

Object Oriented Analysis and Design (SS ZG514)

Assignment – Phase 1

Description of the selected software development process

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Selected Software Development Process:

- The selected project is “Gas Agency Management Systems”
- Agency projects are usually generated by clients’ ideas . These ideas are often loose and ambiguous, and it’s the agency’s job to translate them into something that will suit the client’s needs. Thus, the best strategy when beginning a project is to treat it like the Agile development Model.
- This process works best on larger projects that are easily divided into discrete features.

- As it is more client centric there can any many limitations on developing firm such a client personnel change during the project, technical limitations discovered during development, design implementations not working out.
- Hence by adopting to agile model we can set timelines to work and can create sprints based on the work and the client feedback, keeping the client in the loop regarding how much time and resources each sprint will consume. This process lets the client see changes rapidly and assures them that they are being listened to and that the agency is devoted to producing the product that will actually fit their needs, not just sticking to a flawed plan.

Agile Development Model

- The Agile Method is a particular approach to project management that is utilized in software development. This method assists teams in responding to the unpredictability of constructing software. It uses incremental, iterative work sequences that are commonly known as sprints.
- A sprint is a period of time allocated for a particular phase of a project. Sprints are considered to be complete when the time period expires. There may be disagreements among the members of the team as to whether or not the development is satisfactory; however, there will be no more work on that particular phase of the project. The remaining phases of the project will continue to develop within their respective time frames.

The general principles of the Agile Method

- Satisfy the client and continually develop software.
- Changing requirements are embraced for the client's competitive advantage.
- Concentrate on delivering working software frequently. Delivery preference will be placed on the shortest possible time span.
- Agile processes will promote development that is sustainable. Sponsors, developers, and users should be able to maintain an indefinite, constant pace.
- Constant attention to technical excellence and good design will enhance agility.
- Simplicity is considered to be the art of maximizing the work that is not done, and it is essential.
- Self-organized teams usually create the best designs.
- At regular intervals, the team will reflect on how to become more effective, and they will tune and adjust their behaviour accordingly.

Agile Model - Pros and Cons

The advantages of the Agile Model are as follows –

- Is a very realistic approach to software development.
- Promotes teamwork and cross training.
- Functionality can be developed rapidly and demonstrated.
- Resource requirements are minimum.
- Suitable for fixed or changing requirements
- Delivers early partial working solutions.
- Good model for environments that change steadily.
- Minimal rules, documentation easily employed.
- Enables concurrent development and delivery within an overall planned context.
- Little or no planning required.
- Easy to manage.
- Gives flexibility to developers.

The disadvantages of the Agile Model are as follows –

- Not suitable for handling complex dependencies.
- More risk of sustainability, maintainability and extensibility.
- An overall plan, an agile leader and agile PM practice is a must without which it will not work.
- Strict delivery management dictates the scope, functionality to be delivered, and adjustments to meet the deadlines.
- Depends heavily on customer interaction, so if customer is not clear, team can be driven in the wrong direction.
- There is a very high individual dependency, since there is minimum documentation generated.
- Transfer of technology to new team members may be quite challenging due to lack of documentation.

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Description of the application

