# Laundry Management System

SS-LMS 19.2K

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# 1 Introduction

## Software Description

Laundry firms currently use a manual system for the management and maintenance of critical information. The current system requires numerous paper forms, with data stores spread throughout the laundry management infrastructure. Often information is incomplete or does not follow management standards. Records are often lost in transit during computation requiring a comprehensive auditing process to ensure that no vital information is lost. Multiple copies of the same information exist in the laundry firm data and may lead to inconsistencies in data in various data stores.

A significant part of the operation of any laundry firm involves the acquisition, management and timely retrieval of great volumes of information. This information typically involves; customer personal information and clothing records history, user information, price of delivery and retrieval period, users scheduling as regards customers details and dealings in service rendered, also our products package waiting list. All of this information must be managed in an efficient and cost wise fashion so that the organization resources may be effectively utilized. And there's a job schedule which runs to send a remainder (SMS) to the customer on the day of before delivery and pick up.

The goal of laundry management system is to automate the management of the laundry firm making it more efficient and error free. It aims at standardizing data, consolidating data ensuring data integrity and reducing inconsistencies, through the use of highly computerized process that is stress free, reliable and quick through the use of computer Java, SQL programming language and database application to both the users and the staff in charge of the registration and laundry management processes. The front-end provides the graphical user interface that relates with the user, while the SQL database will be at the back-end to handle the data storage process.

## 2 Specifications

### Background and objective determination

➢ Very simple, clear and easiest management of customer, cloth cleaners, pickup and delivery persons and management staffs.

### Product Use

➢ The software is used by employees, management, customers, cloth cleaners, delivery and pick up boys and general public.

### Product Features

|  | Registered Users |
|---|---|
| /10/ | New User Creation |
| /20/ | User Login |
| /30/ | User Profile Management |
| /40/ | Place Order by user |
| /50/ | View Order Details |
| /60/ | Show Billing details |
| /70/ | Cancel Order |
| /80/ | Delete Profile |

|  | Cleaners |
|---|---|
| /90/ | New Cleaner Creation |
| /100/ | Cleaner Login |
| /110/ | Cleaner Profile Management |
| /120/ | Accept Order from CWS |
| /130/ | Verify Order Acceptability |
| /140/ | Show the status of Order Acceptability/ |
| /150/ | View Order Details |
| /160/ | Show Billing Details |
| /170/ | Dispatch to the CWS Hub |
| /180/ | Getting Payment From CWS |
| /190/ | Delete Profile |

|          | Delivery or Pick Up Personnel |
|----------|-------------------------------|
| **/200/** | New Deliveryman/Pick up Agent Creation |
| **/210/** | Deliveryman/Pick up Agent Login |
| **/220/** | Deliveryman/Pick up Agent Profile Management |
| **/230/** | Accept Request from CWS |
| **/240/** | Verify Order Acceptability |
| **/250/** | Deliver or Pick Up the Product |
| **/260/** | Update Account of CWS |
| **/270/** | Sending Request for Review |
| **/280/** | Dispatch to the CWS Hub |
| **/290/** | Delete Profile |

|          | **Guest Users** |
|----------|-----------------|
| **/300/** | Common User |
| **/310/** | View Details of Service |
| **/320/** | Send the Queries to the CWS |
| **/330/** | Respond from CWS |

|          | **Employee Including Administrator** |
|----------|--------------------------------------|
| **/410/** | Employee Creation |
| **/420/** | Employee Login |
| **/430/** | Employee Profile Management |
| **/440/** | Status of Job |
| **/560/** | Delete Profile |

## Product data

| **/10/** | Customer Data |
|----------|---------------|
| **/20/** | Cleaner Data |
| **/30/** | Deliveryman/Pick Up Personnel Data |
| **/40/** | Employee Data |
| **/50/** | Common User Data |

## Product performance

| | |
|---|---|
| **/10/** | Efficient management of Customer data |
| **/20/** | Efficient management of Cleaner data |
| **/30/** | Efficient management of Deliveryman/Pick Up Personnel related data |
| **/40/** | Efficient management of Employee Data |
| **/50/** | Efficient management of Service-Related data |

## Desired quality

| | |
|---|---|
| **Functionality:** | Well |
| **Reliability:** | Very high |
| **Usability:** | Very simple |
| **Efficiency:** | Very high |
| **Changeability:** | Very high |
| **Portability:** | High |

## Database Structure

| | |
|---|---|
| **/10/** | **User Login**<br>**UMobileNumber**<br>**UEmail**<br>**UFullName**<br>**UPassword**<br>**UConfirmedPassword** |
| **/20/** | **New User Creation**<br>UUserID<br>UGender<br>UFirstName<br>ULastName<br>UDateOfBirth<br>UMobileNo1 |

| | |
|---|---|
| | UEmail<br>UStreet<br>UHouseNumber<br>UCity<br>UDistrict<br>UCountry<br>UPinCode |
| /30/ | **User Profile Management**<br>UUserID<br>UGender<br>UFirstName<br>ULastName<br>UDateOfBirth<br>UMobileNo1<br>UEmail<br>UStreet<br>UHouseNumber<br>UCity<br>UDistrict<br>UCountry<br>UPinCode<br>USrviceOrdered<br>UCureentService<br>UDeactivateAccount |
| /40/ | **Place Order by user**<br>UUserID<br>UFullName<br>UOrderID<br>UServiceName<br>UTotalPrice<br>UDateOfOrder<br>UPickUpSchedule<br>UDateOfDelivery<br>UDeliverySchedule |
| /50/ | View Order Details<br>UFullName<br>UDeliveryAddress<br>UAmountToBePaid<br>UDateOfOrder |
| /60/ | **Show Billing details**<br>UUserID<br>UServiceByCompany<br>UInvoiceNumber<br>UTaxInvoiceNumber<br>UOrderID<br>UOrderDate<br>UInvoiceDate<br>UDeliveryTo<br>UNumberOfService<br>UNameOfAttire |

| | |
|---|---|
| | UServiecName<br>UGrossAmount<br>UDiscount<br>UTaxableValue<br>UToatlAmountToBePaid |
| /70/ | **Cancel Order**<br>UOrderID<br>UMessageForCalcel<br>UConfirmation |
| /80/ | **Delete Profile**<br>UUserID<br>UVerificationCode<br>UConfirmation1<br>UConfirmation2 |
| /90/ | **Cleaner Login**<br>CMobileNumber<br>CEmail<br>CFullName<br>CPassword<br>CConfirmedPassword |
| /100/ | **New Cleaner Creation**<br>CCompanyID<br>CNameOfCompnay<br>CMobileNo1<br>CEmail<br>CStreet<br>CHouseNumber<br>CCity<br>CDistrict<br>CCountry |
| /110/ | **Cleaner Profile Management**<br>CCompanyID<br>CNameOfCompany<br>CMobileNo1<br>CEmail<br>CStreet<br>CHouseNumber<br>CCity<br>CDistrict<br>CCountry<br>CPinCode<br>CReadyToWorkYesNo<br>CStartTime<br>CEndTime<br>CDaySelect |
| /120/ | **Accept Order from CWS**<br>COrderID<br>COrderDate<br>COrderDeliveryTo<br>CNumberOfService<br>UNameOfAttire<br>UServiecName<br>UDiscount |

| | |
|---|---|
| **/130/** | **Verify Order Acceptability**<br>COrderID<br>CCheckAndVerify<br>CSendResponce |
| **/140/** | **Show the status of Order Acceptibility/**<br>COrderID<br>COrderStatus<br>CMessage |
| **/150/** | **View Order Details**<br>COrderID<br>CTotalPrice<br>CDateOfOrder<br>CPickUpSchedule<br>CDateOfDelivery<br>CDeliverySchedule<br>CDeliveryManID<br>CDeliveryManName<br>CPickUpManID<br>CPickUpManName |
| **/160/** | **Show Billing Details**<br>CCompanyID<br>CServiceByCompany<br>CInvoiceNumber<br>CTaxInvoiceNumber<br>COrderID<br>COrderDate<br>CInvoiceDate<br>CDeliveryTo<br>CNumberOfService<br>CNameOfAttire<br>CServiecName<br>CGrossAmount<br>CDiscount<br>CTaxableValue<br>CToatlAmountToBePaid |
| **/170/** | **Dispatch to the CWS Hub**<br>COrderID<br>CInvoiceNumber |
| **/180/** | **Getting Payment From CWS**<br>CCompanyID<br>COrderID<br>CInvoiceNumber<br>CTransferAmount |
| **/190/** | **Delete Profile**<br>CCompanyID<br>CVerificationCode<br>CConfirmation1<br>CConfirmation2 |
| **/200/** | **Deliveryman/Pick up Agent Login**<br>DMobileNumber<br>DEmail<br>DFullName<br>DPassword |

| | |
|---|---|
| | DConfirmedPassword |
| /210/ | **New Deliveryman/Pick up Agent Creation**<br>DUserID<br>DFirstName<br>DLastName<br>DMobileNo1<br>DEmail<br>DStreet<br>DHouseNumber<br>DCity<br>DDistrict<br>DCountry |
| /220/ | **Deliveryman/Pick up Agent Profile Management**<br>DUserID<br>DFirstName<br>DLastName<br>DMobileNo1<br>DEmail<br>DStreet<br>DHouseNumber<br>DCity<br>DDistrict<br>DCountry<br>DPinCode<br>DDateOfBirth<br>DReadyToWorkYesNo<br>DStartTime<br>DEndTime<br>DDaySelect |
| /230/ | **Accept Request from CWS To the Deliveryman**<br>DUserID<br>DOrderID<br>DOrderDate<br>DOrderDeliveryTo<br>DNameOfAttire<br>DUServiecName<br>DDiscount<br>DBillingAmount |
| /240/ | **Verify Order Acceptability**<br>DOrderID<br>DCustomeID<br>DStatus<br>DMessage |
| /250/ | **Deliver the Product**<br>DFullName<br>UServiceName<br>UTotalPrice<br>UDateOfOrder<br>UDateOfDelivery<br>UDeliverySchedule<br>CMessage |
| /255/ | **Pick Up the Product**<br>DFullName<br>UServiceName |

| | |
|---|---|
| | UTotalPrice<br>UDateOfOrder<br>UDateOfPickUp<br>UPickUpSchedule<br>CMessage |
| /260/ | **Update Account of CWS**<br>DUserID<br>DOrderID<br>DCustomeID<br>DUpdateAccountOfCWS |
| /270/ | **Sending Request for Review**<br>DUserID<br>DOrderID<br>DCustomeID<br>DRiview |
| /280/ | **Dispatch to the Cleaner's Hub**<br>DFullName<br>DServiceName<br>DTotalPrice<br>DDateOfOrder<br>DDateOfPickUp<br>DPickUpSchedule<br>DMessage |
| /290/ | **Delete Profile Of Deliveryman**<br>DUserID<br>DVerificationCode<br>DConfirmation1<br>DConfirmation2 |
| /300/ | **Employee Login**<br>EEmail<br>EVerificationCode<br>EPassword<br>EConfirmedPassword |
| /310/ | **Employee Creation**<br>EEmployeeID<br>EGender<br>EFirstName<br>ELastName<br>EDateOfBirth<br>EMobileNo1<br>EEmail<br>EStreet<br>EHouseNumber<br>ECity<br>EDistrict<br>ECountry<br>EPinCode<br>EBasicPay<br>EPostHold<br>EWorkingArea |
| /320/ | **Employee Profile Management**<br>EEmployeeID |

| | |
|---|---|
| | EGender<br>EFirstName<br>ELastName<br>EDateOfBirth<br>EMobileNo1<br>EEmail<br>EStreet<br>EHouseNumber<br>ECity<br>EDistrict<br>ECountry<br>EPinCode<br>EBasicPay<br>EPost<br>EWorkingArea |
| **/330/** | Status of Job |
| **/340/** | Delete Profile<br>EEmployeeID<br>EVerificationCode<br>EConfirmation1<br>EConfirmation2 |
| **Guest User** | |
| **/400/** | Common User<br>CUViewServiceDetails<br>CUPriceOfService<br>CUSendQueriesCWS<br>CUFAQ<br>CURespondFromCWS |

## 3 Cost calculation

**Function Point - Method**

| Category | Number | Classification | Weighting | Row Sum | Comments |
|---|---|---|---|---|---|
| External Input | 2 | Low | 3 | 6 | Login |
|  | 11 | Average | 4 | 44 | Order |
|  | 12 | High | 6 | 72 | User registration |
| External Inquiry | 1 | Low | 3 | 3 | View Item list |
|  | 2 | Average | 4 | 8 | Validate profile information |
|  | 0 | High | 6 | 0 |  |
| External Output | 1 | Low | 4 | 4 | User login Confirmation |
|  | 1 | Average | 5 | 5 | User registration Confirmation |
|  | 2 | High | 7 | 14 | Accounting report |
| Internal Logical File | 2 | Low | 7 | 14 | User login |
|  | 5 | Average | 10 | 50 | Class models |
|  | 3 | High | 15 | 45 | Accounting report |
| External Interface File | 1 | Low | 5 | 5 | Profile images |
|  | 10 | Average | 7 | 70 | User to application (Order Creation) |
|  | 2 | High | 10 | 20 | JDBC to phpMySQL |
| Sum |  |  | E1 | 360 |  |
| Factors | 1 Integration with other application systems (0-5) |  |  | 0 |  |
| (Function point value change by +/- 30%) | 2 Decentralized data, distributed processing (0-5) |  |  | 0 |  |
|  | 3 Transaction Rate (0-5) |  |  | 1 |  |
|  | 4 Processing Logic |  |  | 0 |  |
|  | A computational operation (0-10) |  |  | 1 |  |
|  | B control procedures (0-5) |  |  | 0 |  |
|  | C exceptions (0-10) |  |  | 0 |  |
|  | D Logic (0-5) |  |  |  |  |
|  | 5 reusability (0-5) |  |  | 0 |  |
|  | 6 database conversions (0-5) |  |  | 0 |  |
|  | 7 Adaptability (0-5) |  |  | 2 |  |
| Sum of the 7 factors |  |  | E2 | 4 |  |
| Impact factor rating = (E2/100) + 0.7 |  |  | E3 | 0.74 |  |
| Weighted Function Points: E1 * E3 |  |  |  | 266.4 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Effort by IBM table (interpolated) |  |  | E4 |  | MM |

# 4   Data-Flow Diagram
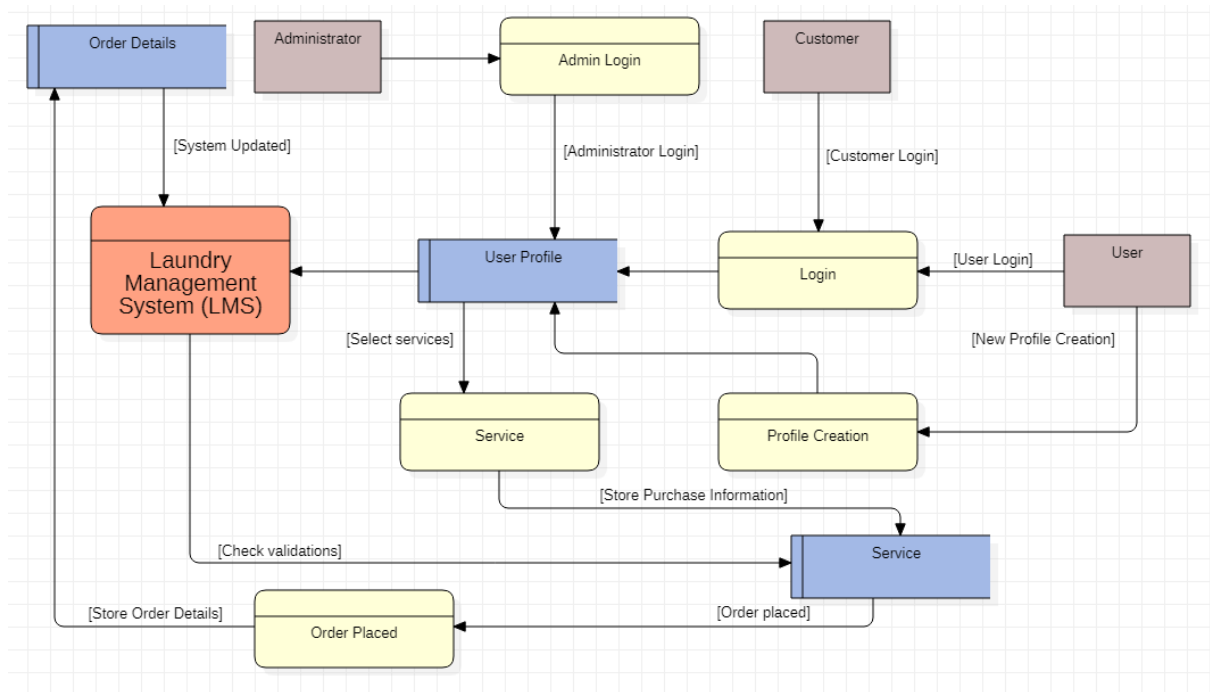


Figure 1:  Data-Flow Diagram: Laundry Management system

Data-flow Diagram is representing the flow of data of a process in the Laundry Management System.

