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Module-1 Assignment

- **What is SDLC?**
  Software Development Life Cycle is a series of steps or phases that provide a model for development of a computer software or application.

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

- **What is SRS**
  SRS is System Requirement Specification is a complete description of the behavior of the system to be developed. In SRS it includes the set of use cases that describe the user interaction with the system.
  There are 3 types of Software requirement specification
  1) Customer Requirement: Customer are those that perform the eight primary features pf system development.
    - *Deployment*
    - *Environment*
    - *Utilization environment*
    - *Mission profile*
    - *Performance parameter*
    - *Effective requirement*
    - *Operational life cycle*

  2) Functional requirements:
  Functional requirements are very important requirements in the software system.
  For ex, in Gmail
  The system shall support the ability to receive mails, sent mails, forward or reply to the mail, shall attach the items to the mail

  3) Non-Functional Requirements: Non-functional requirements specify the criteria that can judge the operation of the system rather than the behavior of system
  For ex, System should run under Microsoft office 2003.

- **What is OOPS.**
  Oops is a programming language that directly supports to the object orientation. Identifying the objects and assigning responsibilities to the object. Here one object communicates to the another object.

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- **Write basic concepts of OOPS.**
  - *Object*
  - *Class*
  - *Encapsulation*
  - *Inheritance*
  - *Polymorphism*
    - *Overriding*
    - *Overloading*
  - *Abstraction*

- **What is object**
  Object is an instance of Class, to create memory for that particular class. It can access all the properties except Private.
  Ex; A Table, A chair, A blackboard is an object of classroom.

- **What is Class**
  Class is a collection of data member(variable) and member function (method, process) with its behavior.

- **What is Encapsulation**
  Encapsulation means data hiding or wrapping up of data into single unit.

- **What is Inheritance.**
  In Inheritance properties of parent class extends to child class/ Properties of super class extends to sub class. The main purpose of Inheritance is: Reusability and Extendibility.
  There are mainly 5 types of Inheritance: 1) Single, 2) Multilevel, 3) Hierarchical, 4) multiple, 5) Hybrid.

- **What is Polymorphism**
  Polymorphism means ability to take one name having different forms.

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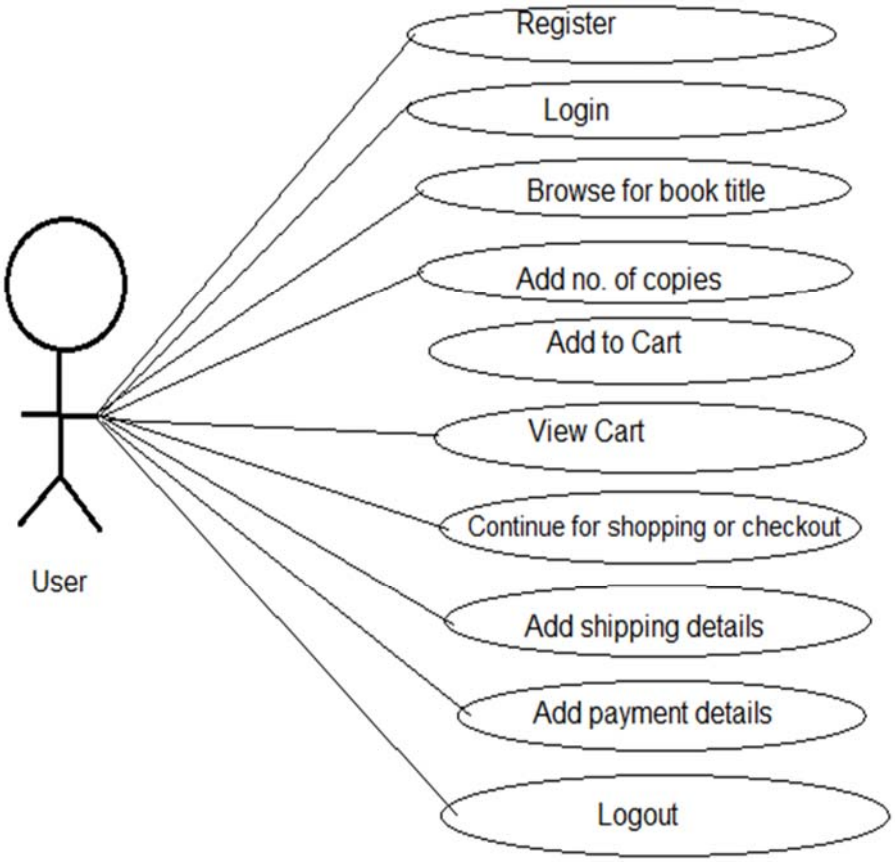
- **Draw use case on Online Book Shopping**



