Module one for Software Tasting

1. What is SDLC?

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 **Waterfall, Agile Iterative, Spiral, V-shaped.**

2. What is software testing?

Software Testing is a process used to identify the Correctness, Completeness and quality of developed computer software.

3. 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. These builds are provided in iterations.

The Agile software development **methodology** is one of the simplest and effective processes to turn a vision for a business need into software solutions. Agile is a term used to describe software development approaches that employ continual planning, learning, improvement, team collaboration, evolutionary development, and early delivery. It encourages flexible responses to change.**Each iteration typically lasts from about one to three weeks.**

4. What is SRS

A software requirements specification (SRS) is **a document that describes what the software will do and how it will be expected to perform** software or application.

There are a set of guidelines to be followed while preparing the software requirement specification document. This includes the purpose, scope, functional and non-functional requirements, software and hardware requirements of the project. In addition to this, it also contains the information about environmental conditions required, safety and security requirements, software quality attributes of the project etc.

- SRS Two Types

1. Product Based

   Example Atul motors

2. Project Based

   Example Local Company

5. What is OOPS?

Object Oriented Programming (OOP) is **a computer programming model that organizes software design around data, or objects, rather than functions and logic**. An object can be defined as a data field that has unique attributes and behaviour.

6. Write Basic Concepts of OOPS

Object, Class, Encapsulation, Inheritance, Polymorphism, Overriding, Overloading, Abstraction

7. What is object?

Any entity which has own state and behaviour. For example, a car can be an object. If we consider the car as an object then its properties would be – its colour, its model, its price, its brand, etc. And its behaviour/function would be acceleration, slowing down, gear change.

8. What is class?

Collection of object called a class. An object is a particular instance of a class which has actual existence and there can be many objects (or instances) for a class. In the case of a car or laptop, there will be a blueprint or design created first and then the actual car or laptop will be built based on that. We do not actually buy these blueprints but the actual objects.

9. What is encapsulation?

Wrapping up of data or binding of data for example Wrapping small five tablet in add to big new tablet

10. What is inheritance?

When one object acquires all the properties and behaviour of parent class Example father and son

11. What is polymorphism?

Polymorphism means “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 most important aspect of an object is its behaviour (the things it can do).A behaviour is initiated by sending a message to the object (usually by calling a method) Many ways to perform anything.