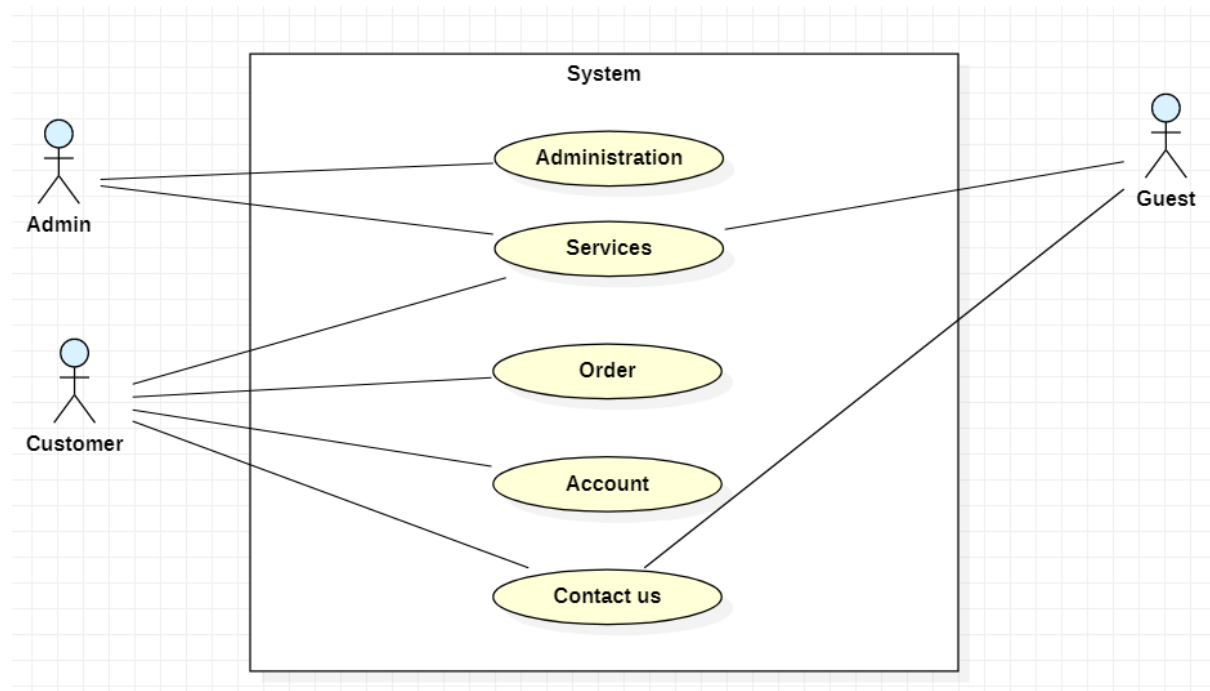# 5   Use Case Diagrams

## Laundry Management System (LMS)



Figure 2:  Use Case Diagram: Overview of LMS

The Use case diagram describes an overview of the system.

Use case services includes the Administration which has the functions Add new services and Modify the services is used by the Admin and List of All Services is used by the Customer and Guest.

Use case Order gives the functionality to create order, View Order history and cancelling the order to Customers.

Use case Account provides Customers to Create, View and Modify the profile and Admin can view all the Customers.

Use case Contact us provides platform for the customer to Contact Admin by using send message and Admin can view the message and reply to the same.

**Services Management**
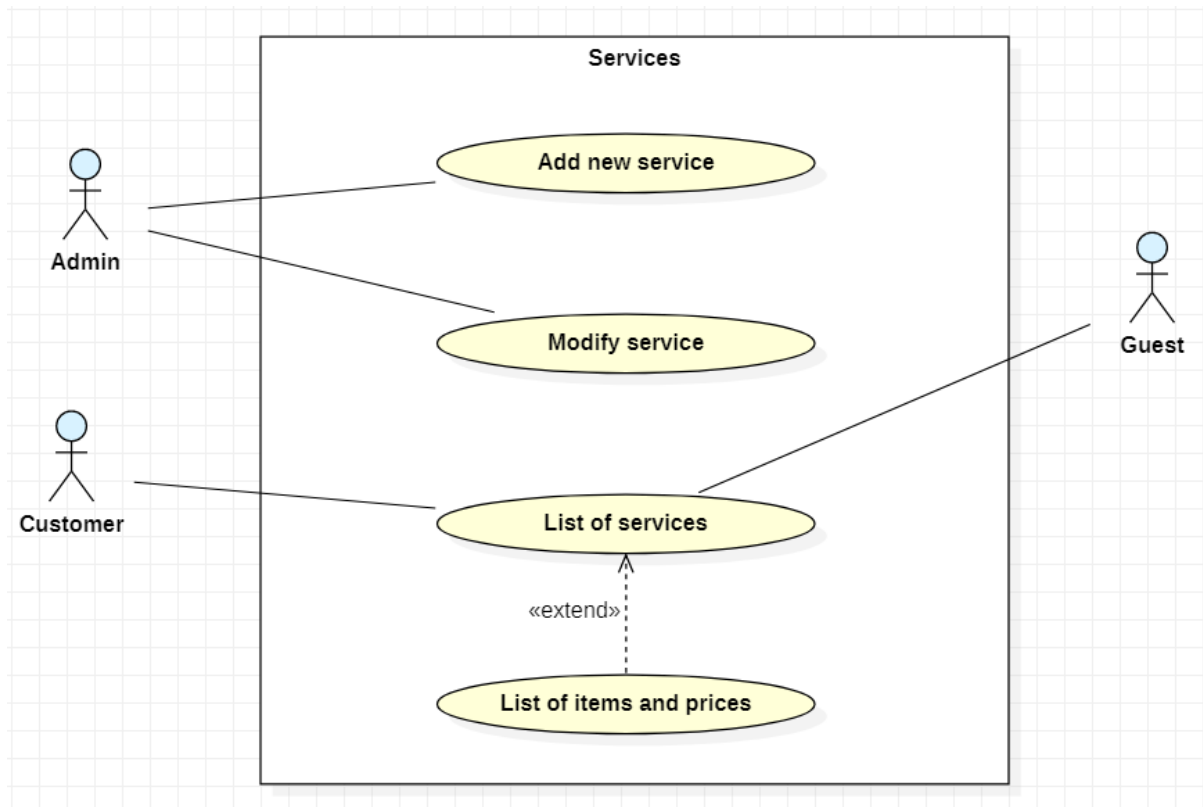


Figure 3: Use Case Diagram: Services

Now Admin and Customer has been registered in the system. Admin can add new services such as cloth items, prices and more details.

Also, it can be modified by using the use case Modify services to maintain the business requirements.

Use case List of services which can be accessed by the Customer who are registered with system and Guest, this use case includes the list of item and prices and more details on the service.
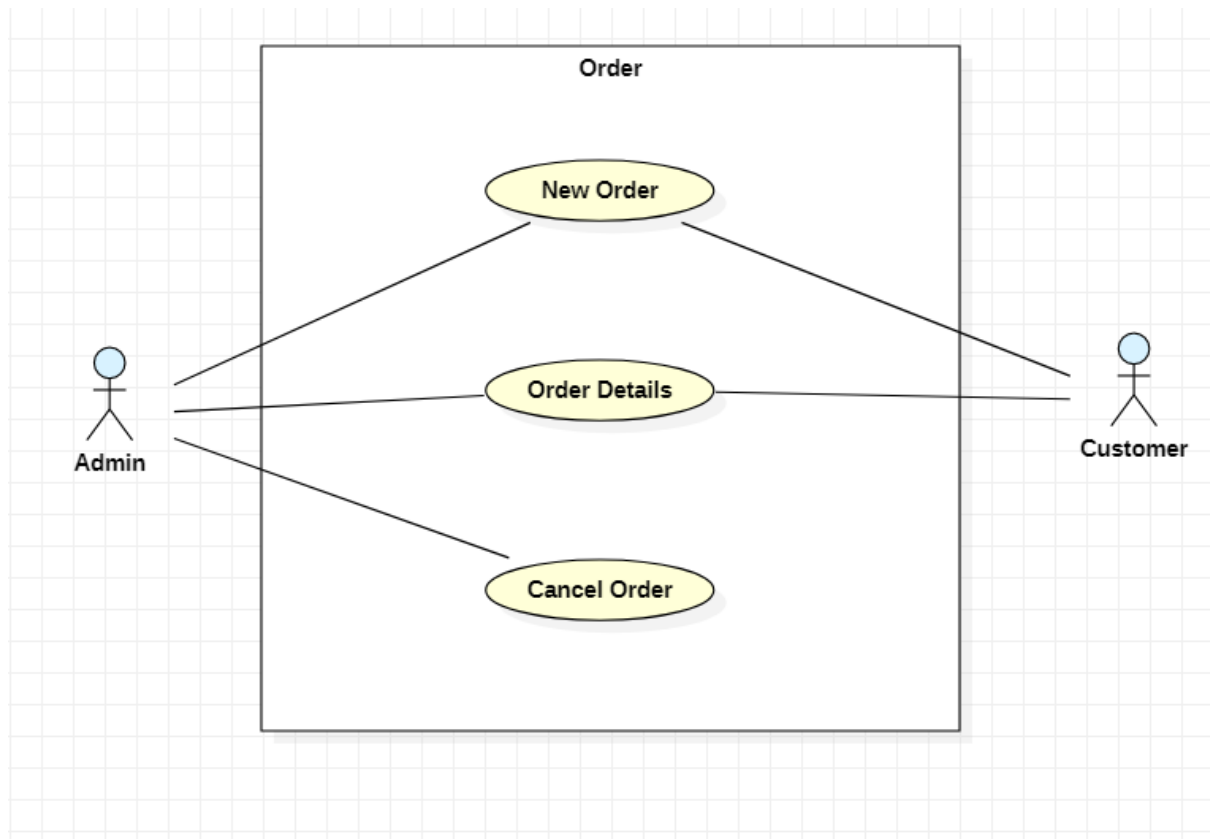
**Order Management**



Figure 4: Use Case Diagram: Order

Once the user logins to the system below action can be performed using the Use case diagram Order.

Order can be placed by use case New order and to check the history of the previous order, user need to access the Order details use case.

Order can be cancelled before it is sent for washing. Customer can place request for cancelling the order and then admin can check if it is possible.
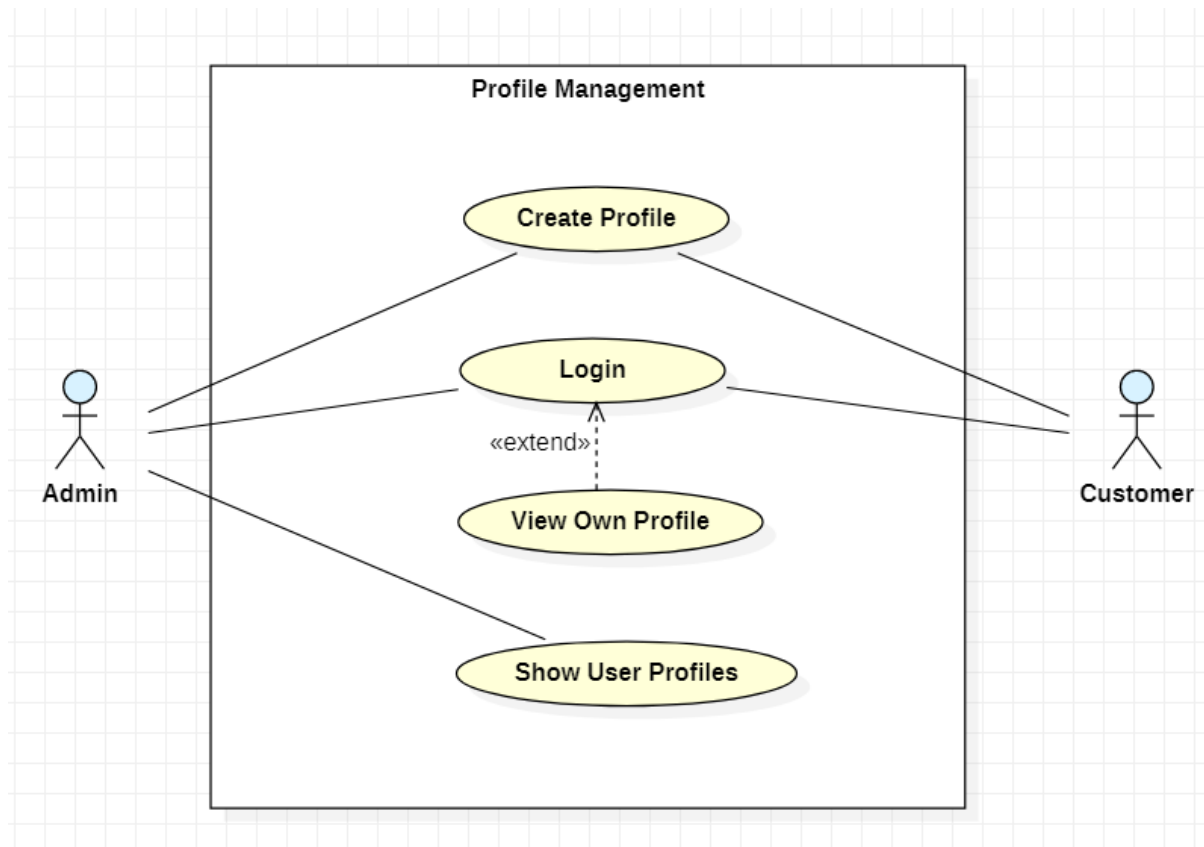
**Profile Management**



Figure 5: Use Case diagram: Profile Management

Above Use case diagram depicts account management for Admins and Customers.

Use case Create Profile allows Users to create account in the system.

Login provides platform for the users which are registered in the system to login and do the desired action. Login include the view profile for the User to check and modify its own profile.