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Software Description

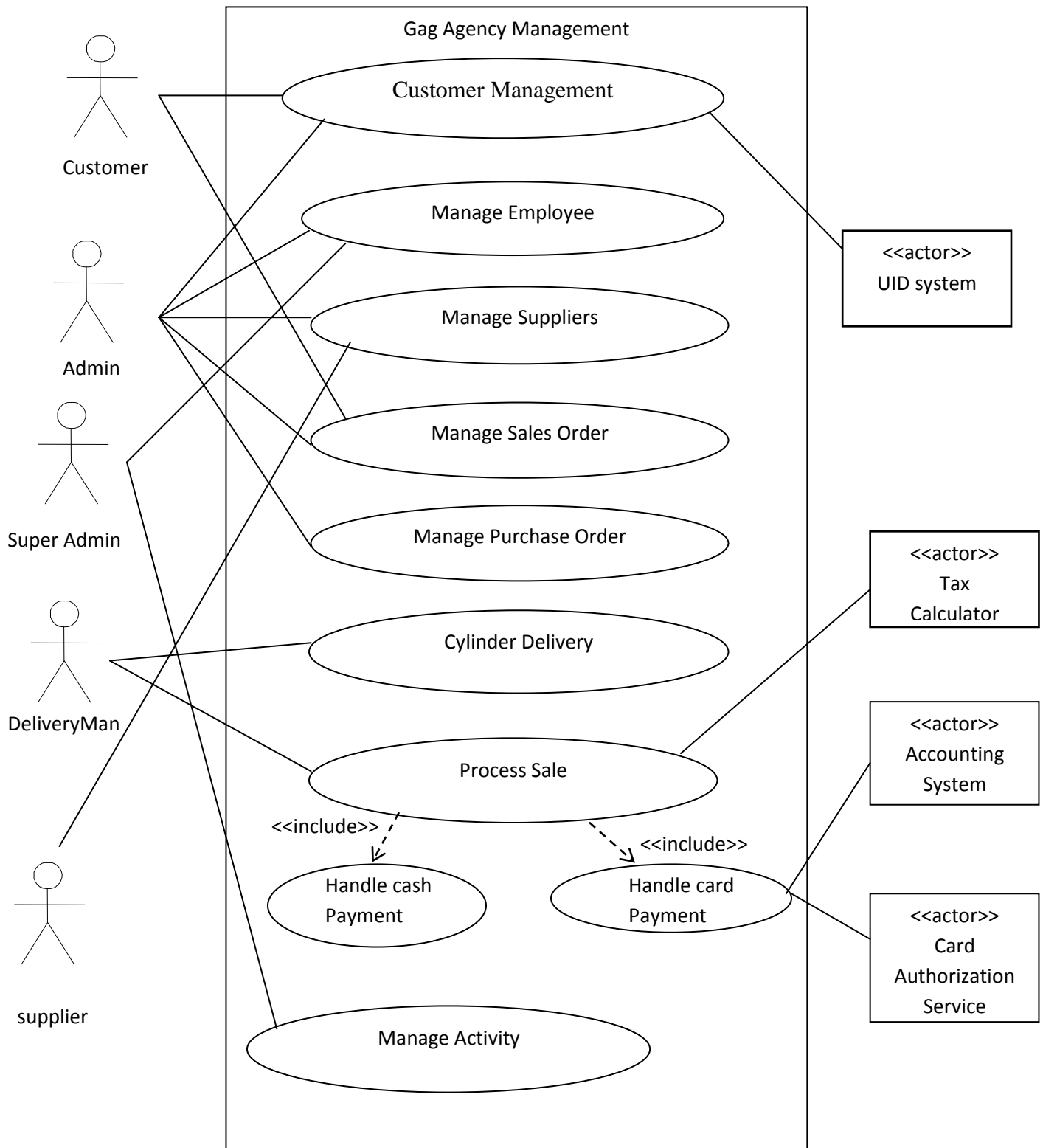
Selected software is "Gas Agency Management System". This software is specially design to fulfill the requirements of Gas Agency. This software is user-friendly for Admin

Proposed System

- The customer, employee and supplier details are maintained in the system very well
- There are definite formats and forms to make data entry
- Much kind of reports can be generated through the software
- Admin can check the customer information very easily. Searching of data will be quicker process
- Bill can be generated automatically through system
- This enables Admin to check their regular customer quickly which could help to boost up their business
- System will be user-oriented and will be flexible with future expansion capabilities

Software provides end to end solution for managing customers, employees, suppliers, sales and Purchase orders

Use Case Diagram



Use Case UC1: Manage Customer

Scope: Gas Agency Management Systems

Level: user Goal

Primary Actor: Admin

Stakeholders and Interests:

- Admin: Wants accurate user details, fast entry and no user management error
- Customer: Wants his/her details added accurately, easily update details, wants correct customer ID
- Company: Want to accurately keep data records, get reports of individual/all customers
- Super admin: Wants to able to quickly perform override operations, and easily debug admin problem

Preconditions: Admin is verified user and logged into the system

Success Guarantee (or PostConditions): Customer details are added/updated. Customer can book sale request. Super admin able to see details of the customer.

Main Success Scenario (or Basic Flow):

1. Customer arrives at gas agency to add/update details.
2. Admin checks whether customer is existing user is not.
3. Admin adds details of customer if customer is new or update details in case of existing customer.
4. Customer details should be added/updated accurately.
5. System logs complete record if customer.
6. System generates customerID.
7. Customer leaves with customerID for further use.