- There are two types of polymorphism in Java

  1.Method Overloading

  Name will be same but object are different

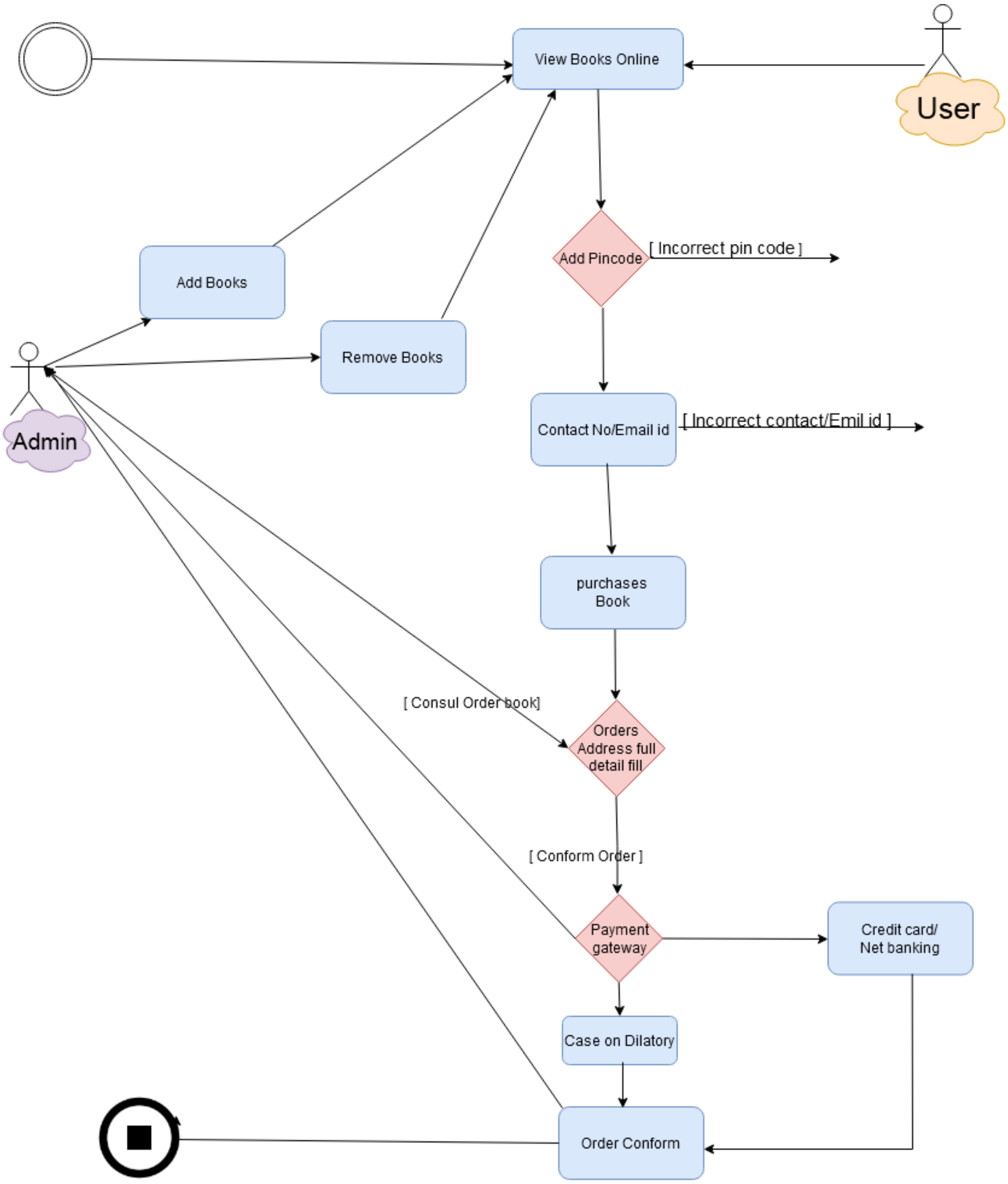
  Compile time polymorphism (Overloading) for example how are you

2. Method Overriding

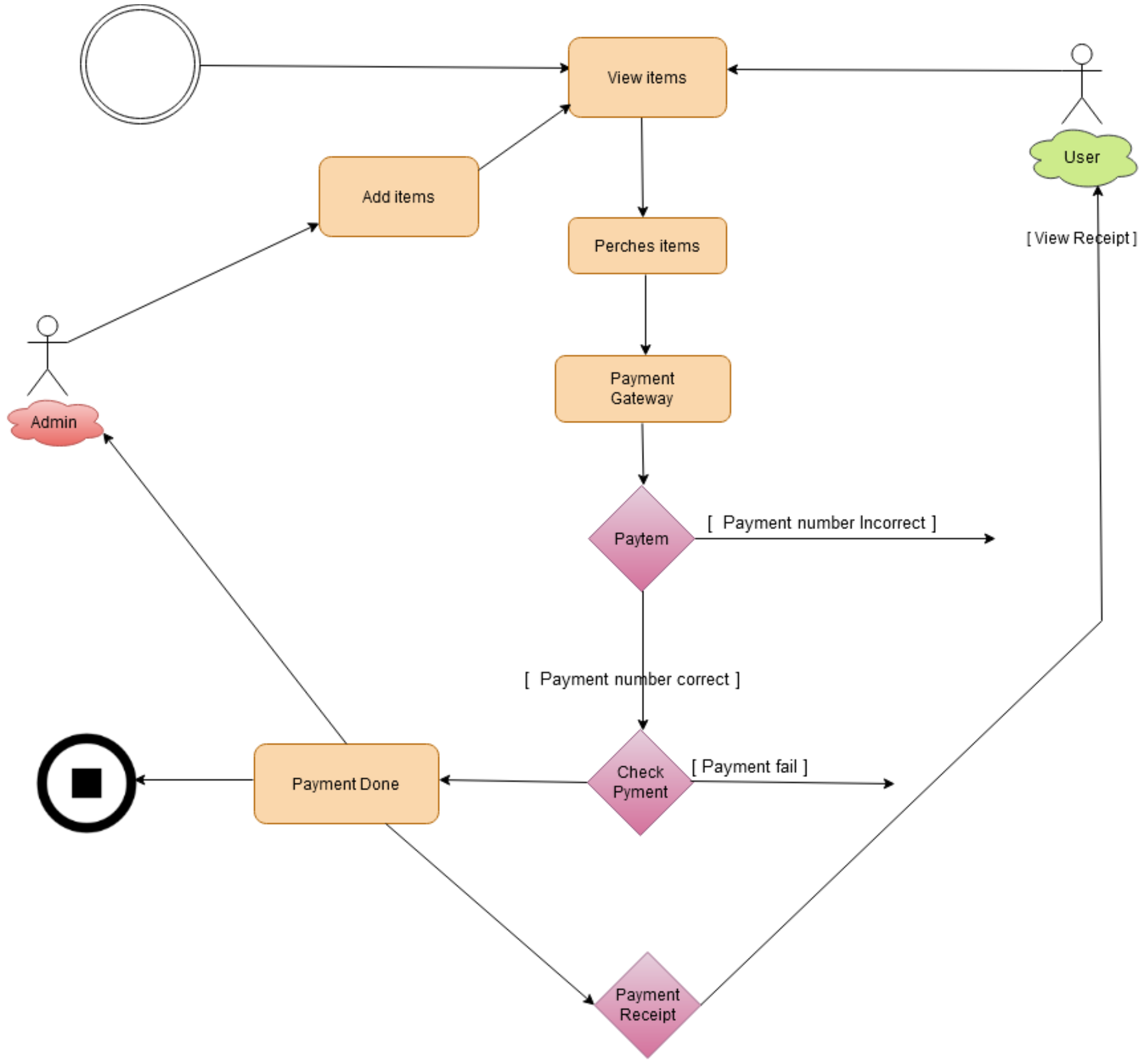
Name and object same data will be replays