Admin can check all the Customers which are registered in the system via show profile.
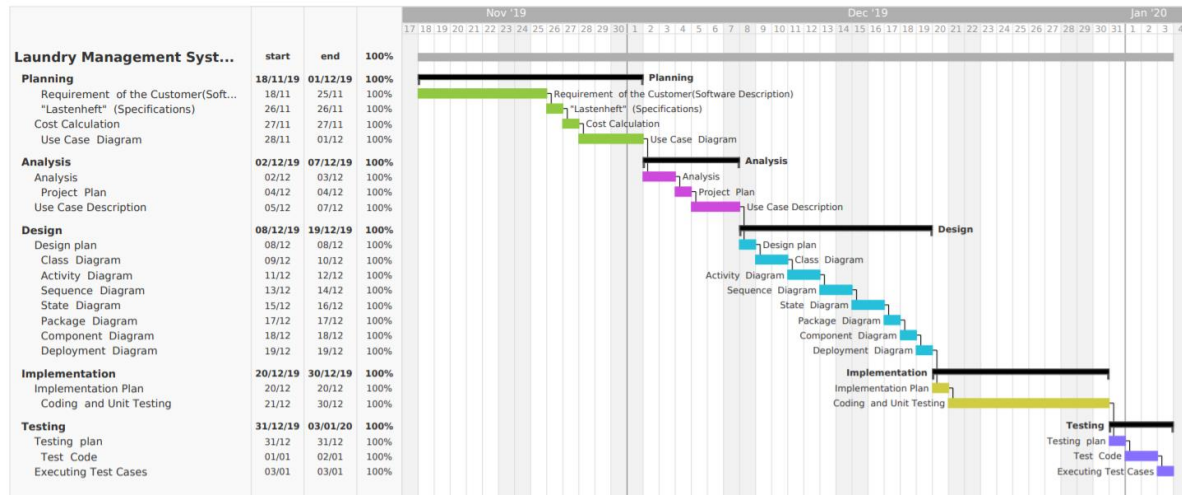
**Contact us**
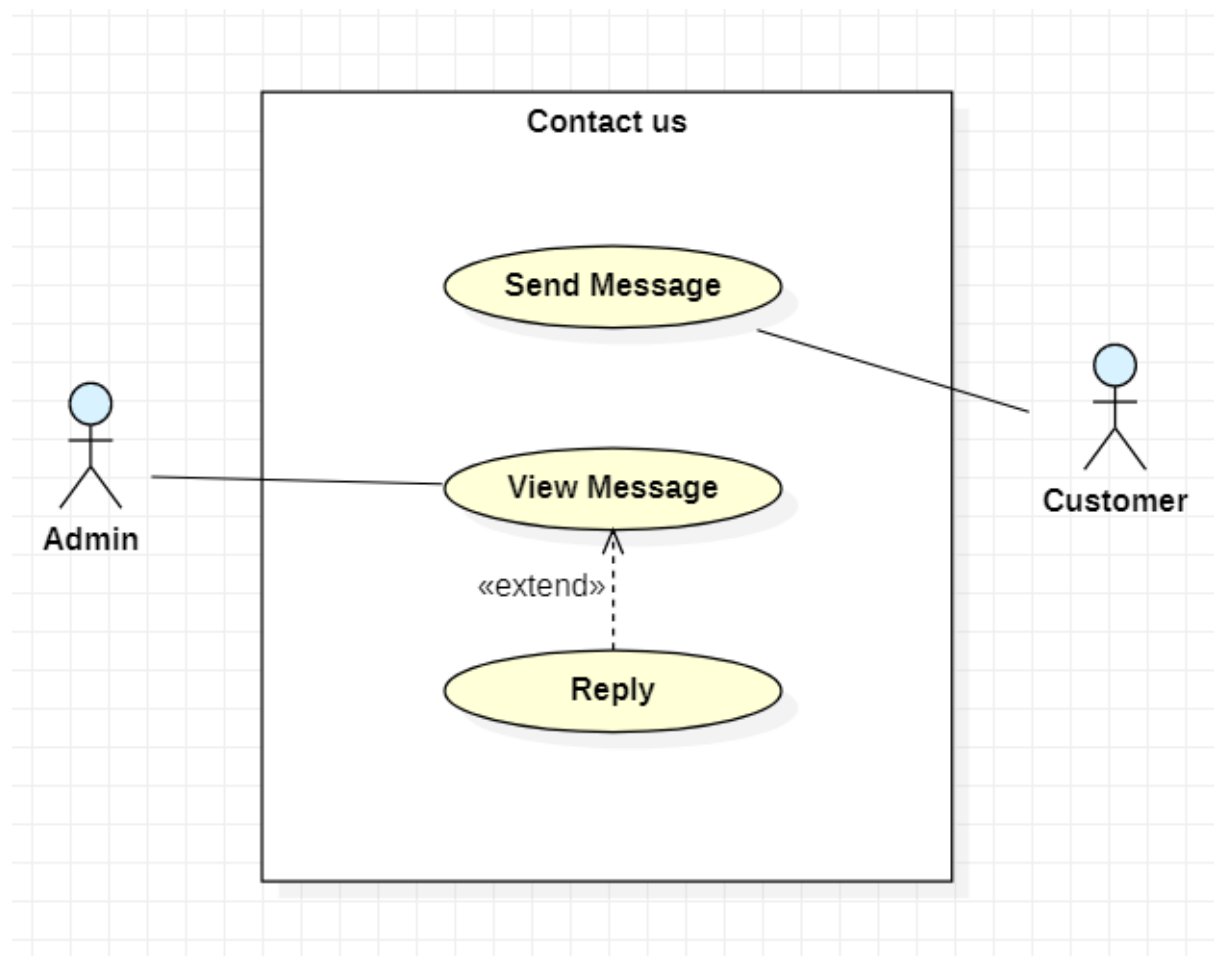


Figure 6: Use Case diagram: Contact us

Customers can contact the Admin for any complaint or suggestion by using the Contact us

Customers can send Message to the Admin, which will be checked by Admin by view message and will be replied by use case reply

# 6 Project Plan



Project plan for Laundry Management System was built by using online resource (Source: https://app.teamgantt.com/ ). The plan depicts the time course and the agreed specifications from 18th November 2019 to 03rd January 2020.

# 6   Use Case Description

## User Login

| / 10 / | User Login |
|---|---|
| Short Description | Customer and Admin can access their respective pages |
| Actors | Admin, Customer |
| Trigger | Enter credentials and Submit |
| Preconditions | Username and Password |
| Postconditions | User will be logged in the system |
| Normal Flow | 1. Enter the Credentials<br>2. Validate the entered data.<br>3.Click on submit button<br>4. User will be authenticated |

## User creation

| / 20/ | User Creation |
|---|---|
| Short Description | Users will be registered in the system |
| Actors | Admin, Customer |
| Trigger | Enter all the data and Submit |
| Preconditions | Name, age, date of birth, sex, problem, place, date, mobile number, Email id and password should be known. |
| Postconditions | User will be registered, and data is stored in the table |
| Normal Flow | 1. Enter the required fields<br>2. Validate the entered data.<br>3.Click on submit button<br>4. User will be registered. |

## User Profile Management

| / 30/ | User Profile Management |
|---|---|
| Short Description | Users will be able to modify their profile |
| Actors | Admin, Customer |
| Trigger | View profile and click on update |
| Preconditions | User credentials and data which need to be updated |
| Postconditions | Changed data will be updated and saved in the database |
| Normal Flow | 1. Enter the fields which need to be updated<br>2. Validate the entered data.<br>3.Click on submit button<br>4. User profile will be updated. |

## Place order

| / 40/ | Place order |
|---|---|
| Short Description | Order will be submitted to Cleaners |
| Actors | Admin, Customer |
| Trigger | Create order and submit |
| Preconditions | User credentials, select the items |
| Postconditions | Order will be submitted and sent to cleaners |
| Normal Flow | 1. Select the items which need to order<br>2. Click on submit<br>3.Cleaner will receive the order |

## View order

| / 50/ | View order |
|---|---|
| Short Description | Order History will be displayed |
| Actors | Customer |
| Trigger | Create order and submit |
| Preconditions | At least 1 order should be placed before |
| Postconditions | Order will be submitted and sent to cleaners |
| Normal Flow | 1. Select the items which need to order<br>2. Click on submit<br>3.Cleaner will receive the order |

## Billing details

| / 60/ | Billing details |
|---|---|
| Short Description | Order History will be displayed |
| Actors | Customer |
| Trigger | Create order and submit |
| Preconditions | Order ID |
| Postconditions | User ID, Name of Company, Invoice Number, Date of Order, Delivery address, Number of services, Name of cloths, Basic Price, Discount if applicable, Tax, Total Amount to be paid should be displayed |
| Normal Flow | 1. Select the items which need to order<br>2. Click on submit<br>4.Order received by cleaner<br>5.Order completed<br>6.Bill will be generated |

## Cancel Order

| / 70/ | Cancel order |
|---|---|
| Short Description | Selected Order will be cancelled |
| Actors | Customer, Admin |
| Trigger | Cancel |
| Preconditions | At least 1 order should be placed before and order is not sent for washing |
| Postconditions | Order will be cancelled |
| Normal Flow | 1. Select the order to be cancelled<br>2. Click on cancel<br>3.Order will be cancelled |

### Delete Profile

| / 80/ | Delete Profile |
|---|---|
| Short Description | User profile will be deleted |
| Actors | Customer, Admin |
| Trigger | Delete |
| Preconditions | User need to login |
| Postconditions | User should not be able to login after deletion |
| Normal Flow | 1. Login<br>2. Click on Modify<br>3.Delete the Profile |

### Accept Order

| / 90/ | Accept Order |
|---|---|
| Short Description | Cleaner will accept the order |
| Actors | Admin |
| Trigger | Accept |
| Preconditions | Order must be submitted by Customer and machine availability |
| Postconditions | Order will be submitted and sent to cleaners |
| Normal Flow | 1.Customer places the order<br>2. Admin receives the order<br>3.Check for the requirements<br>4.Accept the order |

## Verify Order

| / 100/ | Verify order |
|---|---|
| Short Description | Order will be checked if we can process as per the requirements |
| Actors | Admin |
| Trigger | Submit order |
| Preconditions | Customer submits the order |
| Postconditions | Order should be accepted or rejected based on requirements |
| Normal Flow | 1.Customer places the order<br>2. Admin receives the order<br>3.Check for the requirements<br>4.Accept the order |

## Show Status

| / 110/ | Show Status |
|---|---|
| Short Description | Order status will be displayed |
| Actors | Admin |
| Trigger | Process completion |
| Preconditions | Order is accepted |
| Postconditions | Status will change according to the stage |
| Normal Flow | 1. Order accepted<br>2. Sent to next stage<br>3.Status will be changed |

## Pickup product

| / 120/ | Pickup product |
|---|---|
| Short Description | Order will be picked up |
| Actors | Delivery Person |
| Trigger | Order accepted |
| Preconditions | Order is accepted |
| Postconditions | Order will be picked up and updated the status |
| Normal Flow | 1. Order accepted<br>2. Pickup person will be notified<br>3.Status will be changed<br>4.Products are picked and sent to hub |

## Deliver product

| / 130/ | Deliver Product |
|---|---|
| Short Description | Order History will be displayed |
| Actors | Delivery person |
| Trigger | Order completed |
| Preconditions | Order is washed |
| Postconditions | Order is delivered to customer |
| Normal Flow | 1.Order is completed<br>2. Delivered to Customer |

# 7   Class diagrams

## 7.1 Domain Model
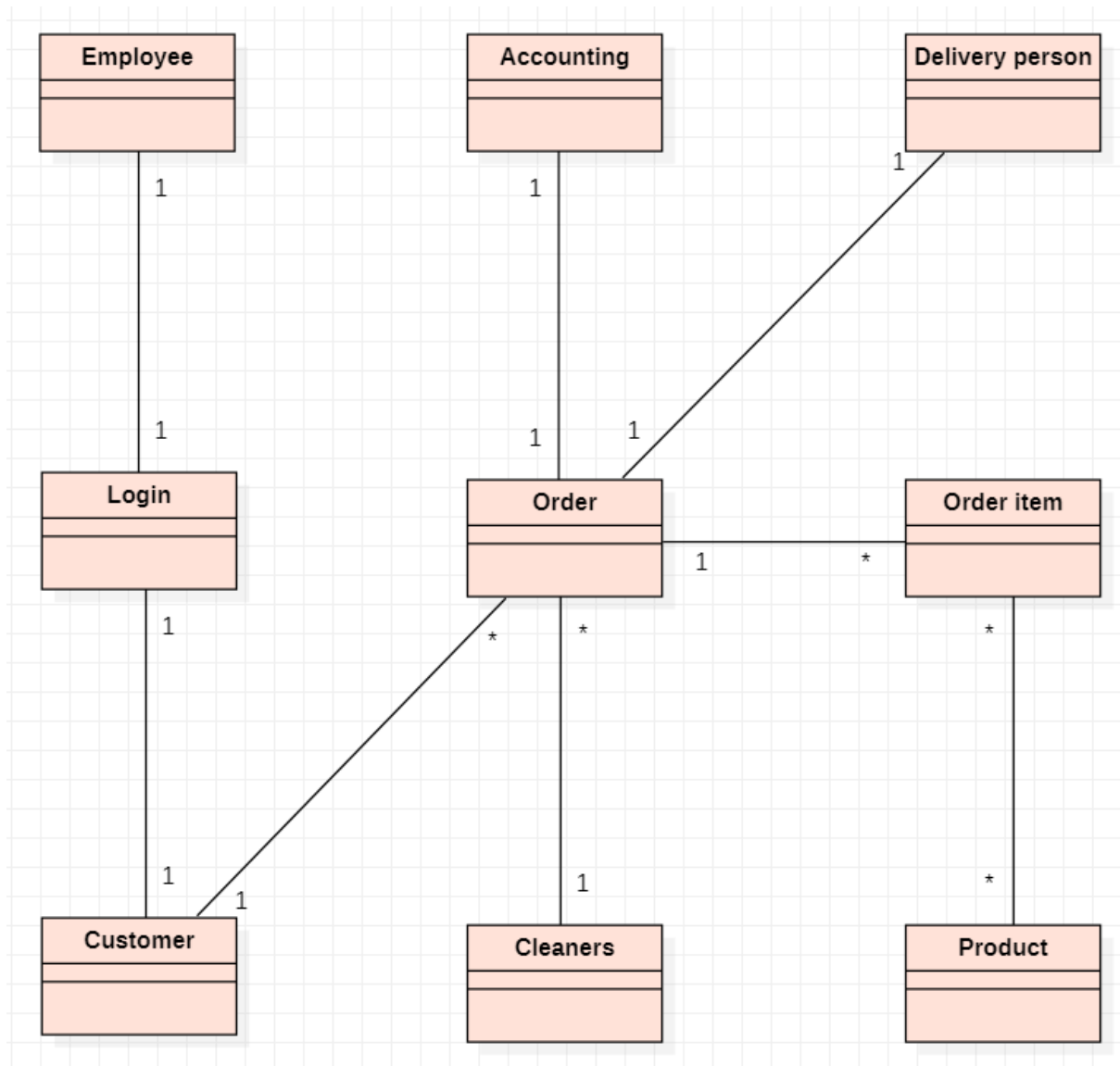


Figure 7: Domain Model

The above diagram explains all the entities and the relationships between them.

