Write phase of spiral model



⇨ Spiral Model is very widely used in the software industry as it is in synch with the natural development process of any product.

❖ Advantage :

⇒ Changing requirements can be accommodated.

⇒ Allows for extensive use of prototypes

⇒ Requirements can be captured more accurately. Users see the system early.

⇒ Development can be divided into smaller parts and more risky parts can be developed earlier which helps better risk management.

❖ Disadvantage :

⇒ Management is more complex.

⇒ End of project may not be known early.

⇒ Not suitable for small or low risk projects and could be expensive for small projects.

⇒ Process is complex

⇒ Spiral may go indefinitely.

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- Write agile manifesto principles

❖ Four manifesto

1. **Individual and Interaction**
2. **Working Software**
3. **Customer Collaboration**
4. **Responding to changes**

- Explain working methodology of agile model and also write pros and cons

⇒ Agile is the ability to create and respond to change.

⇒ Agile means " ability to move with quick, easy grace.

⇒ Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product.

⇒ Agile Methods break the product into small incremental builds.

❖ Advantage :

⇨ very realistic approach to software development

⇨ Promotes teamwork and cross training.

⇨ Easy to manage

⇨ Gives flexibility to developers

⇨ Functionality can be developed rapidly and demonstrated.

⇨ Resource requirements are minimum.

⇨ Suitable for fixed or changing requirements Delivers early partial working solutions.

❖ Disadvantage :

⇨ Not suitable for handling complex dependencies.

⇨ More risk of sustainability, maintainability and extensibility.

⇨ Transfer of technology to new team members may be quite challenging due to lack of documentation.

⇨ Depends heavily on customer interaction, so if customer is not clear, team can be driven in the wrong direction.

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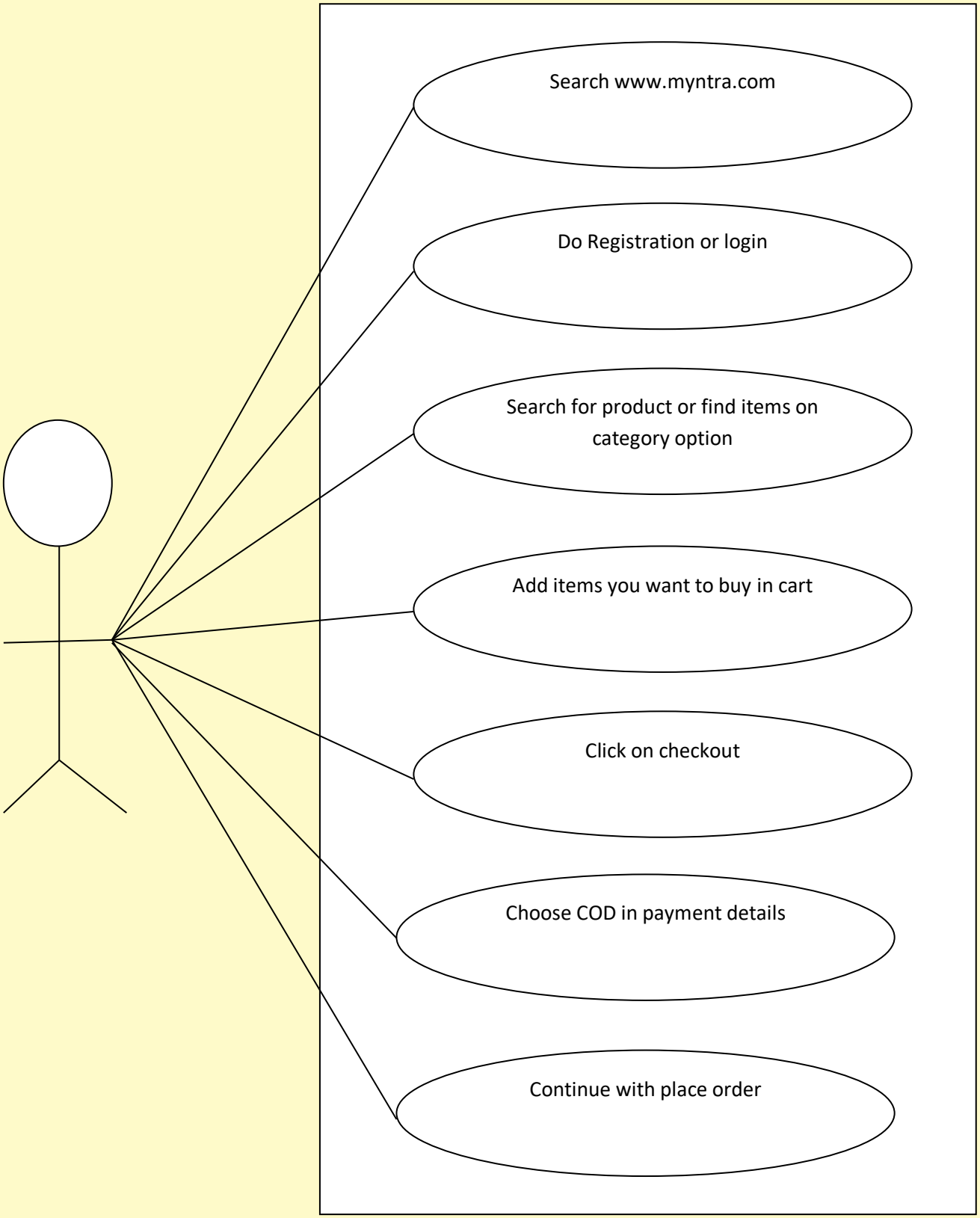
- Draw usecase on online shopping using COD



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- Draw usecase on online shpping product using payment gateway