Extensions (or Alternate Flows):

2a.Invalid user details

1. Admin asks customer to provide valid details
2. Admin re-enter details.

6a. System faces issue while generating customerID

1. Admin approaches to super admin for error signal.
2. Super admin identifies the issue and generates the customerID.

*a. At any time system fails

1. Admin restarts the system ,log in and requests the recovery of prior state
2. System reconstructs the prior state
 - 2a. Admin starts entering customer details again

*b. At any time Super Admin requests an override operation

1. System enters super admin authorized mode
2. Admin or super admin performs super admin-mode operation e.g. generate Sales report, generate delivery report

Special Requirements:

- Provide reports to download in pdf, excel and word
- Provide multi-language support for data entry

Technology and Data Variations List:

7a. CustomerID currently given on paper or orally. But Within 3 months, we predict that many customers will want it as SMS/mail

Frequency: Could be nearly continuous.

Open Issues:

- Can customer directly make entries of his/her details
- Explore remote server connectivity loss issue

Use Case UC2: Manage Sales order

Scope: Gas Agency Management System

Level: user goal

Primary Actor: Admin

Stakeholders and Interests:

-Admin: wants to ensure all the details of customer's sales orders. Wants to check if difference between customer's last delivery date and current (today's) date is greater than 15. Wants to check if order is valid.

-Customer: Wants to purchase the cylinder. Wants the bill after cylinder delivery

Precondition: Admin is verified user of the system

Success Guarantee (or post conditions): Sales is saved and delivery order, Receipt is generated

Main Success Scenario (or Basic Flow):

1. When a customer comes for placing an order
2. Admin verifies the customer details
3. Admin checks whether the difference between customer's last delivery date and current (today's) date is greater than 15
4. Admin creates new sales order for the customer if the above condition gets satisfied
5. Admin provides the gas cylinder delivery date
6. Delivery man handles the delivery and handover the cylinder bill

Extensions (or alternative flows):

- 3a. System unable to find difference between customer's last delivery date and current (today's) date
 1. Admin manually calculates date difference and if its greater than 15 ,then admin places the order
 2. System generates the receipt
- 6a. Agency fails to deliver the cylinder due to lack of stock
 1. System generates the new delivery date
 2. Admin confirms the same to the customer
- *a. At any time system fails
 1. Admin restarts the system ,log in and requests the recovery of prior state
 2. System reconstructs the prior state
 - 2a. Admin starts new sale
- *b. At any time Super Admin requests an override operation
 1. System enters super admin authorized mode
 2. Admin or super admin performs super admin-mode operation e.g. generate Sales report, generate delivery report

Special Requirements:

- Provide reports to download in pdf, excel and word

Technology and Data Variations List:

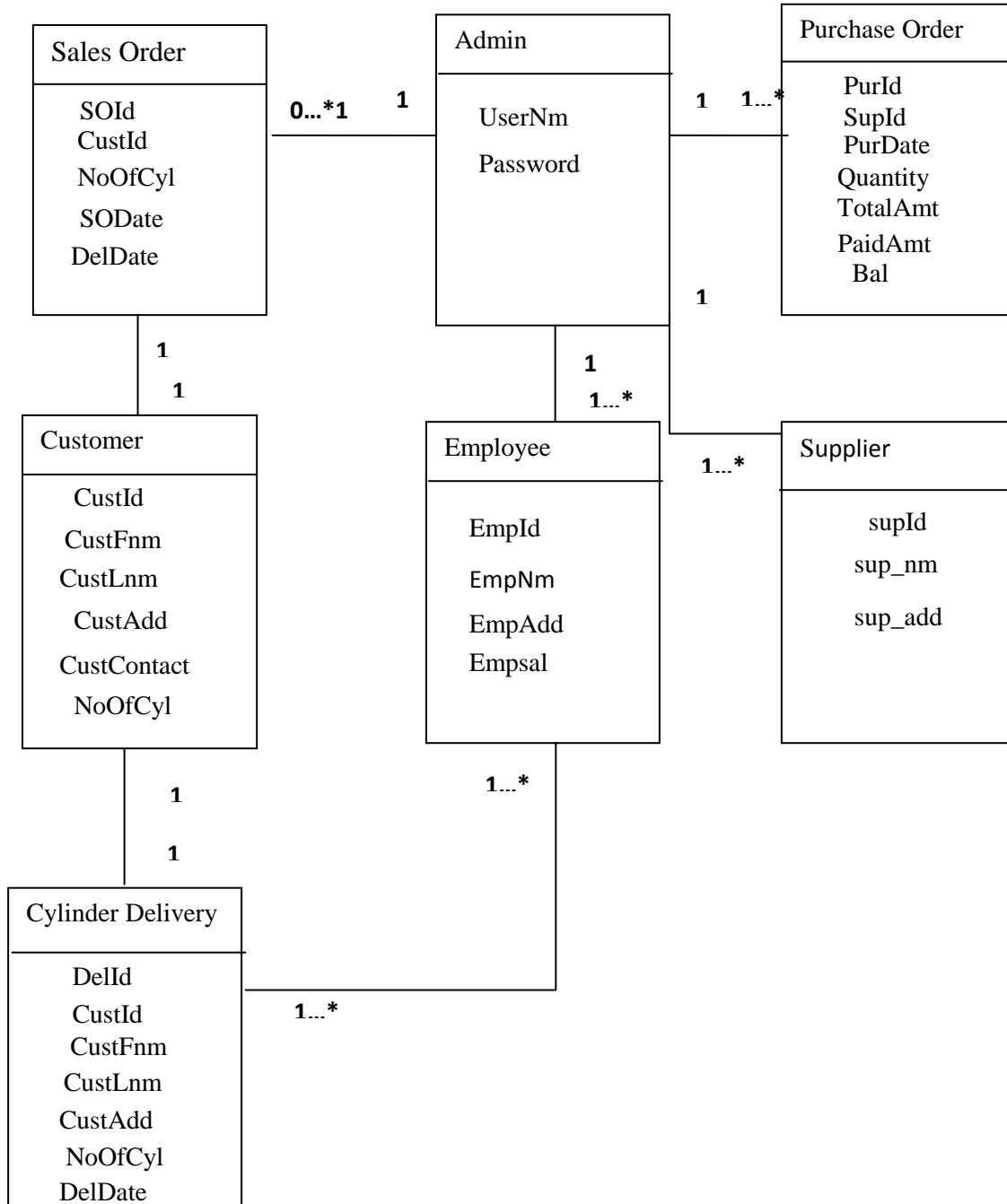
7a. delivery date and receipt currently given on paper . But Within 3 months, we predict that many customers will want it as SMS/mail

Frequency: Could be nearly continuous.

Open Issues:

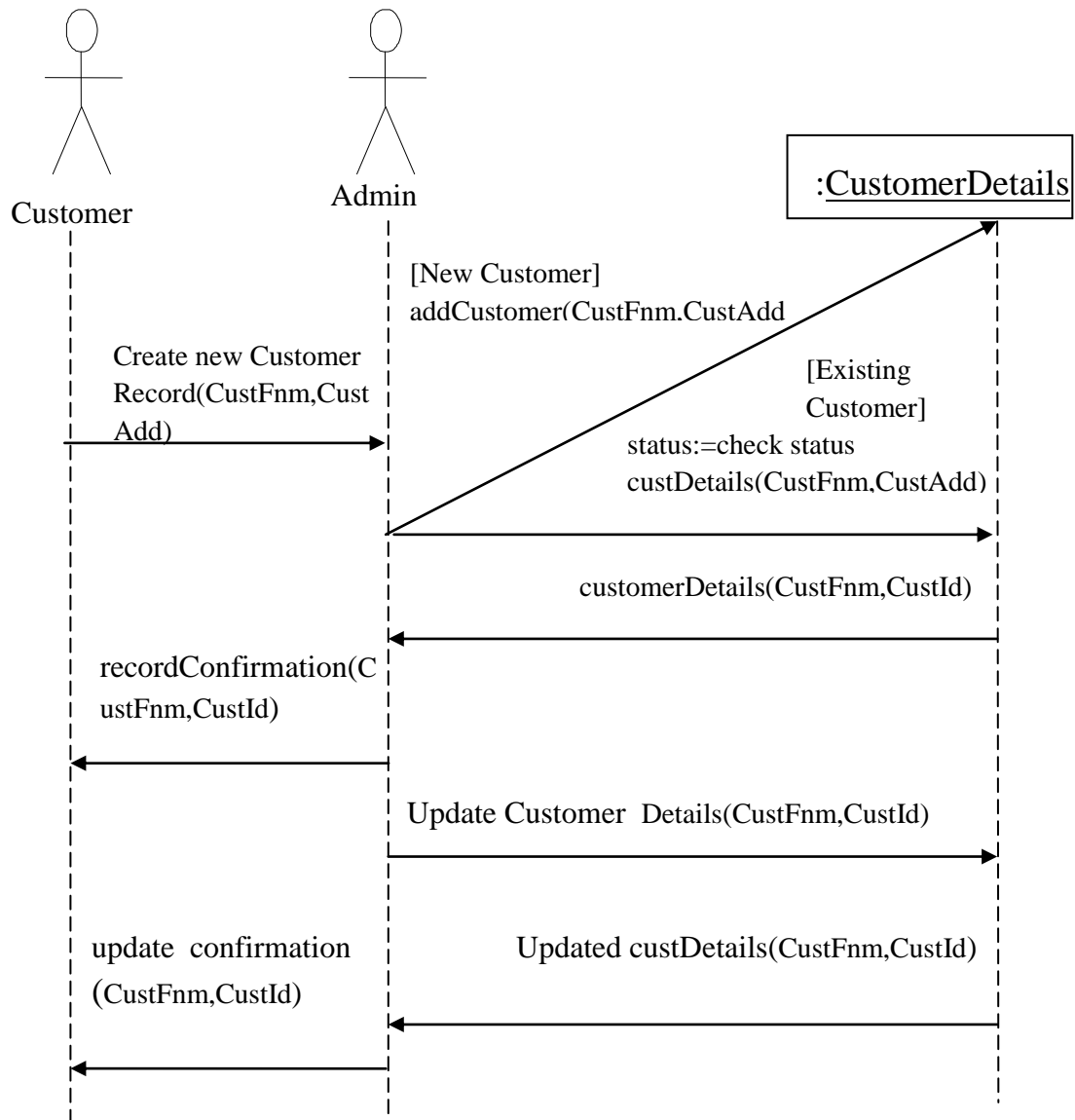
- Handle frequent changes in fuel price
- Handle failures any case of subsidy transaction
- Explore remote server connectivity loss issue