## Class diagrams
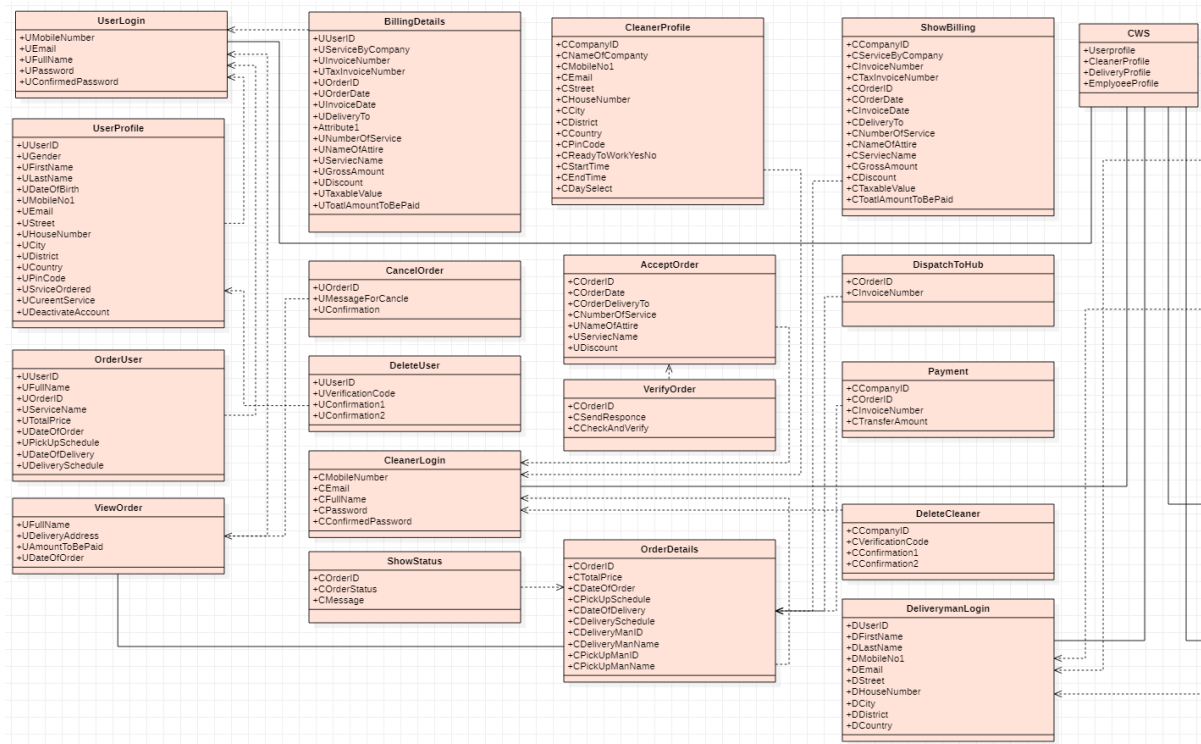


Figure 8: Class Diagram 1 of 2

The Class diagram depicts all the Classes that are required for Laundry Management system. Diagram shows a part of class diagram which defines the User interface, respective Action classes, Service classes and Data Access Objects (DAO) objects respectively.
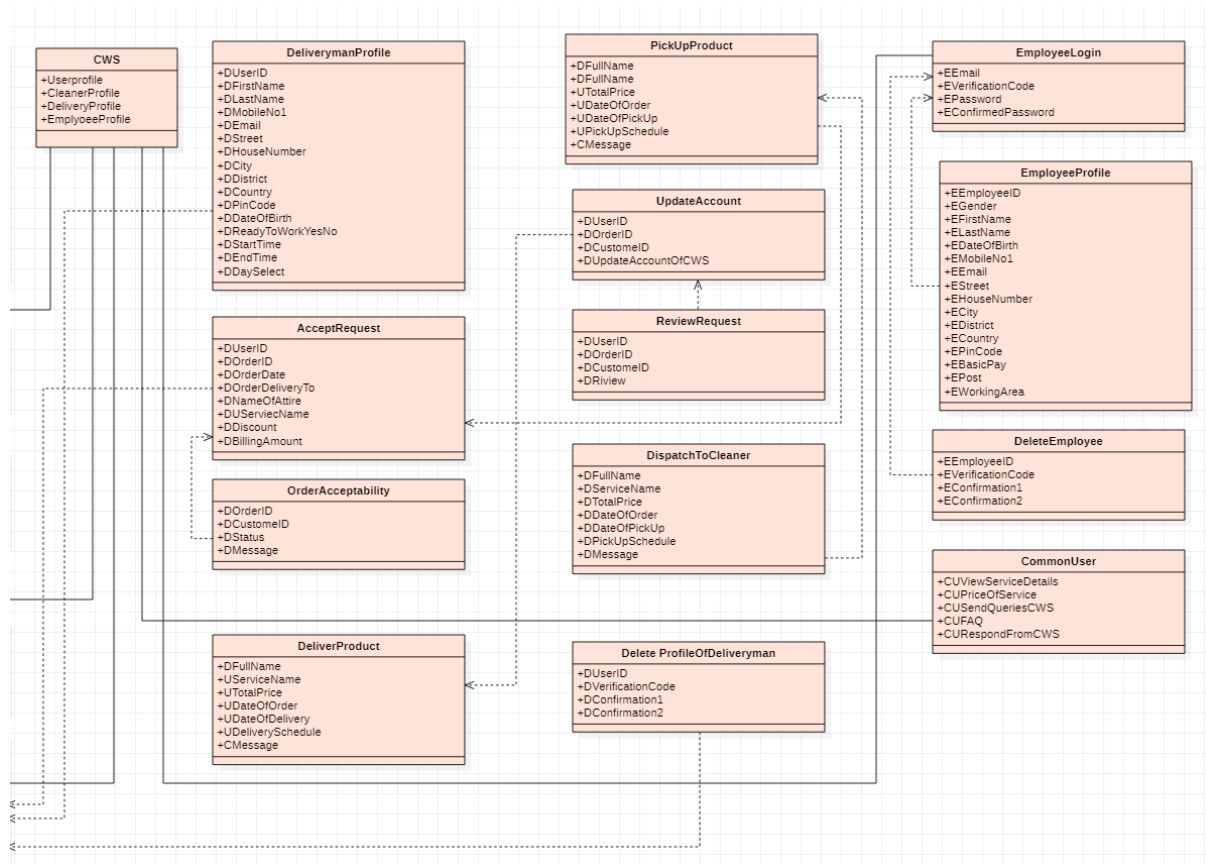
Figure 9: Class Diagram 2 of 2

Description and attributes for all the classes in the diagram is given below:

| CLASS: UserLogin | | |
|---|---|---|
| **/10/** | **Attributes** | **Description** |
| | UMobileNumber<br><br>UEmail<br><br>UFullName<br><br>UPassword<br><br>UConfirmedPassword | This is the login page of the system when new users are created. Here Mobile Number or Email ID is required for login. We can enter the password and confirmed password and after verification user can enter details. |
| CLASS: UserCreation | | |
| **/20/** | **Attributes** | **Description** |
| | UUserID<br><br>UGender | After the login page user can get auto generated user ID. Now user can enter the details like Gender, First name, Last name, Gender, Date of Birth, Mobile Number, Email, Street |

| | UFirstName | name, House Number, City, District, Country, Pin Code. |
|---|---|---|
| | ULastName | |
| | UDateOfBirth | |
| | UMobileNo1 | |
| | UEmail | |
| | UStreet | |
| | UHouseNumber | |
| | UCity | |
| | UDistrict | |
| | UCountry | |
| | UPinCode | |

| | **CLASS: UserProfile** | |
|---|---|---|
| **/30/** | **Attributes** | **Description** |
| | UUserID | After the creation of profile, a user can modify the profile details like Gender, First name, Last name, Gender, Date of Birth, Mobile Number, Email, Street name, House Number, City, District, Country, Pin Code. Here user can view the services which are requested by him/her. User can also deactivate |
| | UGender | |
| | UFirstName | |
| | ULastName | |
| | UDateOfBirth | the account. |
| | UMobileNo1 | |
| | UEmail | |
| | UStreet | |
| | UHouseNumber | |
| | UCity | |
| | UDistrict | |
| | UCountry | |
| | UPinCode | |

| | | CLASS: PlaceOrderByUser | |
|---|---|---|---|
| **/40/** | **Attributes** | | **Description** |
| | UUserID UFullName UOrderID UServiceName UTotalPrice UDateOfOrder UPickUpSchedule UDateOfDelivery UDeliverySchedule | | In this module user can easily place the order from their profile and the Order ID, Service, Amount to be paid, Date of Order, Pick Up Schedule, Date of Delivery, and the Delivery Schedule. |
| | | CLASS: ViewOrder | |
| **/50/** | **Attributes** | | **Description** |
| | UFullName UDeliveryAddress UAmountToBePaid UDateOfOrder | | In this module user can see order details (Service) as well as User ID, Name, Order ID, Service, Amount to be paid, Date of Order, Pick Up Schedule, Date of Delivery, and the Delivery Schedule by using their user ID. |
| | | CLASS:Billing details | |
| **/60/** | **Attributes** | | **Description** |
| | UUserID UServiceByCompany | | In this module user can see billing details by using Order ID. It displays as well as User ID, Name of Company, Invoice Number, Date of Order, Delivery address, Number of |

Note: Above the PlaceOrderByUser class, a previous table segment shows:

USrviceOrdered

UCureentService

UDeactivateAccount

| | | | |
|---|---|---|---|
| | | UInvoiceNumber | services, Name of cloths, Basic Price, Discount if applicable, Tax, Total Amount to be paid. |
| | | UTaxInvoiceNumber | |
| | | UOrderID | |
| | | UOrderDate | |
| | | UInvoiceDate | |
| | | UDeliveryTo | |
| | | UNumberOfService | |
| | | UNameOfAttire | |
| | | UServiecName | |
| | | UGrossAmount | |
| | | UDiscount | |
| | | UTaxableValue | |
| | | UToatlAmountToBePaid | |
| | | **CLASS: CancelOrder** | |
| /70/ | | **Attributes** | **Description** |
| | | UOrderID | Here user can cancel the services before it is starting and send reason of cancelation by using order ID. |
| | | UMessageForCalcel | |
| | | UConfirmation | |
| | | **CLASS: DeleteProfile** | |
| /80/ | | **Attributes** | **Description** |
| | | UUserID | Here if user wants to discontinue to keep his/her profile software provides easy way to deactivate the account after getting the confirmations but data will be remained store in the database of CWS, but it will be invisible the user after deactivation. |
| | | UVerificationCode | |
| | | UConfirmation1 | |
| | | UConfirmation2 | |
| | | **CLASS: Cleaner Login** | |
| /90/ | | **Attributes** | **Description** |

| | CMobileNumber | This is the login page of the system when new Cleaners who will clean the cloths are created. Here Mobile Number or Email ID is required for login. We can enter the password and confirmed password and after verification Cleaners can enter details. |
|---|---|---|
| | CEmail | |
| | CFullName | |
| | CPassword | |
| | CConfirmedPassword | |
| | **CLASS: CleanerCreation** | |
| **/100/** | **Attributes** | **Description** |
| | CCompanyID | After the login page Cleaner can get auto generated user ID. Now Cleaner can enter the details like Name of Company, Mobile Number, Email, Street name, House Number, City, District, Country, Pin Code. |
| | CNameOfCompnay | |
| | CMobileNo1 | |
| | CEmail | |
| | CStreet | |
| | CHouseNumber | |
| | CCity | |
| | CDistrict | |
| | CCountry | |
| | **CLASS: CleanerProfile** | |
| **/110/** | **Attributes** | **Description** |
| | CCompanyID | After the creation of profile, Cleaner can modify the profile details Mobile Number, Name of Company, Email, Street name, House Number, City, District, Country, Pin Code. They can also set the services which are provided by them and specify the time of starting and ending of the job and select the days when they are available. Here Cleaner control the services which are given by CWS. Cleaner can also deactivate the account if they want. |
| | CNameOfCompanty | |
| | CMobileNo1 | |
| | CEmail | |
| | CStreet | |
| | CHouseNumber | |
| | CCity | |
| | CDistrict | |

| | CCountry | |
| | CPinCode | |
| | CReadyToWorkYesNo | |
| | CStartTime | |
| | CEndTime | |
| | CDaySelect | |

| | **CLASS: AcceptOrder** | |
| --- | --- | --- |
| **/120/** | **Attributes** | **Description** |
| | COrderID<br><br>COrderDate<br><br>COrderDeliveryTo<br><br>CNumberOfService<br><br>UNameOfAttire<br><br>UServiecName<br><br>UDiscount | In this module order (services) are sent to the Cleaners and they accept Order ID, date of order, date of delivery, number services, name of attire, name of service temporarily. Then it sends for checking whether order can accept or not. |

| | **CLASS: VerifyOrder** | |
| --- | --- | --- |
| **/130/** | **Attributes** | **Description** |
| | COrderID<br><br>CCheckAndVerify<br><br>CSendResponce | Here check the status of workload and if the orders (services) are deliverable with specified scheduled, then orders are accepted , otherwise response the CWS that orders are accepted by using Order ID. |

| | **CLASS: ShowStatus** | |
| --- | --- | --- |
| **/140/** | **Attributes** | **Description** |
| | COrderID | In this function if order(services) is accepted and show the staus of order and send the message to Customer. |

| | | |
|---|---|---|
| | COrderStatus<br><br>CMessage | |
| | **CLASS: OrderDetails** | |
| **/150/** | **Attributes** | **Description** |
| | COrderID<br><br>CTotalPrice<br><br>CDateOfOrder<br><br>CPickUpSchedule<br><br>CDateOfDelivery<br><br>CDeliverySchedule<br><br>CDeliveryManID<br><br>CDeliveryManName<br><br>CPickUpManID<br><br>CPickUpManName | In this phase Cleaner can see the details of order like Order ID, date of Order, Total Price, Pickup and Delivery Schedule, name of Delivery or Pick Up man. |
| | **CLASS: ShowBilling** | |
| **/160/** | **Attributes** | **Description** |
| | CCompanyID<br><br>CServiceByCompany<br><br>CInvoiceNumber<br><br>CTaxInvoiceNumber<br><br>COrderID<br><br>COrderDate<br><br>CInvoiceDate<br><br>CDeliveryTo<br><br>CNumberOfService | In this module user can see billing details by using Customer Order ID. It displays as well as Name of Company, Invoice Number, Date of Order, Delivery address, Number of services, Name of cloths, Basic Price, Discount if applicable, Tax, Total Amount to be paid. |

| | CNameOfAttire | |
|---|---|---|
| | CServiecName | |
| | CGrossAmount | |
| | CDiscount | |
| | CTaxableValue | |
| | CToatlAmountToBePaid | |

| | **CLASS: DispatchToHub** | |
|---|---|---|

| **/170/** | **Attributes** | **Description** |
|---|---|---|
| | COrderID<br><br>CInvoiceNumber | This function just sends the billing to the CWS including billing details |

| | **CLASS: Payment** | |
|---|---|---|

| **/180/** | **Attributes** | **Description** |
|---|---|---|
| | CCompanyID<br><br>COrderID<br><br>CInvoiceNumber<br><br>CTransferAmount | Here Cleaner will get the payment from CWS. It contains Company ID, Order ID, Invoice Number and Amount to be transferred. |

| | **CLASS: DeleteCleaner** | |
|---|---|---|

| **/190/** | **Attributes** | **Description** |
|---|---|---|
| | CCompanyID<br><br>CVerificationCode<br><br>CConfirmation1<br><br>CConfirmation2 | Here if cleaners want to discontinue to keep his/her profile, software provides easy way to deactivate the account after getting the confirmations, but data will be remained store in the database of CWS, but it will be invisible to the Cleaners after deactivation. It asks for Company ID, Verification Code and Confirmation. |

| | CLASS: Deliveryman Login | |
|---|---|---|
| **/200/** | **Attributes** | **Description** |
| | DUserID<br><br>DFirstName<br><br>DLastName<br><br>DMobileNo1<br><br>DEmail<br><br>DStreet<br><br>DHouseNumber<br><br>DCity<br><br>DDistrict<br><br>DCountry | This is the login page of the system when new Delivery Agents are created. Here Mobile Number or Email ID is required for login. We can enter the password and confirmed password and after verification user can enter details. |
| | **CLASS:DeliverymanCreation** | |
| **/210/** | **Attributes** | **Description** |
| | DUserID<br><br>DFirstName<br><br>DLastName<br><br>DMobileNo1<br><br>DEmail<br><br>DStreet<br><br>DHouseNumber<br><br>DCity<br><br>DDistrict<br><br>DCountry | After the login page New Delivery Agent can get auto generated user ID. Now Delivery Agent can enter the details like Gender, First name, Last name, Gender, Date of Birth, Mobile Number, Email, Street name, House Number, City, District, Country, Pin Code. |
| | **CLASS: DeliverymanProfile** | |

| /220/ | Attributes | Description |
|---|---|---|
| | DUserID | After the creation of profile, Delivery Agent can modify the profile details Mobile Number, Email, Street name, House Number, City, District, Country, Pin Code. They can also set the schedule when they are for work. In which date and what time, they are ready to work can also be modified. They can also deactivate the account if they want by easy way. |
| | DFirstName | |
| | DLastName | |
| | DMobileNo1 | |
| | DEmail | |
| | DStreet | |
| | DHouseNumber | |
| | DCity | |
| | DDistrict | |
| | DCountry | |
| | DPinCode | |
| | DDateOfBirth | |
| | DReadyToWorkYesNo | |
| | DStartTime | |
| | DEndTime | |
| | DDaySelect | |
| | **CLASS: AcceptRequest** | |
| /230/ | Attributes | Description |
| | **Deliveryman** | Here check the status of workload and if the Delivery Agent is free to provide the Service, then they can accept the request from CWS and provide the status of their availability. Here they can get Order ID, Date of Order, Address of Delivery, Name of Attire, Name of service and billing details. |
| | DUserID | |
| | DOrderID | |
| | DOrderDate | |
| | DOrderDeliveryTo | |
| | DNameOfAttire | |
| | DUServiecName | |
| | DDiscount | |

| | DBillingAmount | |
|---|---|---|

| | **CLASS: VerifyOrder** | |
|---|---|---|
| **/240/** | **Attributes** | **Description** |
| | DOrderID<br><br>DCustomeID<br><br>DStatus<br><br>DMessage | Here check the status of workload and if the orders (services) are deliverable with specified scheduled, then orders are accepted, otherwise response the CWS that orders are accepted by using Order ID. They can send message to the CWS. |

| | **CLASS: DeliverProduct** | |
|---|---|---|
| **/250/** | **Attributes** | **Description** |
| | DFullName<br><br>UServiceName<br><br>UTotalPrice<br><br>UDateOfOrder<br><br>UDateOfDelivery<br><br>UDeliverySchedule<br><br>CMessage | In this function Delivery Agent get the details of Customer to deliver the items and they get the information like Name, Name of service. Total Price, date of order of service, date of delivery, time schedule and send the message services. |

| | **CLASS: PickUpProduct** | |
|---|---|---|
| **/255/** | **Attributes** | **Description** |
| | DFullName<br><br>UServiceName<br><br>UTotalPrice<br><br>UDateOfOrder<br><br>UDateOfPickUp | In this function Delivery Agent get the details of Customer to pick up the items and they get the information like Name, Name of service. Total Price, date of order of service, date of delivery, time schedule and send the message services. |