Runtime polymorphism (Overriding) for example Replay fine

12. Draw used case on online book shopping



13. Draw Use case on online bill payment system (pay tm)



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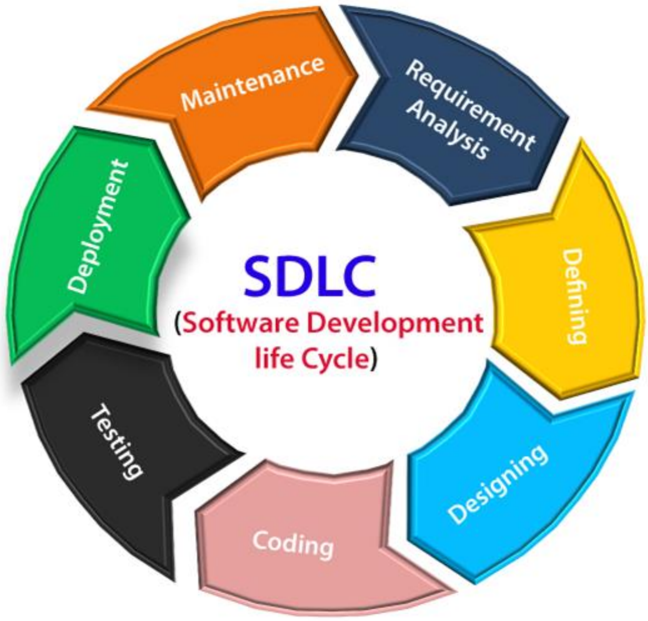
14. Write SDLC phases with basic introduction



➢SDLC Phases

- Requirements Collection/Gathering

Establish Customer Needs than Business Analyst Collects the requirement from the customer and provide the project Development team.

- Analysis

Model and specify the requirements- **What**”

Details on computer programming languages and environments, machines, packages, application architecture, distributed architecture layering, memory size, platform, algorithms, data structures, global type definitions, interfaces, and many other engineering details are established.