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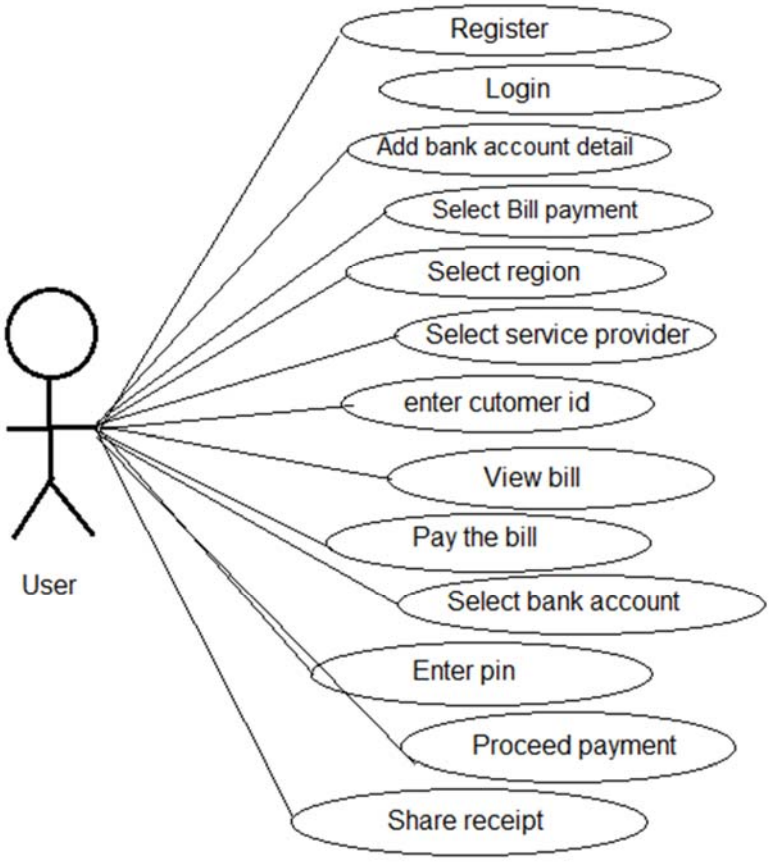
- **Draw use case on Online Bill Payment System(paytm)**



- **Write SDLC phases with basic introduction.**
  - *Requirement Gathering:*
    Features
    Usage Scenarios
    Requirements may be documented in written form; it may be possible incorrect or incomplete.
    Requirement can change with the development of project.
    Mainly there are 2 types of requirements: Functional & Non-Functional.

  - *Analysis:*
    The analysis phase defines the requirements of system, independent of how these requirements will be accomplished.
    At the end of this phase we will get the requirement document.

This phase relies on "what"
This phase give solution to the problem customer is trying to solve.
This phase start with the requirement gathering phase and then map this requirement to the architecture.

- *Designing:*
  Design architecture
  Design the test plan
  Performance Analysis
  Critical priority analysis
  The team can now expand upon the information got through the analysis phase.

- *Implementation:*
  In the Implementation phase the team build a software from the scratch or from composition
  In implementation phase we can check the quality of product.
  Developer get the design architecture from design analysis and Document details from analysis phase, with help of them we can give the desired result of computer.
  At the end the implantation phase delivers the Product itself.

- *Testing:*
  Testing is necessary to ensure quality of product. There are many companies who offer a product with more functionality than which is lack in quality.
  Testing is done after the Implementation phase.
  There are various types of Testing: Unit Testing, Stress Testing, Regression Testing.
  The main basic concept of testing is that sometimes it happens that a fresh eye can see the defect than the person who continuously read and re read the document
  Testing helps us to deliver the product as per customer's requirement.

- *Maintenance:*
  Software maintenance phase start after we deploy the software in customer's filed. It is one the phase of Software Development Life cycle.
  Configuration management.
  Fixing the defects and deficiencies.
  There are three typed of maintenance
  1)Corrective Maintenance: identify and repairing the defects.
  2)Adaptive Maintenance: adapting the existence solution to the new platform.
  3)Perfective maintenance: implementing the new requirements.