| | UPickUpSchedule | |
|---|---|---|
| | CMessage | |

| | | |
|---|---|---|
| | **CLASS: UpdateAccount** | |

| **/260/** | **Attributes** | **Description** |
|---|---|---|
| | DUserID | After collection the money from customer they update the account of CWS if cash is collected (direct cash Service). and also send messages the customers for confirmation and feedback. |
| | DOrderID | |
| | DCustomeID | |
| | DUpdateAccountOfCWS | |

| | | |
|---|---|---|
| | **CLASS: RequestReview** | |

| **/270/** | **Attributes** | **Description** |
|---|---|---|
| | DUserID | After the delivery to the customer they send the messages and request for feedback by using Order ID, Customer ID and review. |
| | DOrderID | |
| | DCustomeID | |
| | DRiview | |

| | | |
|---|---|---|
| | **CLASS: DispatchToCleaner** | |

| **/280** | **Attributes** | **Description** |
|---|---|---|
| | DFullName | To send the cloths to the Cleaner's Hub and provides the Order ID, Name of Delivery Agent, ID of Delivery Agent. They get the date of Order (service) and date and time of pick up and send message after dispatch. |
| | DServiceName | |
| | DTotalPrice | |
| | DDateOfOrder | |
| | DDateOfPickUp | |
| | DPickUpSchedule | |
| | DMessage | |

| | CLASS: Delete ProfileDeliveryman | |
|---|---|---|
| **/290** | **Attributes** | **Description** |
| | DUserID<br><br>DVerificationCode<br><br>DConfirmation1<br><br>DConfirmation2 | Here if Delivery Agent want to discontinue to keep his/her profile, software provides easy way to deactivate the account after getting the confirmations but data will be remain store in the database of CWS but it will be invisible to the Delivery Agent after deactivation. It asks for user ID, Verification Code and Confirmation. |
| | CLASS: EmployeeLogin | |
| **/300/** | **Attributes** | **Description** |
| | EEmail<br><br>EVerificationCode<br><br>EPassword<br><br>EConfirmedPassword | This is the login page of the system when new Employees are created. Here an Email ID and Verification Code and Password are required for login which are provided in the Email at the time recruitment. |
| | CLASS: EmployeeCreation | |
| **/310/** | **Attributes** | **Description** |
| | EEmployeeID<br><br>EGender<br><br>EFirstName<br><br>ELastName<br><br>EDateOfBirth<br><br>EMobileNo1<br><br>EEmail<br><br>EStreet | After the login page, an employee details are created by CWS and details are stored like Employee ID, Gender, First name, Last name, Gender, Date of Birth, Mobile Number, Email, Street name, House Number, City, District, Country, Pin Code, working post and working area |

| | EHouseNumber | |
| | ECity | |
| | EDistrict | |
| | ECountry | |
| | EPinCode | |
| | EBasicPay | |
| | EPostHold | |
| | EWorkingArea | |

| | **CLASS: EmployeeProfile** | |
| :---: | :---: | :---: |
| **/320/** | **Attributes** | **Description** |
| | EEmployeeID | After the entering the user's details, Cleaner can modify the profile details |
| | EGender | |
| | EFirstName | like Employee ID, Gender, first name, Last name, Gender, Date of Birth, Mobile Number, Email, Street name, House Number, City, District, Country, Pin Code, working post and working area |
| | ELastName | |
| | EDateOfBirth | |
| | EMobileNo1 | |
| | EEmail | |
| | EStreet | |
| | EHouseNumber | |
| | ECity | |
| | EDistrict | |
| | ECountry | |
| | EPinCode | |
| | EBasicPay | |
| | EPost | |
| | EWorkingArea | |

| | | |
|---|---|---|
| | | |
| | CLASS: DeleteProfileOfEmployee | |
| /330/ | Attributes | Description |
| | EEmployeeID<br><br>EVerificationCode<br><br>EConfirmation1<br><br>EConfirmation2 | Here the details of a profile can deleted by administrator of CWS by using Employee ID, but data will be remained stored in the database of CWS, but it will be invisible to the Employee after deletion. |
| | CLASS: CommonUser | |
| /340/ | Attributes | Description |
| | CUViewServiceDetails<br><br>CUPriceOfService<br><br>CUSendQueriesCWS<br><br>CUFAQ<br><br>CURespondFromCWS | This function provides the common user to view the services are provided by the CWS and the rate of price and they can send some queries or FAQ and CWS responds to the common users. |

# 7    Component Diagram
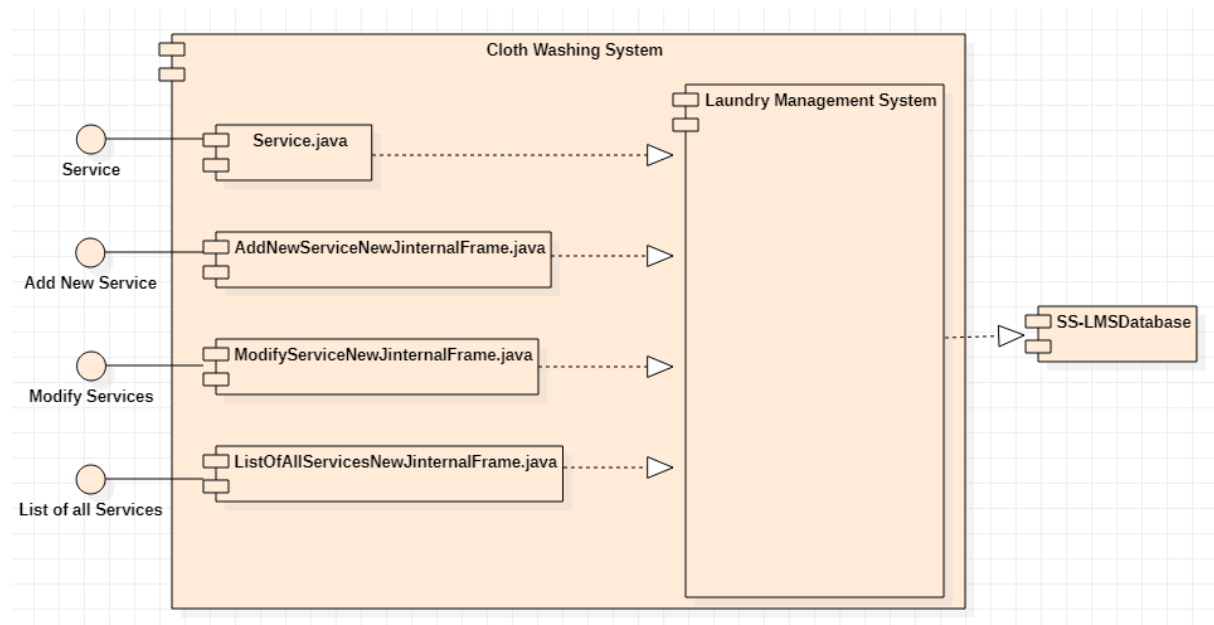


Figure 10: Component Diagram – Service Management

The component diagram gives the overview of the Service Management module. Service module will provide the platform to perform operations such as adding, modifying and listing all the services available.

AddNewServiceNewJinternalFrame class will add the new services in the system by providing the required details and the services will be added. This class is only accessible to admin.

ModifyServiceNewJinternalFrame class allows you to modify the services which were added earlier in the system. This class is only accessible to admin.

ListOfAllServicesNewJinternalFrame class will give the list of all the services that are available in the system. This class is accessible to Admin, customer as well as the Guest .
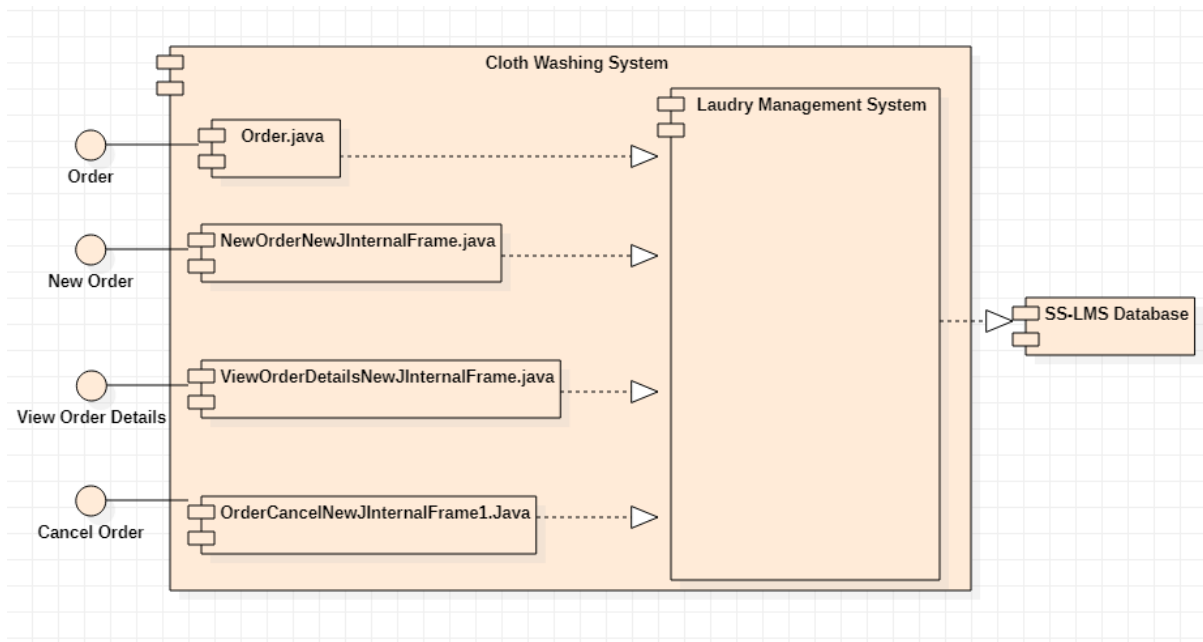
Figure 11: Component Diagram – Order Management

The component diagram shows the overview of the Order management module. The Order class provides access to create, cancel and view the order history.

NewOrderNewJInternalFrame class allows to create new order which is accessible by customers and admin.

ViewOrderDetailsNewJinternalFrame class enables to view current order status and the order history for pervious orders. This class can be accessed by admin and Customer

OrderCancelNewJInternalFrame class is designed to cancel the current order. This class can only be accessed by the admin.

# 8   Sequence Diagram

## 9.1 Sequence Diagram Profile Registration
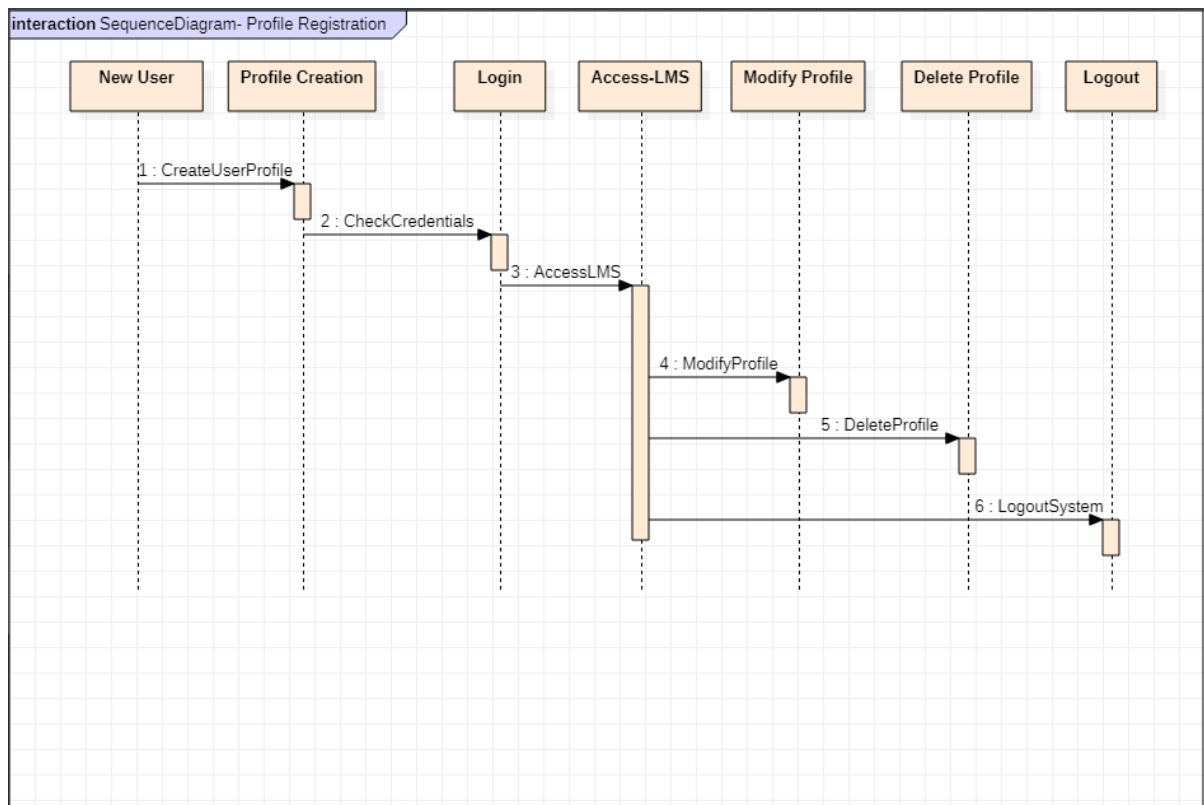


Figure 12: Sequence Diagram Profile Registration

Above Sequence diagram of Profile Registration. User enters all the required data and submits it. New profile Object is created with data entered. User is checked if already exists. If the user does not exist, then data is inserted into database.

## Sequence diagram Service
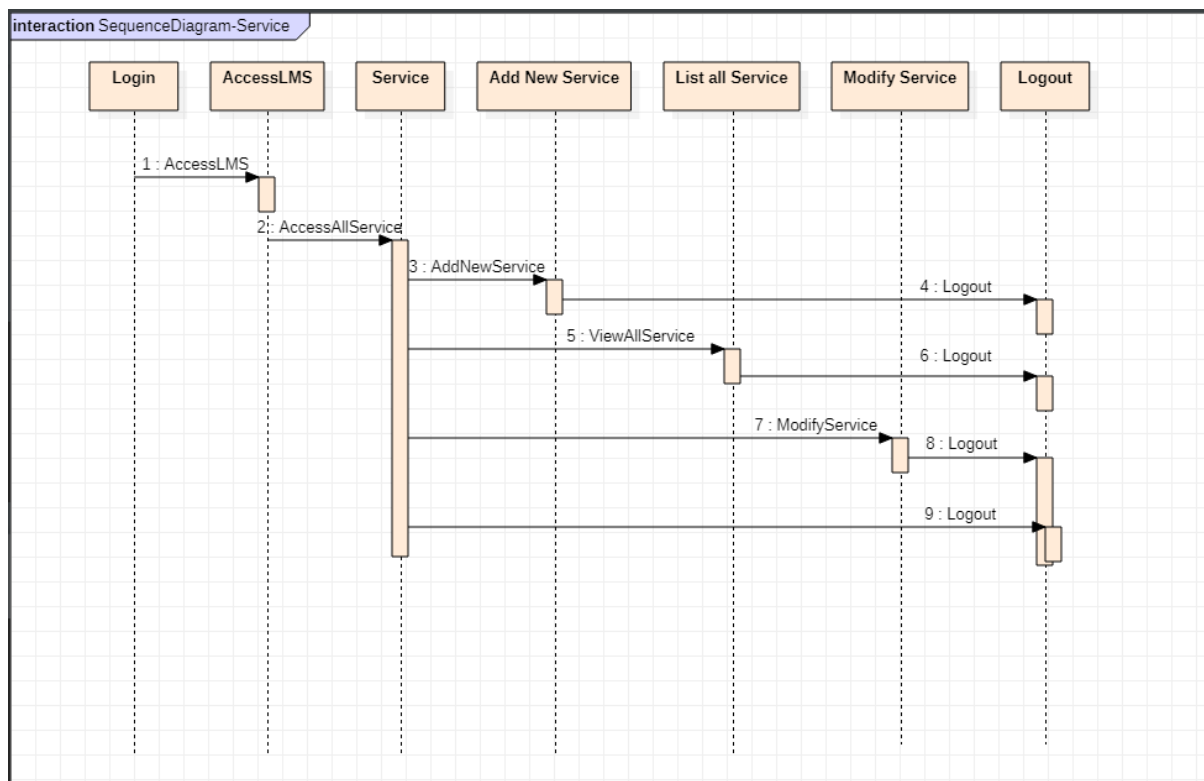


Figure 13: Sequence Diagram Service management

Figure 12 depicts Sequence diagram of Service Management. Admin will register the new services and provide the required data for the same. User enters all the relevant data to search the service. New Object is created with respective data.