- Design

Model and specify a solution **-“Why”**

This phase only for project blue print design not coding

- ## Implementation

Construct a solution in software source code, product development, documentation in implementation phase

- ## Testing

Validate the solution against the requirements

- ## Maintenance

Repair defects and adapt the solution to the new requirement example whatsapp, fb

➢ Three Types of Maintenance

1. Corrective Maintenance

Identifying and repairing defects Example whatsapp photo first application in market not sand photo clarity than whatsapp as corrective and option document

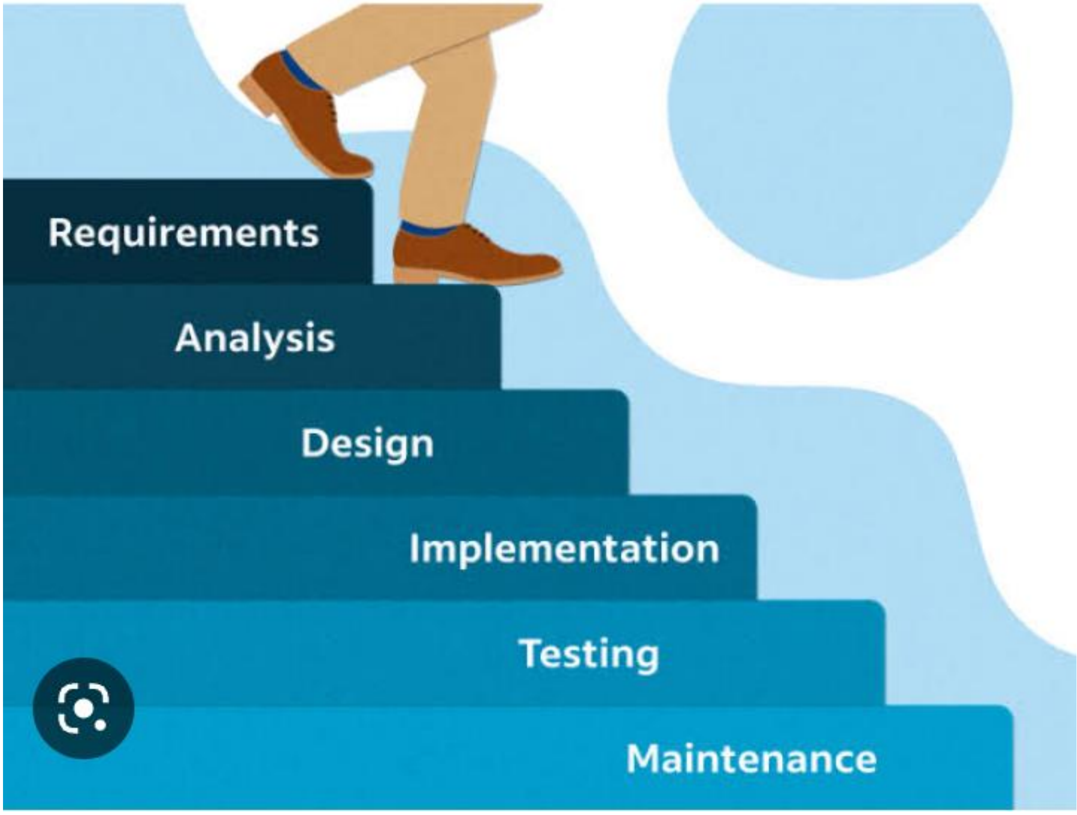
2. Adaptive maintenance

Existing solution on the New Platform Example whatsapp, fb, telegram as application used in new platform is website