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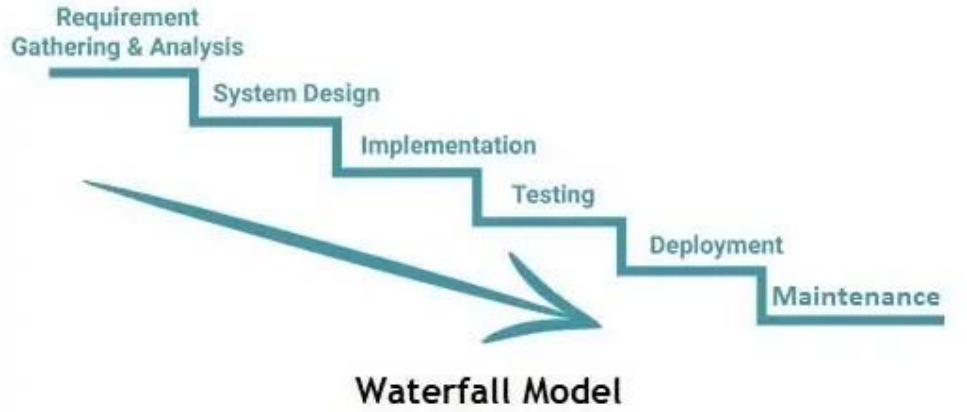
- **Explain the phases of Waterfall model.**

  The waterfall model is also known as Classical Life Cycle. Waterfall model is unrealistic due to so many reason like, Requirements must be frozen in very early stage of life cycle. Requirements validated too late.



Waterfall Model

- *When to use Waterfall Model?*
  When technology used is understood not dynamic.
  When requirements are very well stated and documented.
  When there are no ambiguous requirements present in project.
  When project is short.

- Pros
- Simple to understand and use
  Phases are very well defined.
  Due to the rigidity of model, easy to understand.
  Very well documented.
  Easy to understand
  Phases completed one at a time.

- Cons
  Requirement changes are not allowed in middle of cycle.
  Not useful for huge and complicated projects.
  Time consuming and more expensive
  Poor model for long and ongoing projects.

- Where it can use:
  For horoscope and informatory websites.

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- **Write phases of Spiral Model.**

  Spiral Model was widely used by the software industries as it in synch with the natural project development life cycle. In Spiral Model it offers minimum risk to Customer as well as Developer side.

  There are 4 phases in Bohem's Spiral model:

  1. *Planning: In planning we get the initial requirements as objects, constraints and alternatives.*
  2. *Risk Analysis: The risk in project is something that can delay or cost the project. Risk analysis is done in this phase. In risk analysis we are determining the risk and find solutions of it. There are 2 conditions in risk analysis phase: Go and No-go condition. If it indicates Go then project can proceed further.*
  3. *Engineering: The real work of development is done in this phase. This phase is handle by the development team.*
  4. *Customer Evaluation: Customer evaluation is the assessment of result of engineering. With the help of customer evaluation, we can make product with more quality. With this feature customer can get used to the new product.*

- **Write agile manifesto principals.**
  - Individuals and Interactions
  - Working Software
  - Customer Collaboration
  - Responding to change

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

  Agile SDLC model is combination of iterative and incremental model focuses on process adaptability and customer satisfaction by rapid delivery of working software model.

  Agile model breaks the product into small incremental model. Each portion is added into the new iteration. Each iteration lasts from one to three week.

  Agile model believes that each project should handle differently. The methods to be tailored for the best fit. In agile it divides the tasks into time frames. At the end of each iteration the model designing changes and new functionalities should be added. At the end of iteration, the final product will be delivered.