## Sequence diagram Order
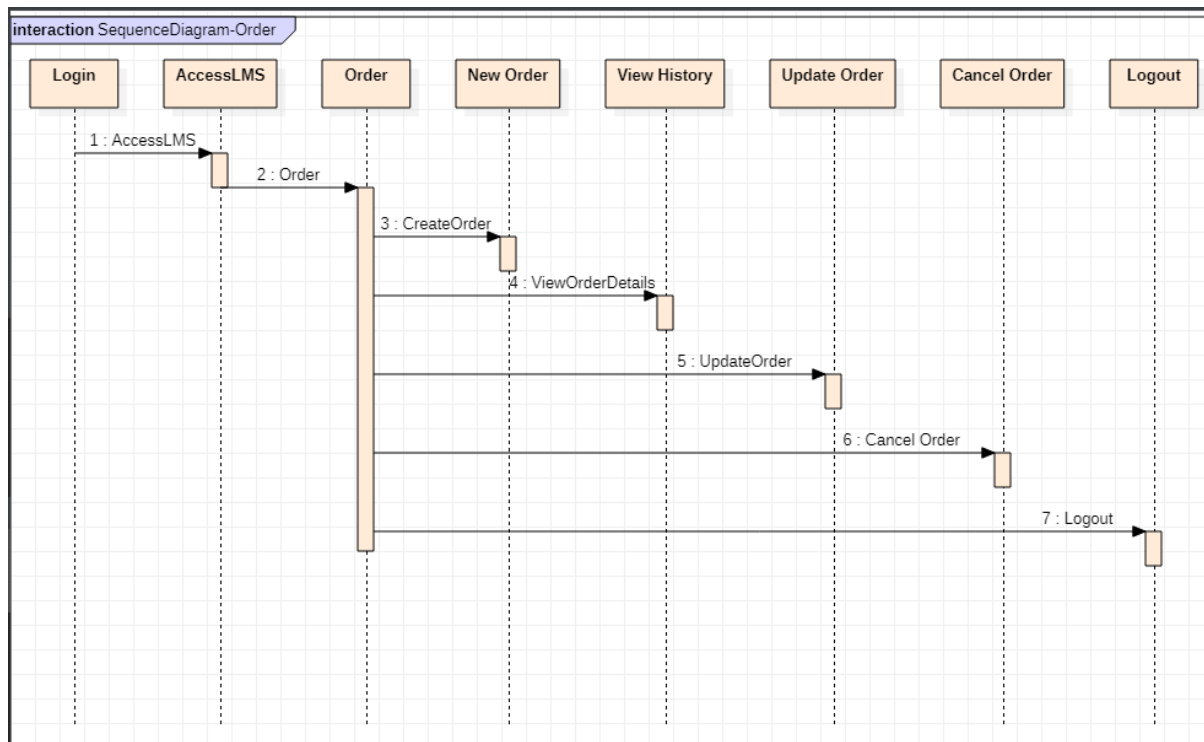


Figure 14: Sequence Diagram Order

Sequence diagram show the flow of Order management which handles the order creation, cancellation of order and order history. In order to place the order user must select the items. New Data object will be created with data given by the user.

## 9.4 Sequence diagram Accounting
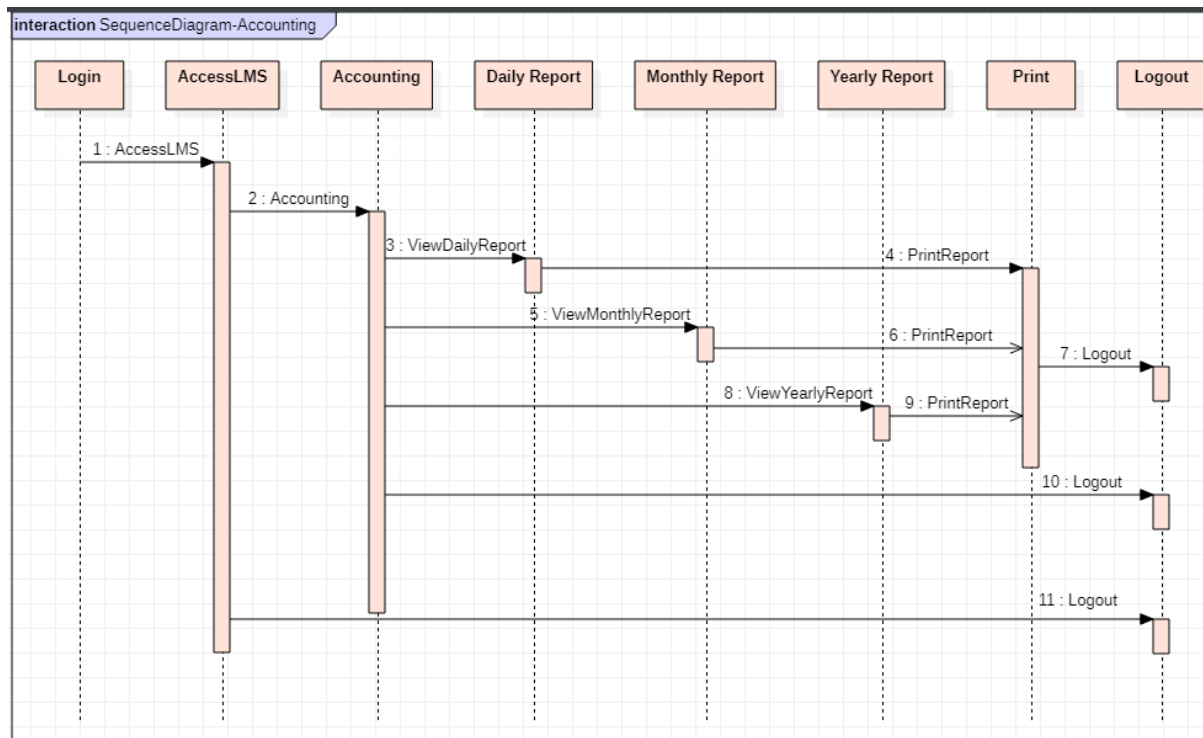


Figure 15: Sequence diagram Accounting

Sequence diagram of Accounting shows the flow to check the daily, monthly and yearly report for the account. Admin must select the date, month or year with respective the report and the object will be created with entered data.

# 9 State diagram
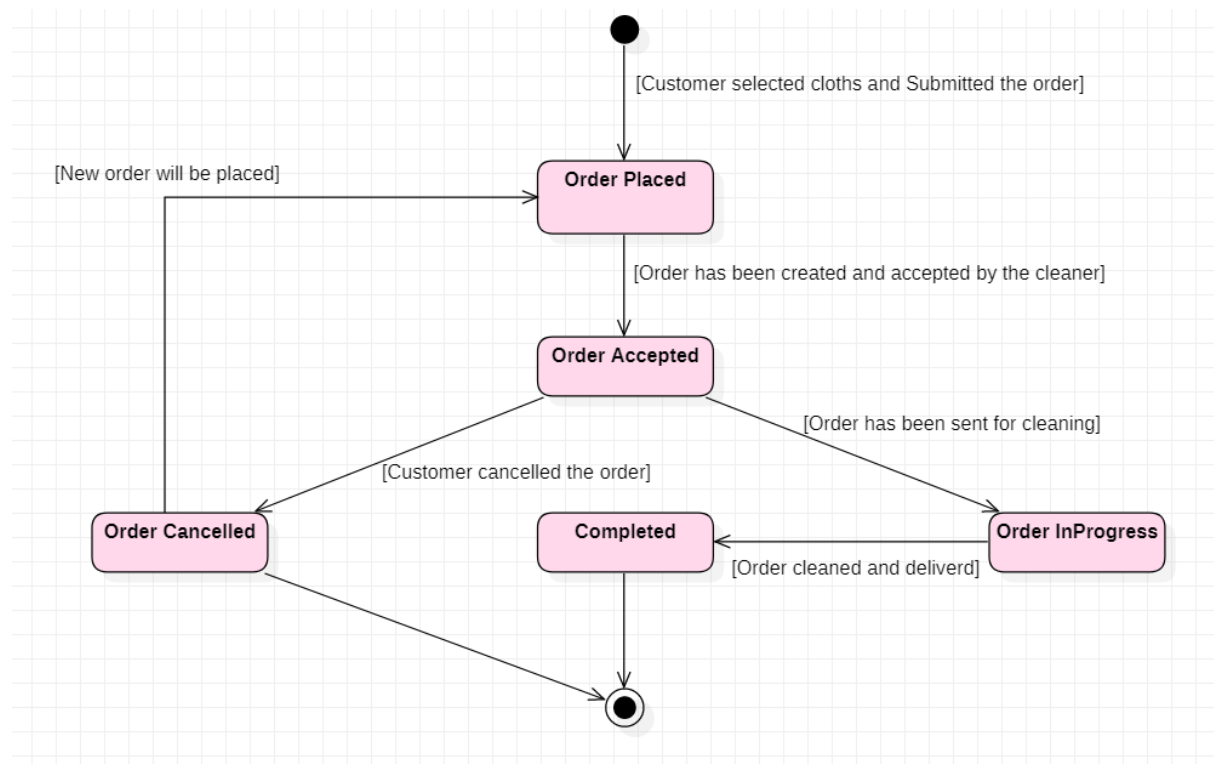


Figure 16: State chart for Order

State diagram represents different states of Order object. Customer will place the order initially, then it will be sent to admin for acceptance. Once the Order is accepted it can be sent to next phase or it can be cancelled.

If the order is accepted, then it will send for cleaning and will be delivered on cleaning then order will go to "completed" state.

If customer want to cancel the order, then order will be cancelled and set to "cancelled" state.