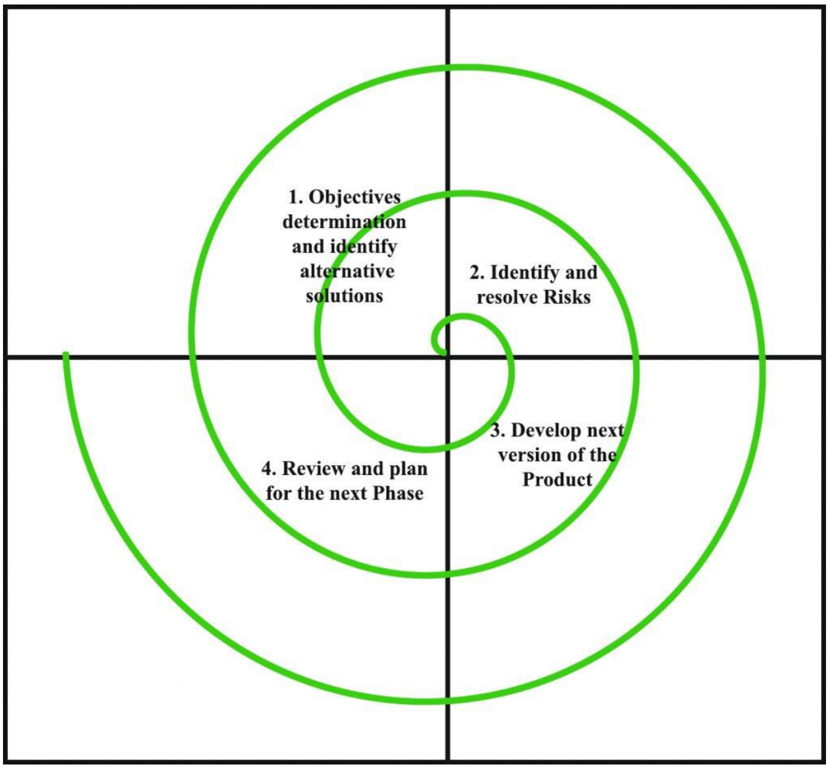
3. Perfective Maintenance

Implementation the new requirements in a spiral life cycle, everything after the deliver and deployment of the first prototype can be considered “maintenance” prototype can be considered “maintenance” Example whatsapp is new item add payment option

15. Explain phases of the waterfall model



16. Write phases of Spiral Model


1. Objectives determination and identify alternative solutions
2. Identify and resolve Risks
3. Develop next version of the Product
4. Review and plan for the next Phase

➢ What is spiral model?

The spiral model is a systems development lifecycle (SDLC) method used for risk management that combines the iterative development process model with elements of the Waterfall model. The spiral model is used by software engineers and is favoured for large, expensive and complicated projects.

Phase of Spiral Model

1. Planning

Determination of objectives and considers initial requirements In the subsequent spiral as the product matures, all system, subsystem and unit requirements are identified at this stage.

This phase also includes understanding system requirements through ongoing communication between the customer and system analysts. At the end of the spiral, the product will be deployed in the identified market. This includes iteration cost, schedule, and resource estimates. This includes understanding system requirements for ongoing communication between system analysts and customers

2. Risk Analysis

Analysis of alternative and identification/ resolution of risks some think that will delay project or increase its cost go and no go decision. After the "plan" phase, the team prepares for the "risk" phase. The "risk" phase is designed to take into account the variability in the rate at which a given product might fail. It is designed to account for the uncertainty in the rate at which a given product might fail. During the "risk" phase, the team evaluates various aspects of the current state of the product, such as the state of its code, the state of its design, and the state of its prototype.

3. Product development

This step includes architectural design, module design, physical product design and final design. This phase also includes the actual implementation of features in a project which are verified by performing testing.

4. Next phase planning

In this phase, the software is evaluated by the customer and feedback is given. The team prepares for the next phase of the planning process.

17. Write agile manifesto principles

- **The 12 principles**

1. Satisfying customers through early and continuous delivery of valuable work.
2. Breaking big work down into smaller tasks that can be completed quickly.
3. Recognizing that the best work emerges from self-organized teams.
4. Providing motivated individuals with the environment and support they need and trusting them to get the job done.
5. Creating processes that promote sustainable efforts.
6. Maintaining a constant pace for completed work.
7. Welcoming changing requirements, even late in a project.
8. Assembling the project team and business owners on a daily basis throughout the project.

9. Having the team reflect at regular intervals on how to become more effective, then tuning and adjusting behaviour accordingly.
10. Measuring progress by the amount of completed work.
11. Continually seeking excellence.
12. Harnessing change for a competitive advantage.

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

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. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like planning, requirements analysis, design, coding, unit testing, and acceptance testing. At the end of the iteration a working product is displayed to the customer and important stakeholders.

- Pros

1. In Agile methodology the delivery of software is unremitting.
2. The customers are satisfied because after every Sprint working feature of the software is delivered to them.
3. Customers can have a look of the working feature which fulfilled their expectations.
4. If the customers have any feedback or any change in the feature then it can be accommodated in the current release of the product.
5. In Agile methodology the daily interactions are required between the business people and the developers.
6. In this methodology attention is paid to the good design of the product.
7. Changes in the requirements are accepted even in the later stages of the development.
8. An Agile/Scrum approach can improve organizational synergy by breaking down organizational barriers and developing a spirit of trust and partnership around organizational goals.