Domain Model Diagram

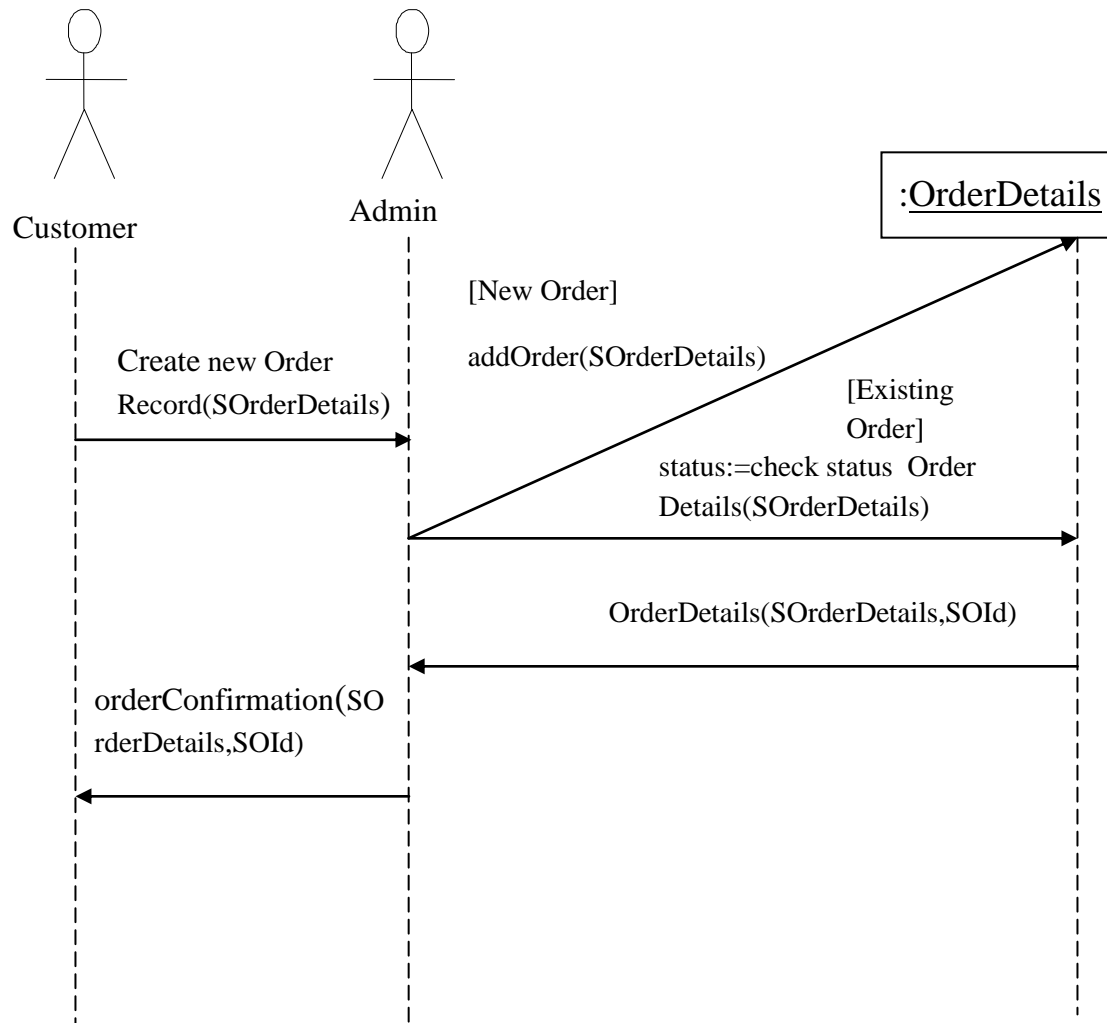


System Sequence Diagram

1. Manage Customer Subsystem:-

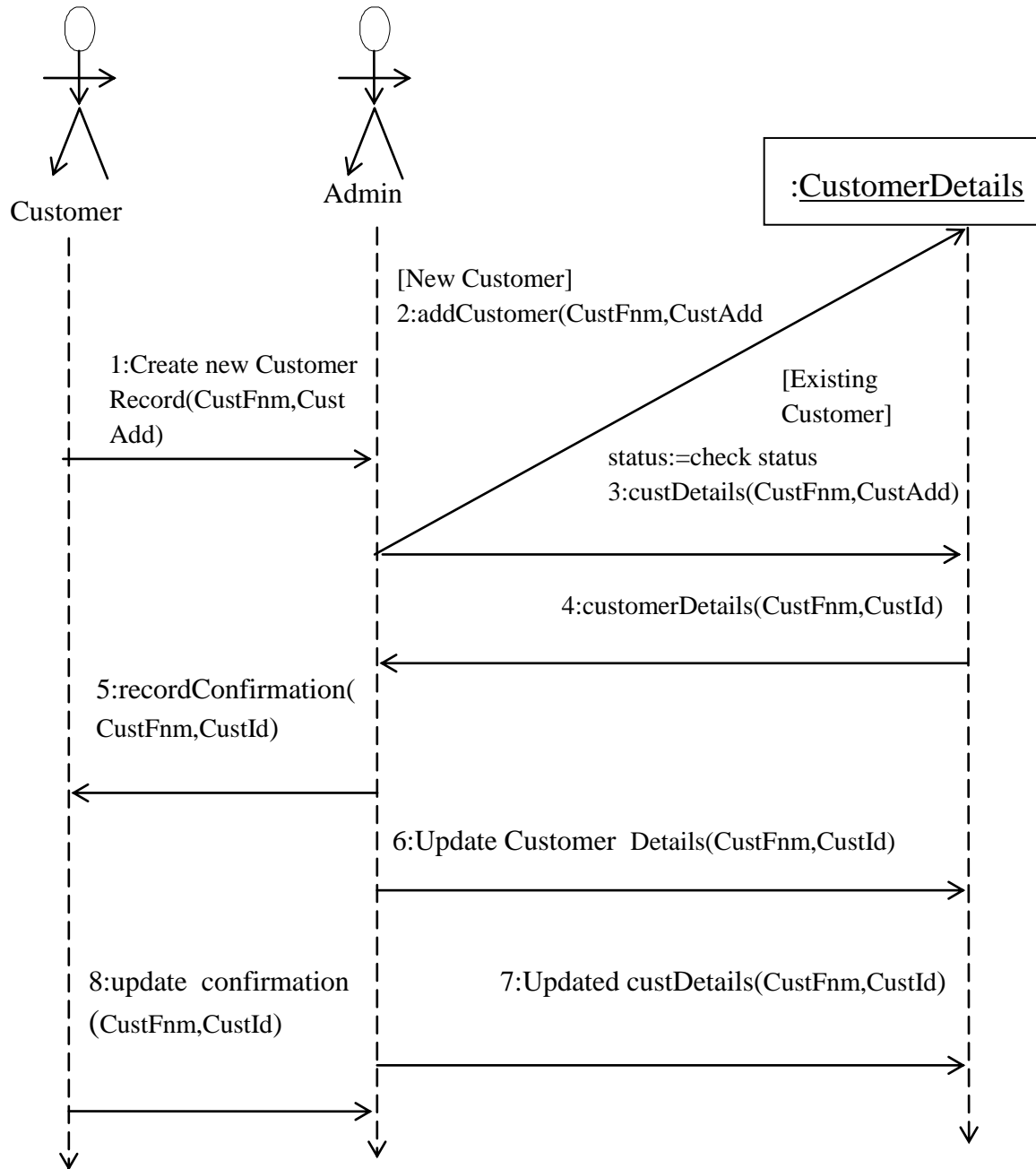