# 10  Activity Diagrams

## Customer Registration
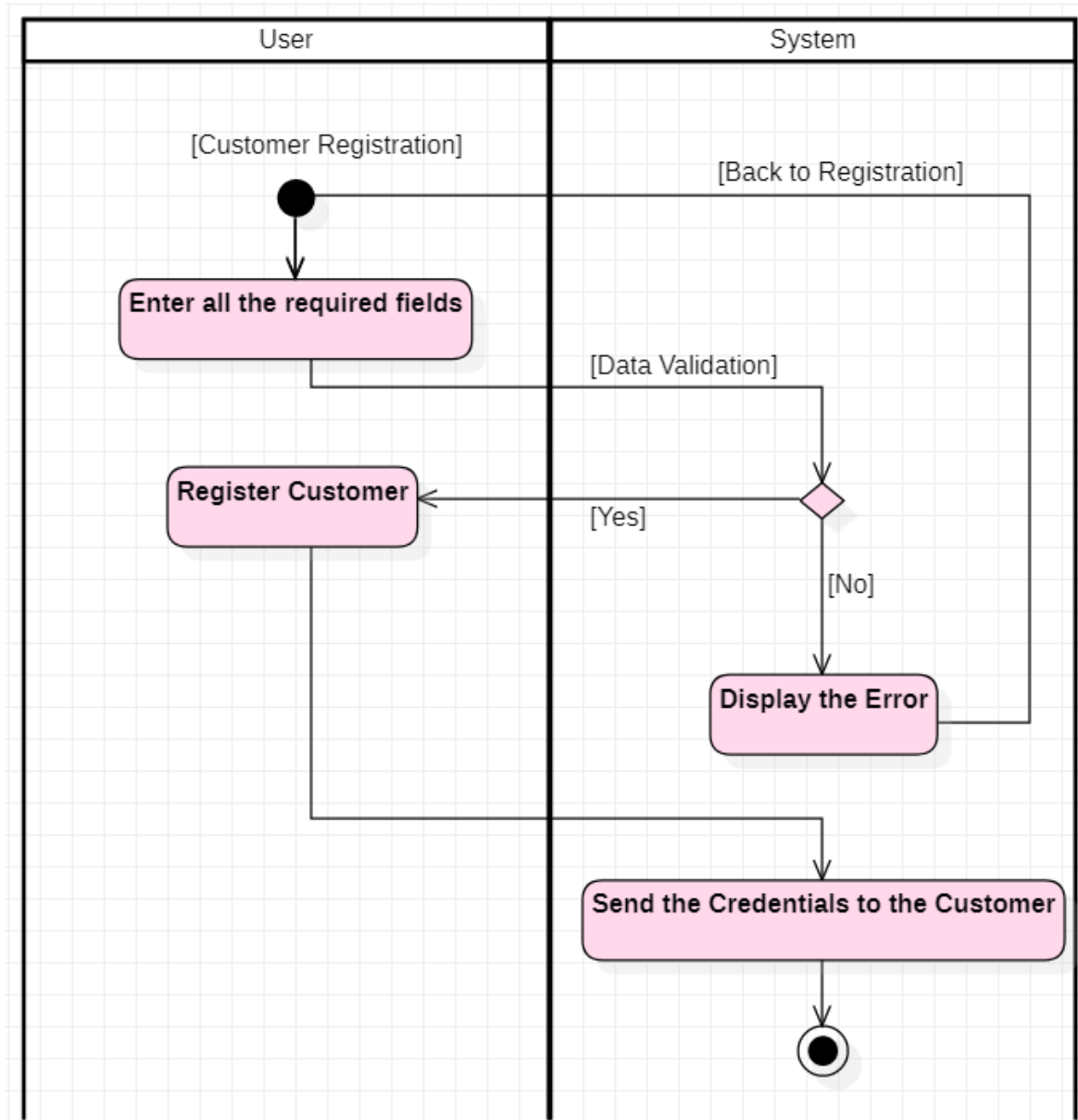


Figure 17: Activity diagram Customer Registration

## Customer Management
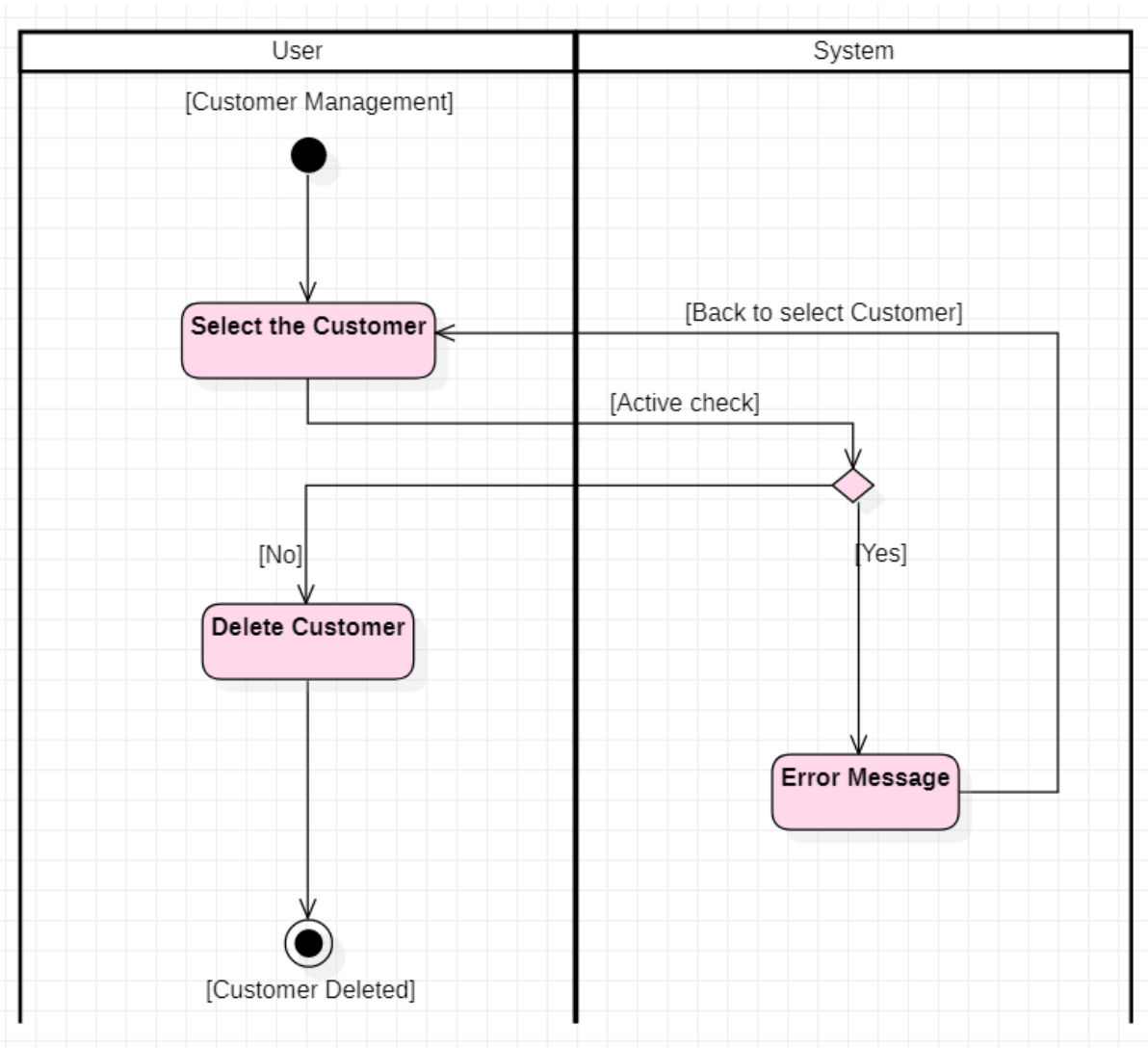


Figure 18: Activity diagram Customer management

## Admin Registration
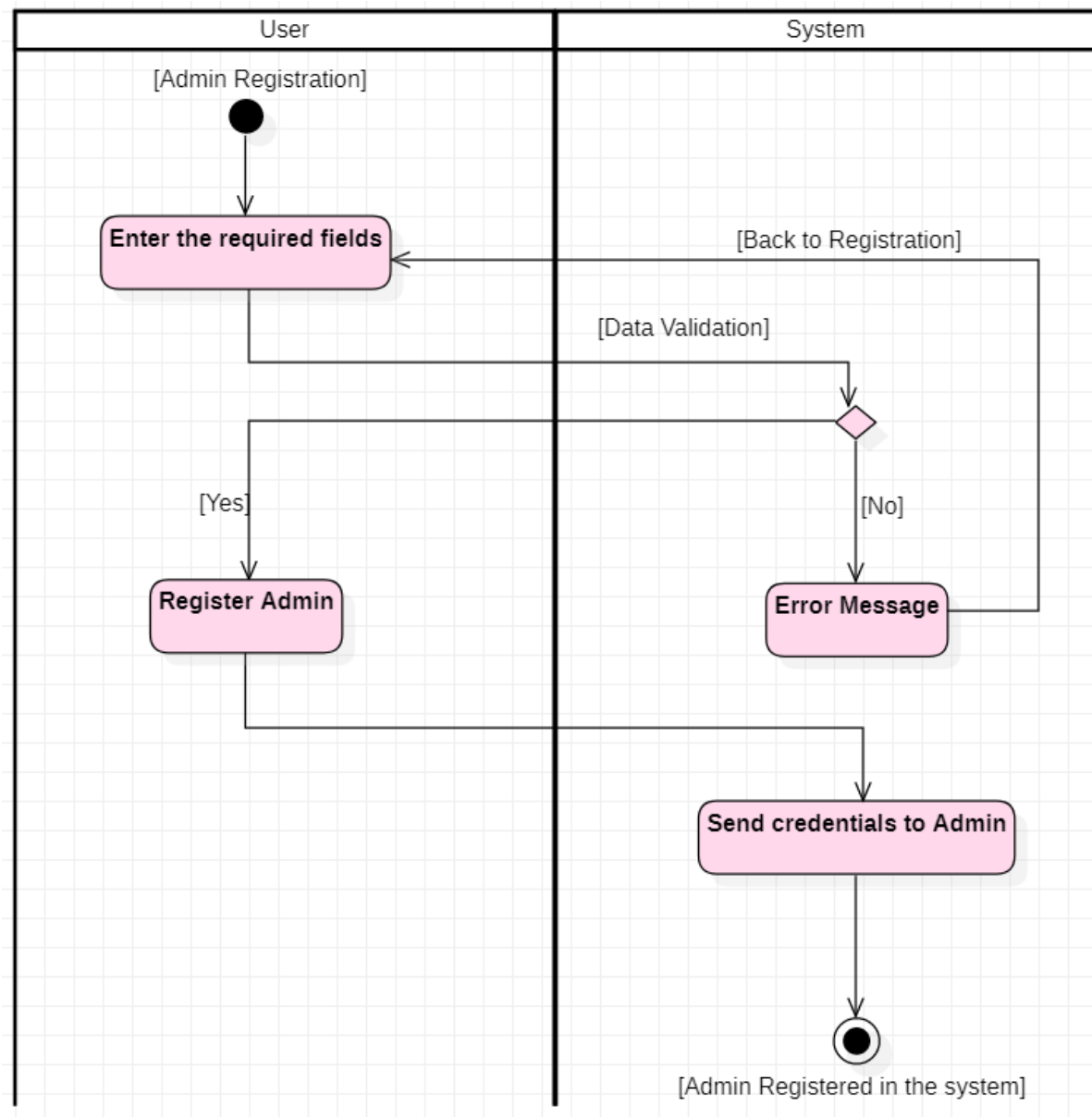


Figure 19: Activity diagram Admin Registration

## Add Services
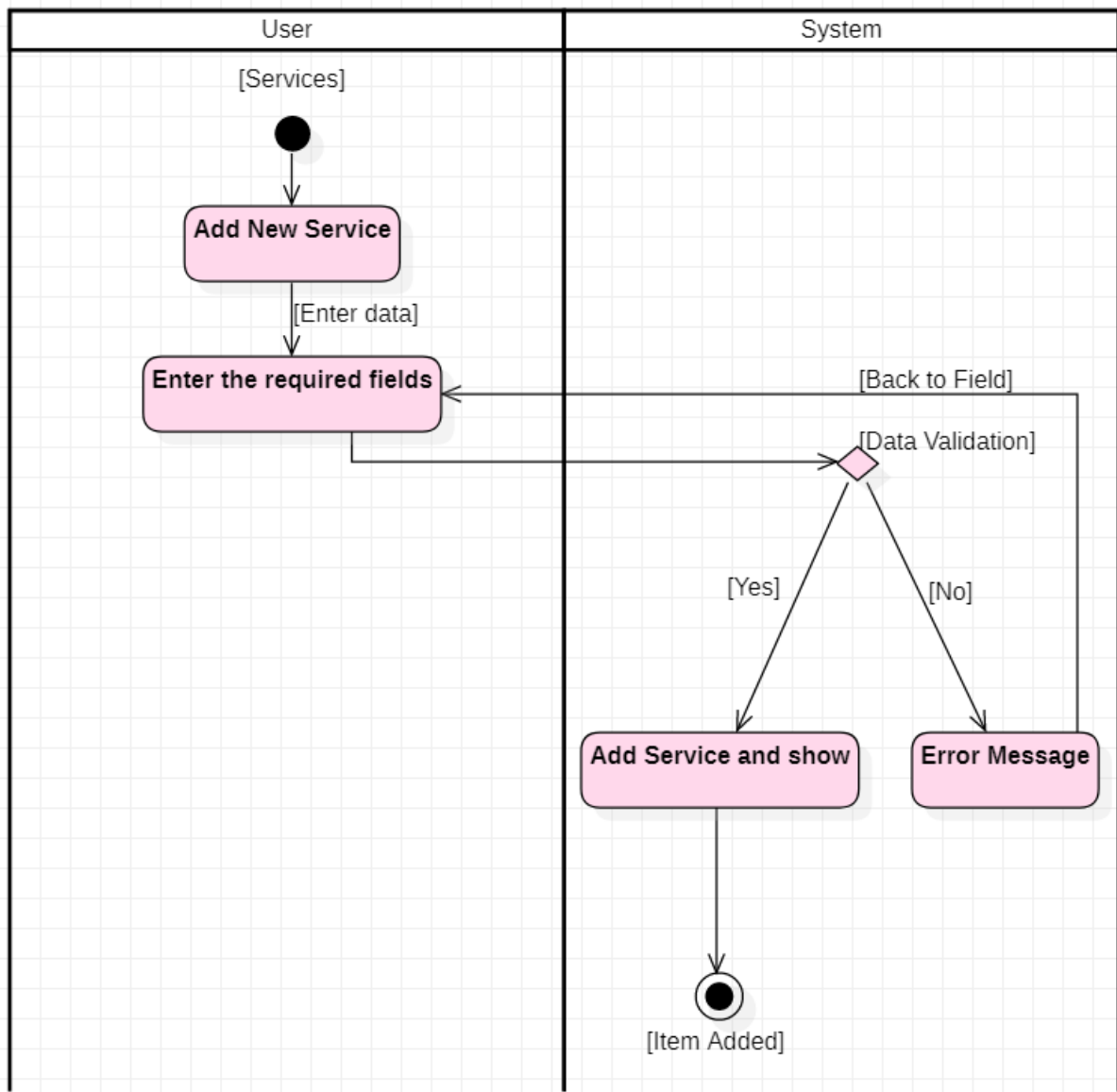


Figure 20: Activity diagram Add Services

# List Services
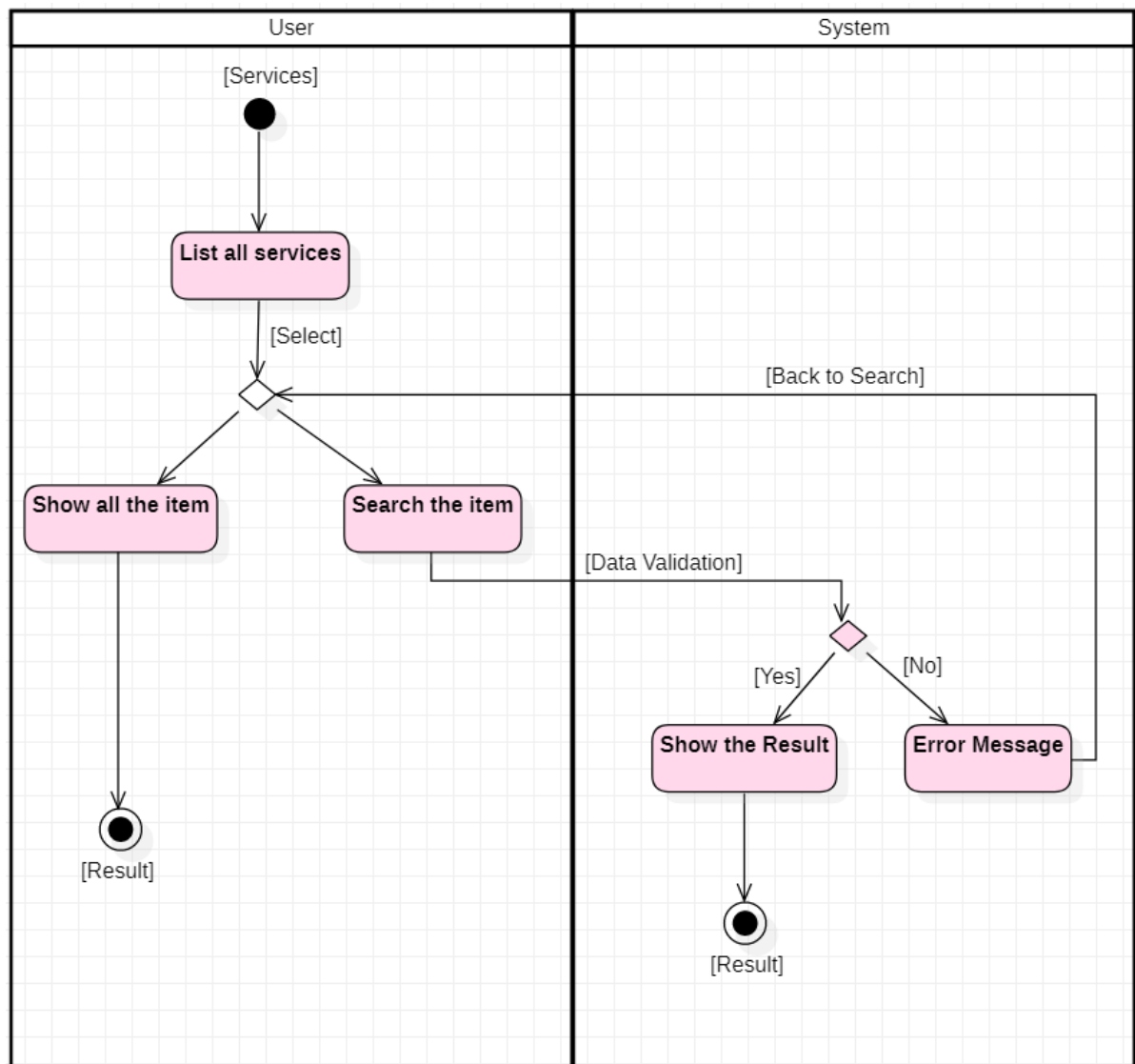


Figure 21: Activity diagram List Services

## Modify Services
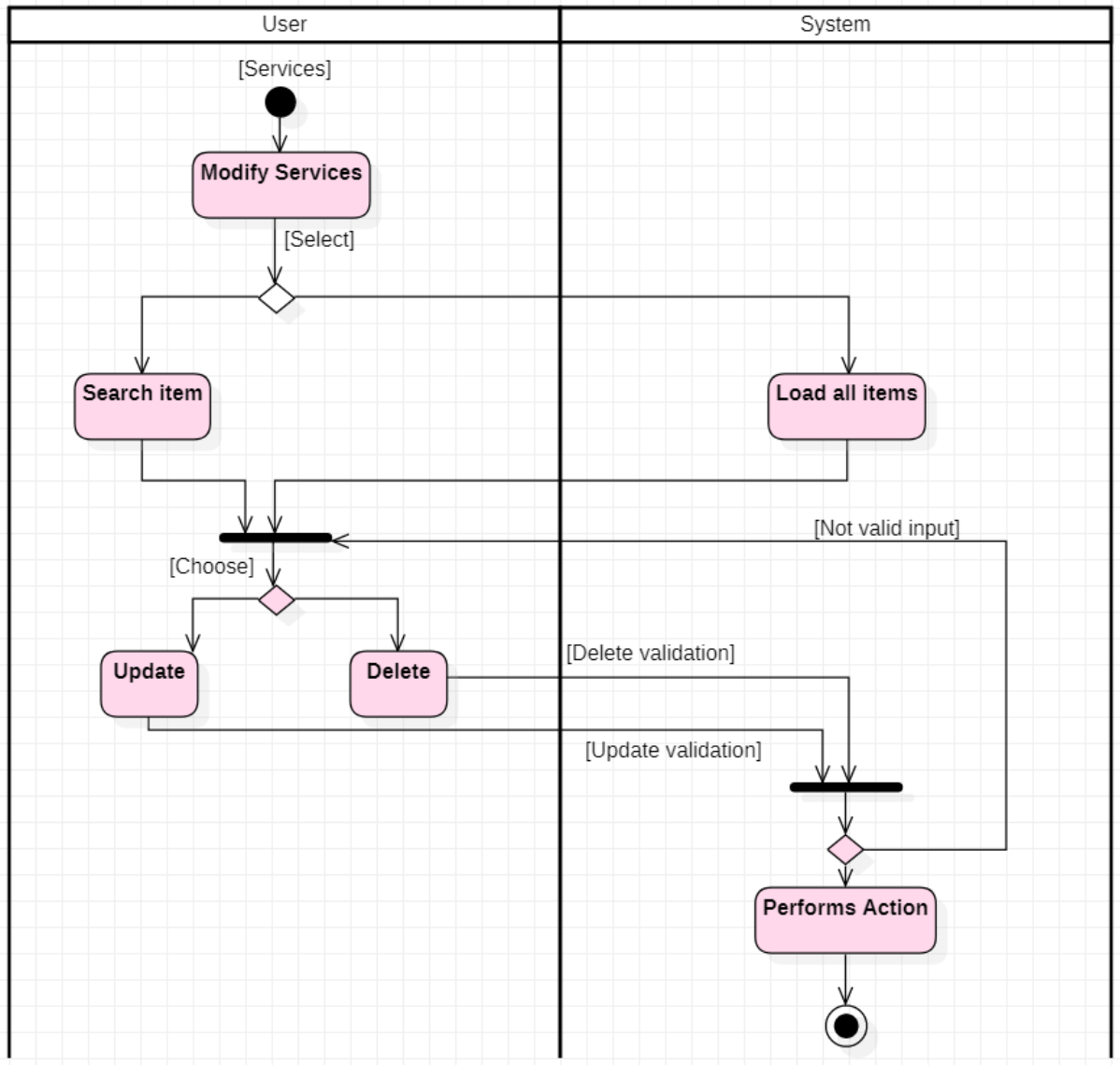


Figure 22: Activity diagram Modify Services

## Contact Us
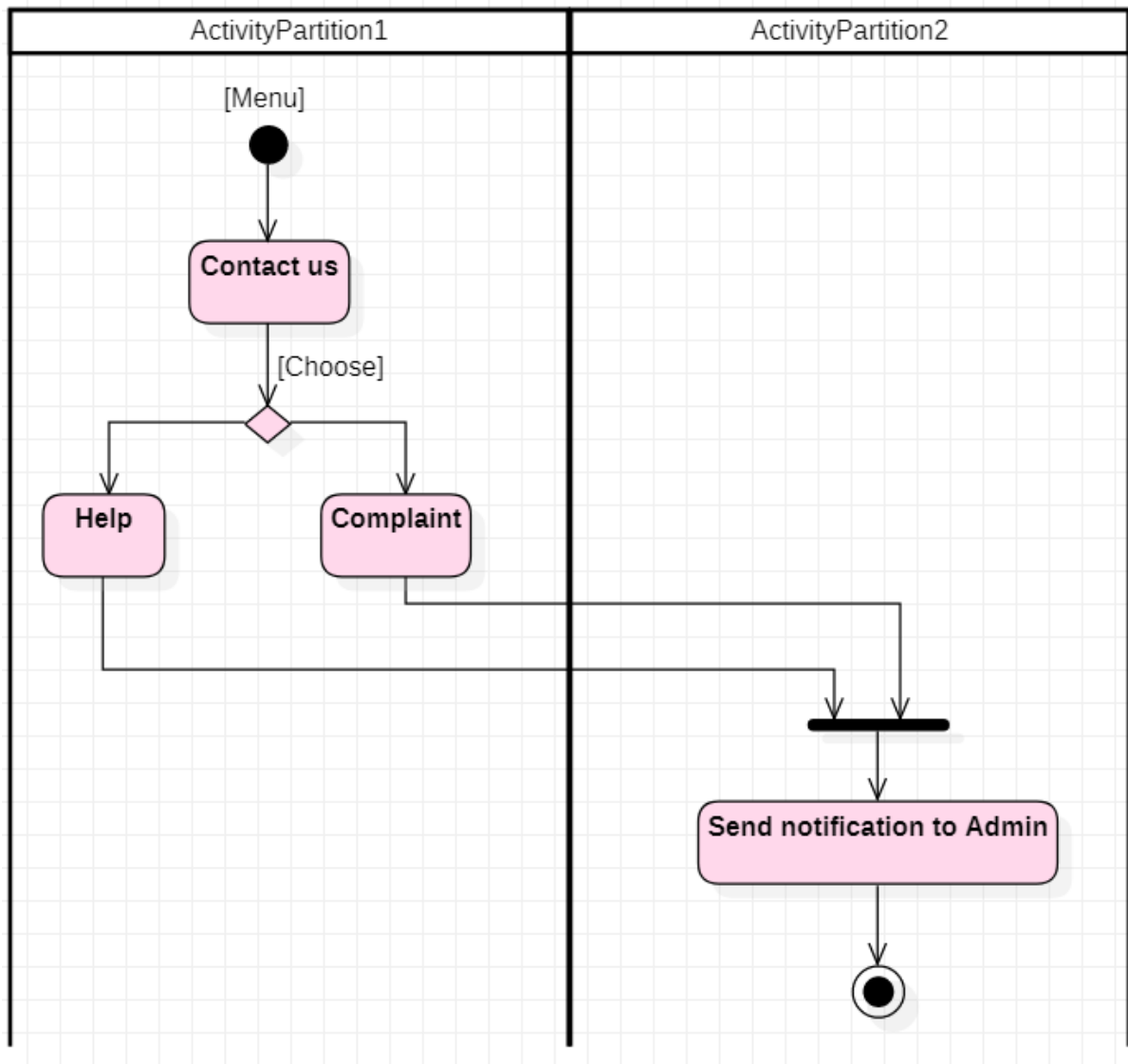


Figure 23: Activity diagram Contact us

## Create Order
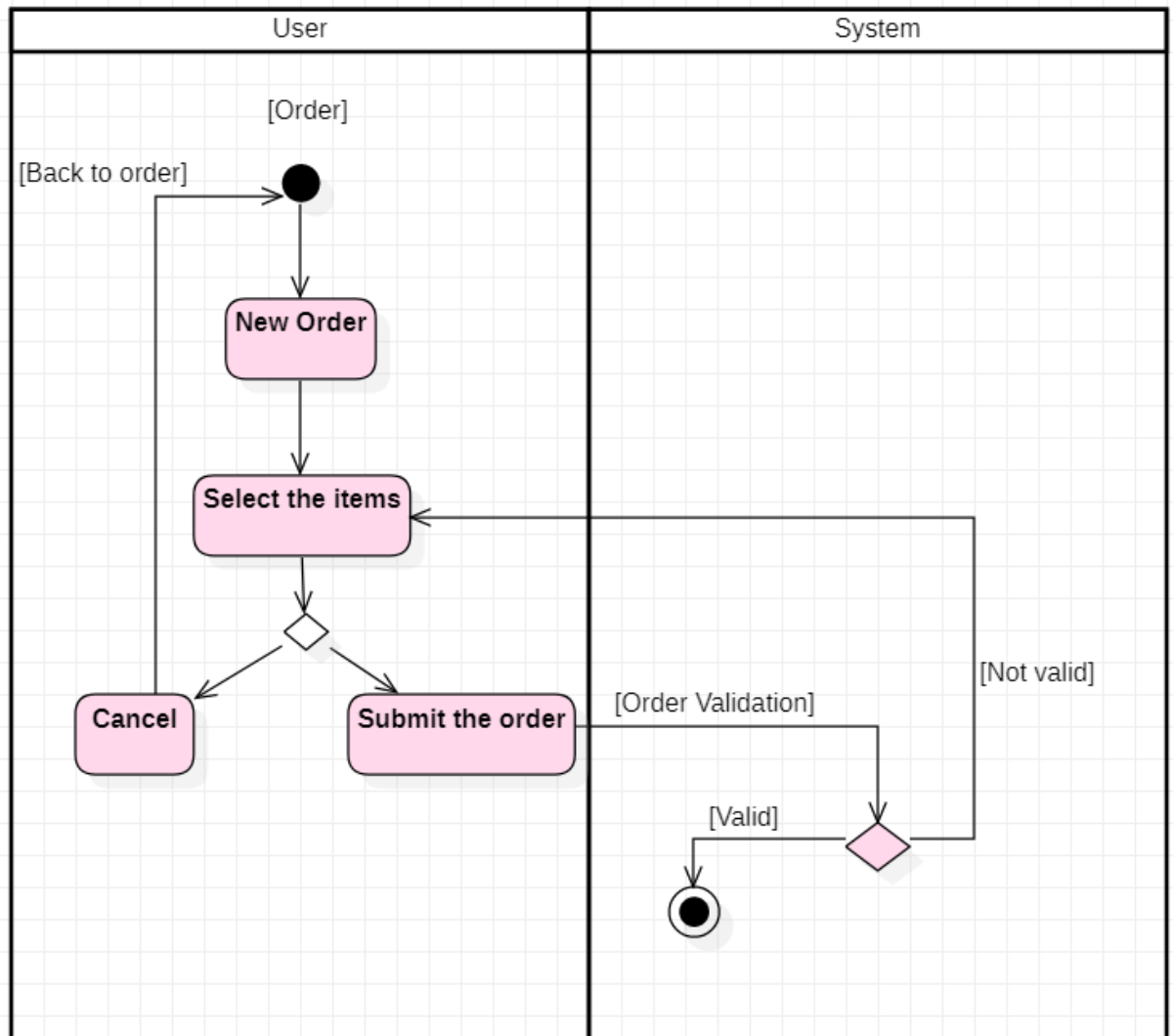


Figure 24: Activity diagram Create Order

Customer has to select or search the appropriate list of items and display it. Once all the items are selected, cutomer can place the order.