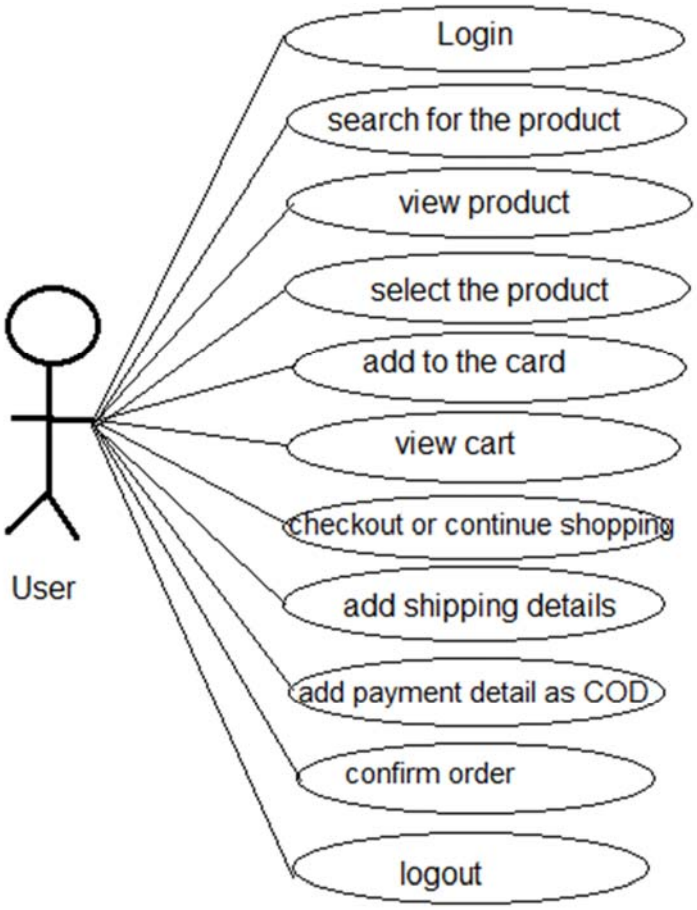
  - *Pros*

    Promotes team work.
    Change in requirements is adaptable.
    It is a very realistic approach for software development.
    Suitable for fixed and changing requirements.
    Functionality can be developed rapidly
    Minimal rules and documentation.
    Easy to manage

Little or no planning required.

- *Cons*
  High risk analysis team required.
  Due to the individual dependency hard to manage.
  In case of change in technology for the new development team it is hard to manage due to less documentation
  Not suitable for handling complex dependencies.
  An overall plan, Agile Team and Agile manager is must require, without it won't work.
  Customer evaluation is much so if the customer is not clear it may make problems to the system.

- **Draw use case on Online shopping product using COD**



Use case of Online shopping using COD

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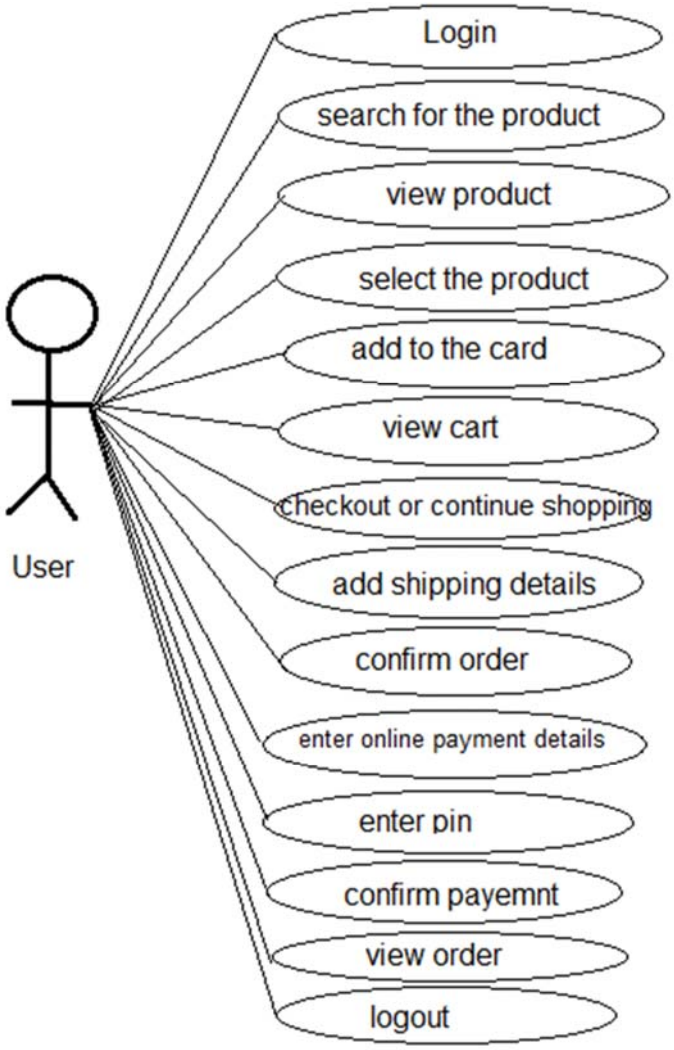
- **Draw use case on Online shopping product using payment gateway.**



Use case diagram for online shopping using payment gateway