2. Manage Sales Order Subsystem:-

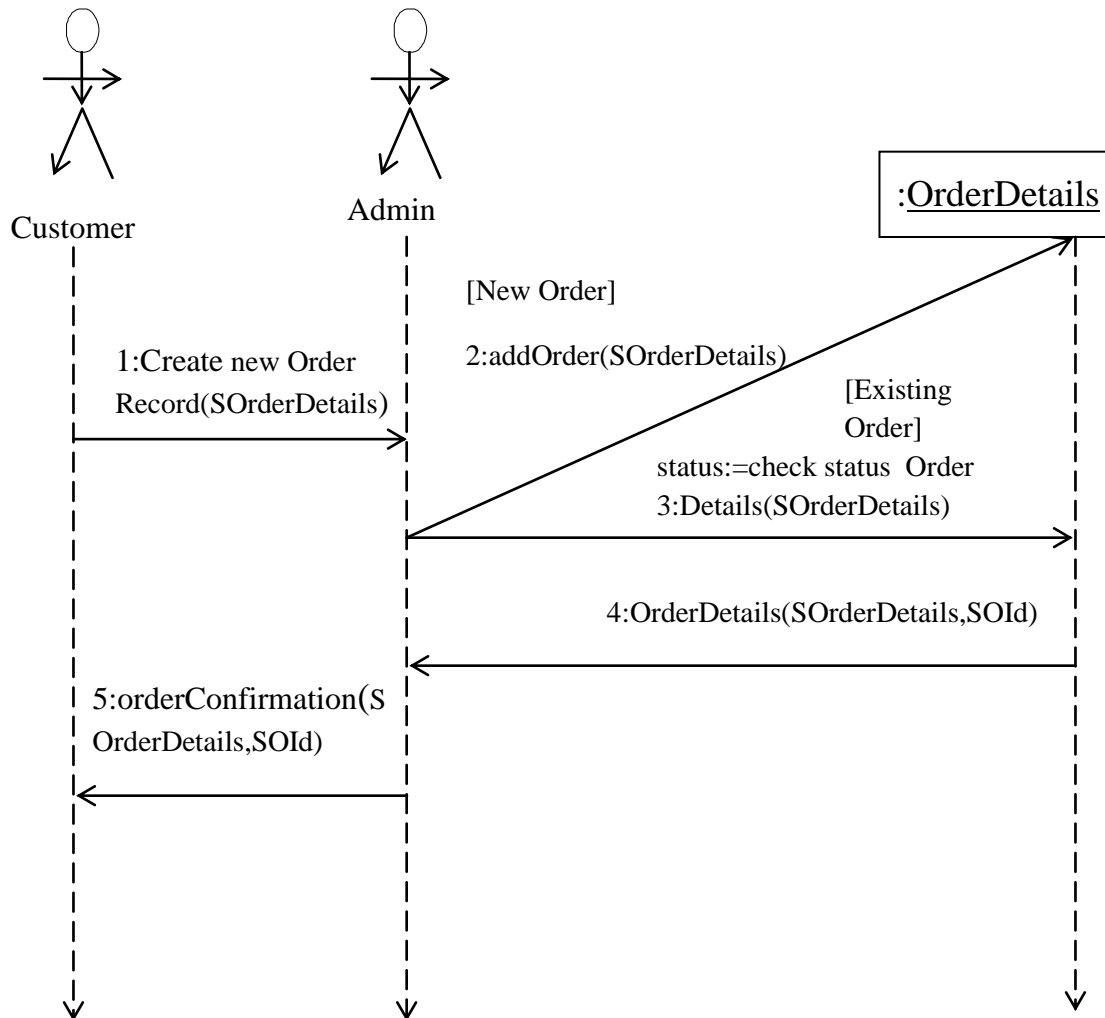


Interaction Diagram

1. Customer Management Subsystem:-