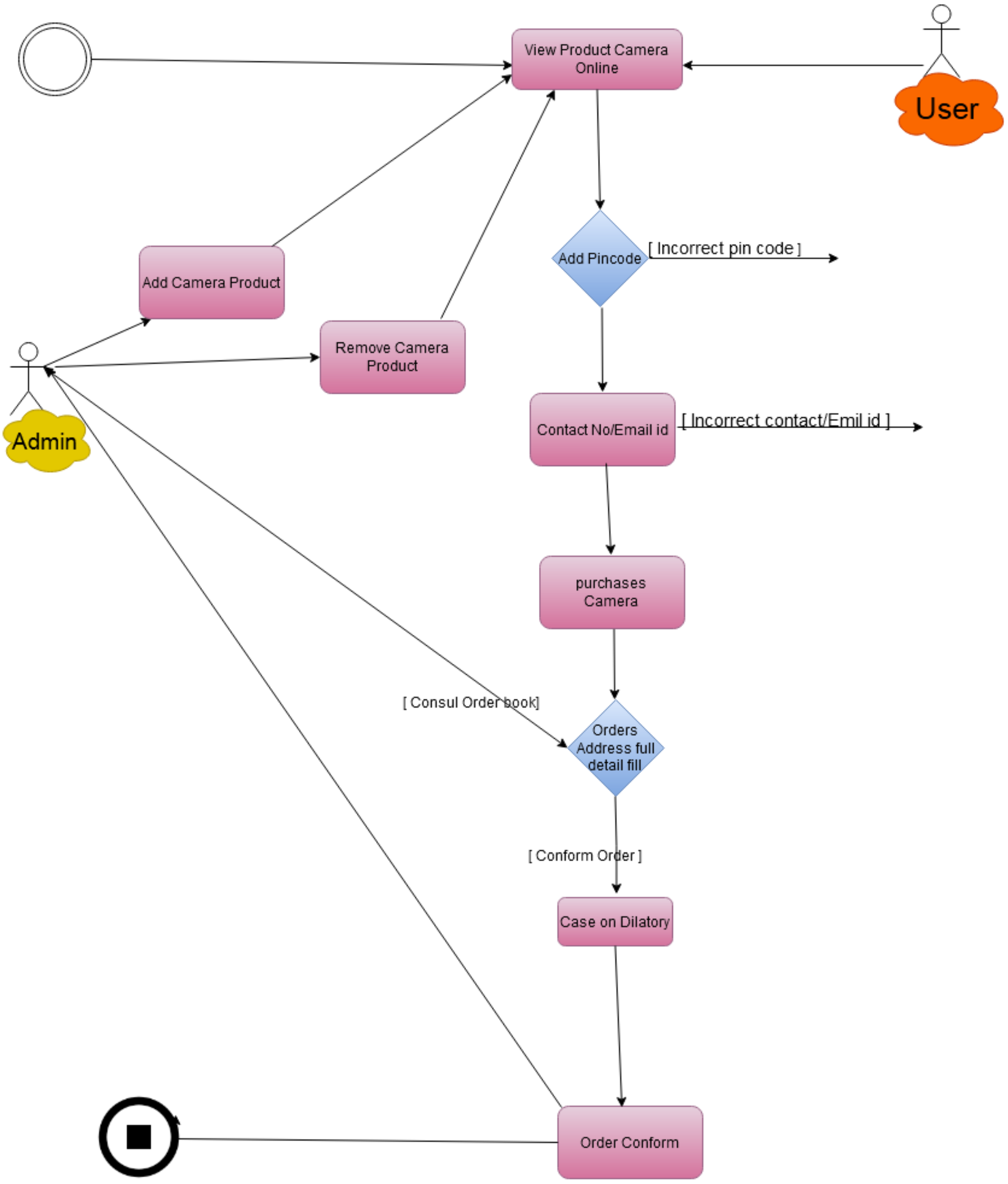
- Cons

1. In Agile methodology the documentation is less.
2. Sometimes in Agile methodology the requirement is not very clear hence it’s difficult to predict the expected result.
3. In few of the projects at the starting of the software development life cycle it’s difficult to estimate the actual effort required.
4. Because of the ever-evolving features, there is always a risk of the ever-lasting project.