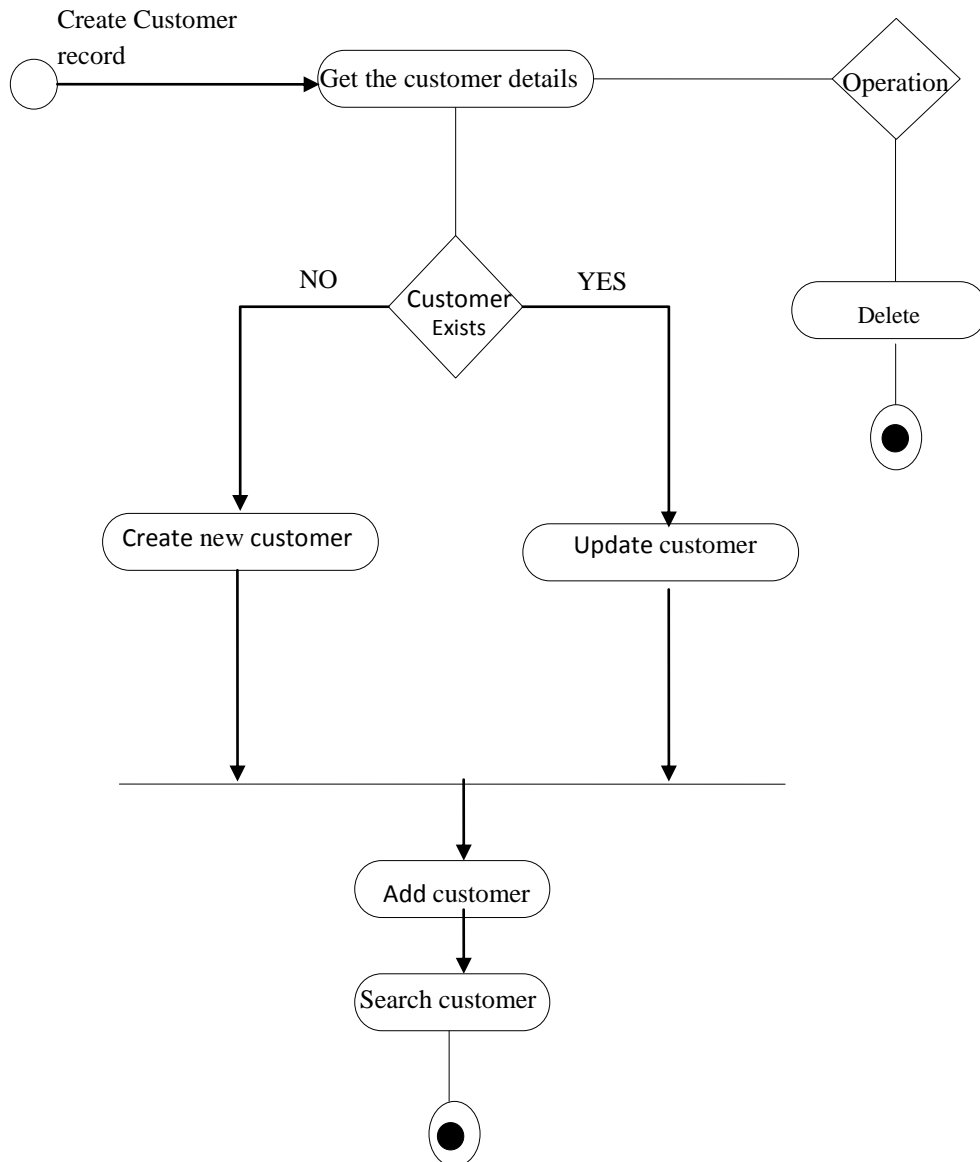


2] Sales Order Management Subsystem:-



Activity Diagram

1] Customer Management Subsystem



2] Sales order Management Subsystem