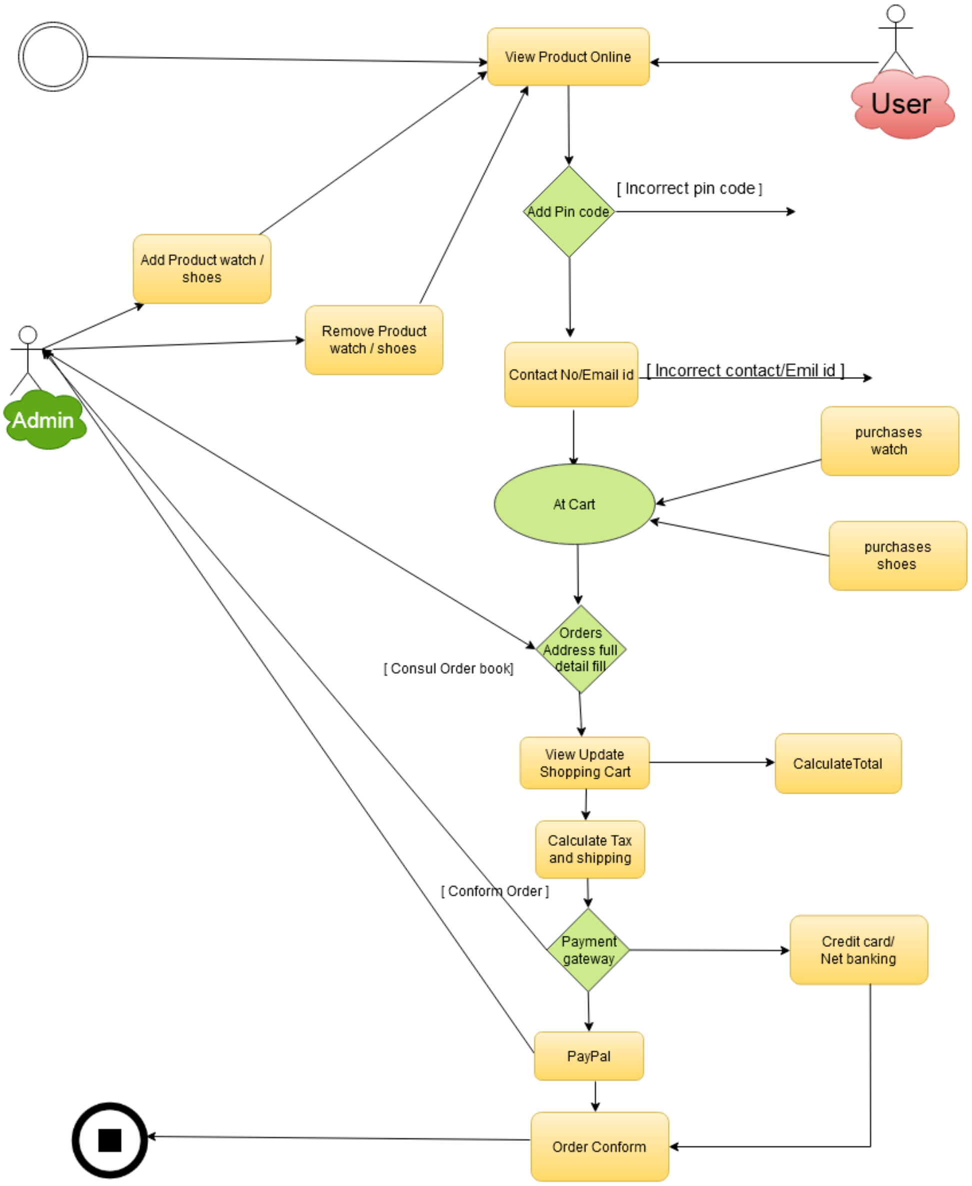
5. For complex projects, the resource requirement and effort are difficult to estimate.

19. Draw use case on online shopping product using cod.

- Online Camera Product Shopping Case on Delivery



20. Draw used case on online shopping product using payment gateway



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