On selection of the items order can be submitted or cancelled. If customer cancelles the order then state will be set to "Cancel".

Once the customer has submitted the order. State will be set to "Completed"

## Order History
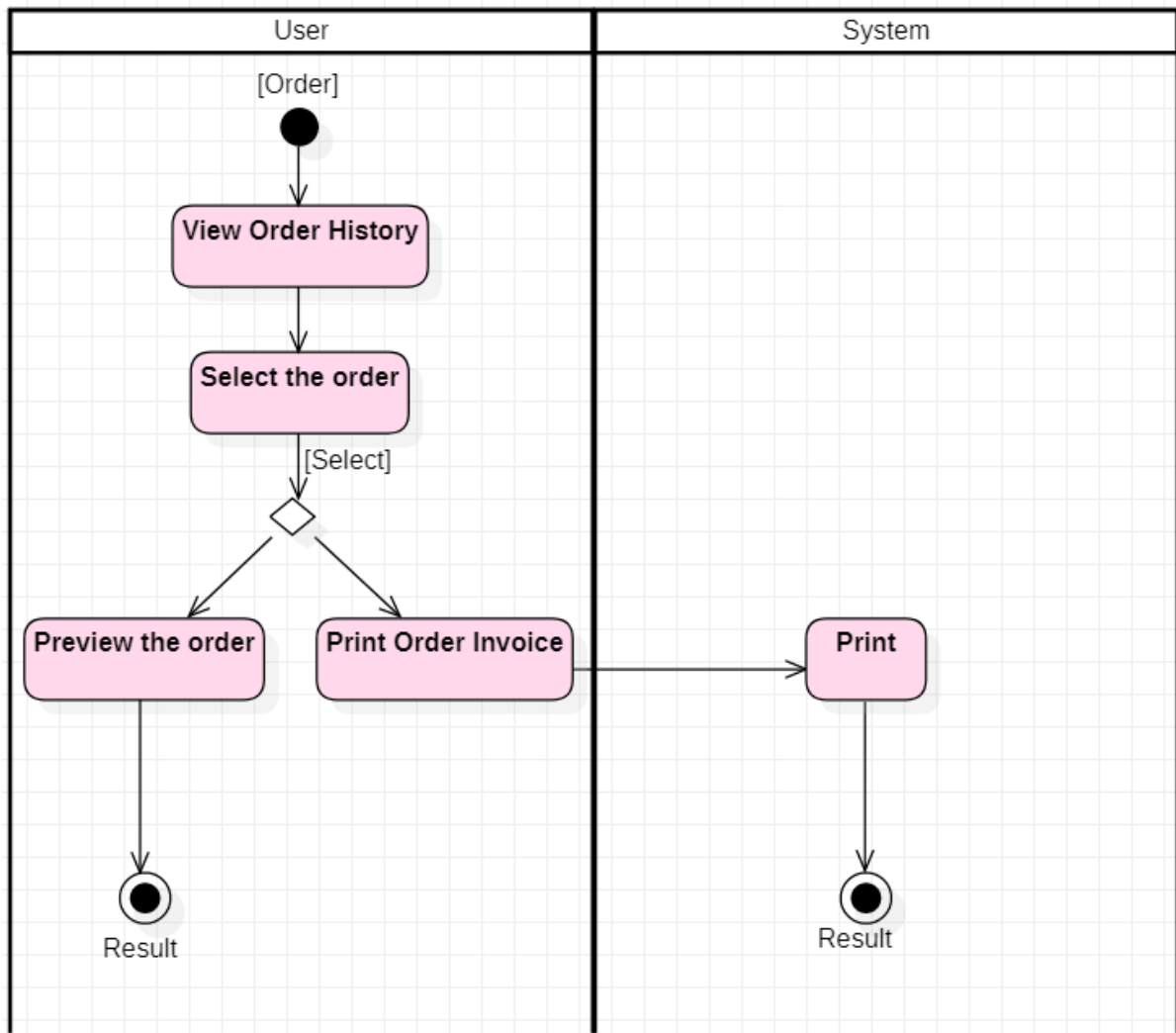


Figure 25: Activity diagram Order History

Above State diagram shows the flow for Order History. Customer must select one of the orders which they have placed earlier to check the order details.

Customer has two option either one can preview the order details or print the order invoice

## Order cancellation
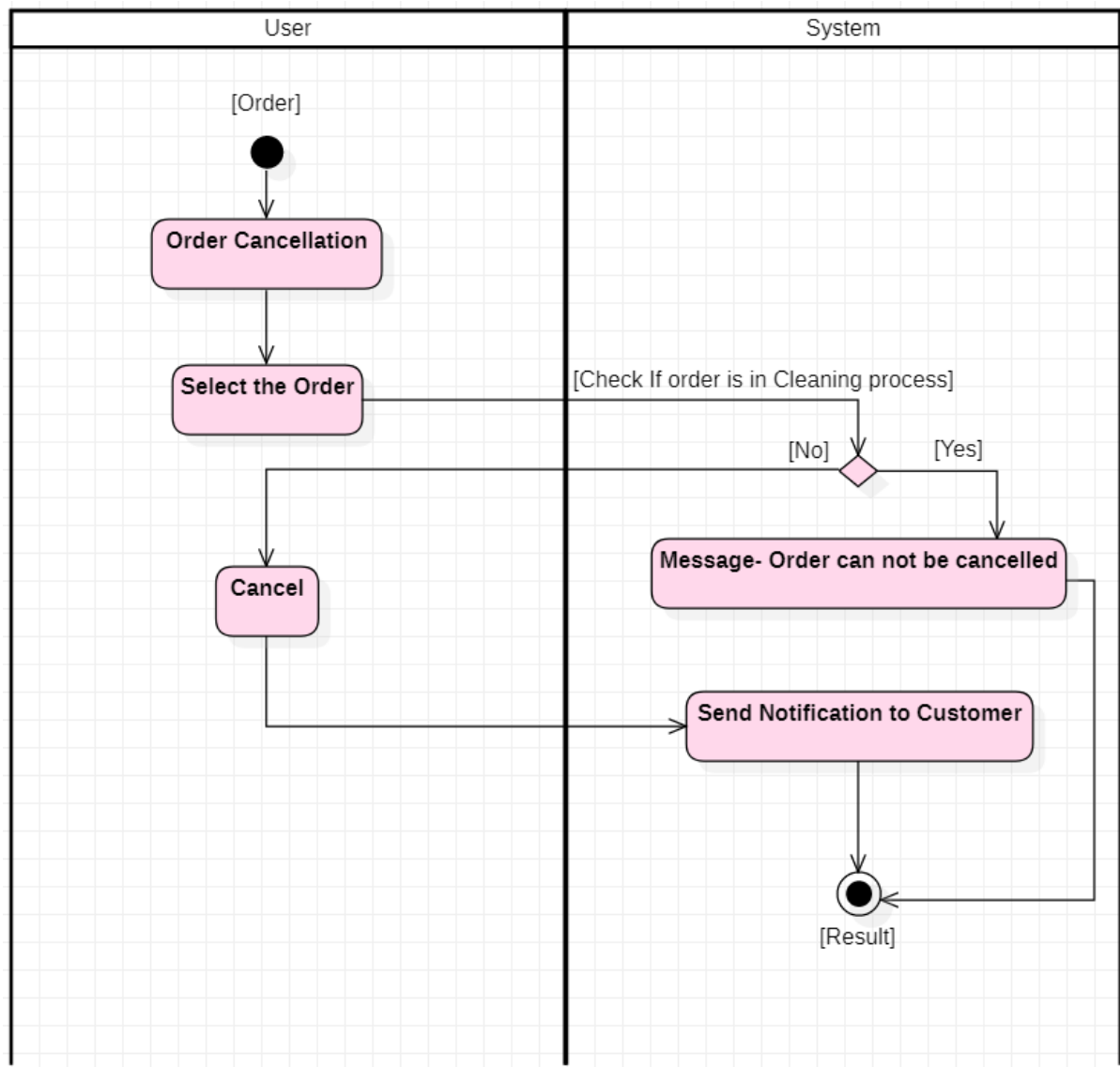


Figure 26: Activity diagram Order Cancellation

Activity diagram Order cancellation represent the process of cancelling the order. Customer needs to select the active order which need to be cancel.

Once the Customer selects the order to cancel, then system will check if the order is in cleaning process. If the order is in cleaning process then it can not be cancelled, customer will be notified and if the order is not sent for the cleaning, then it can be cancelled.

## Accounting
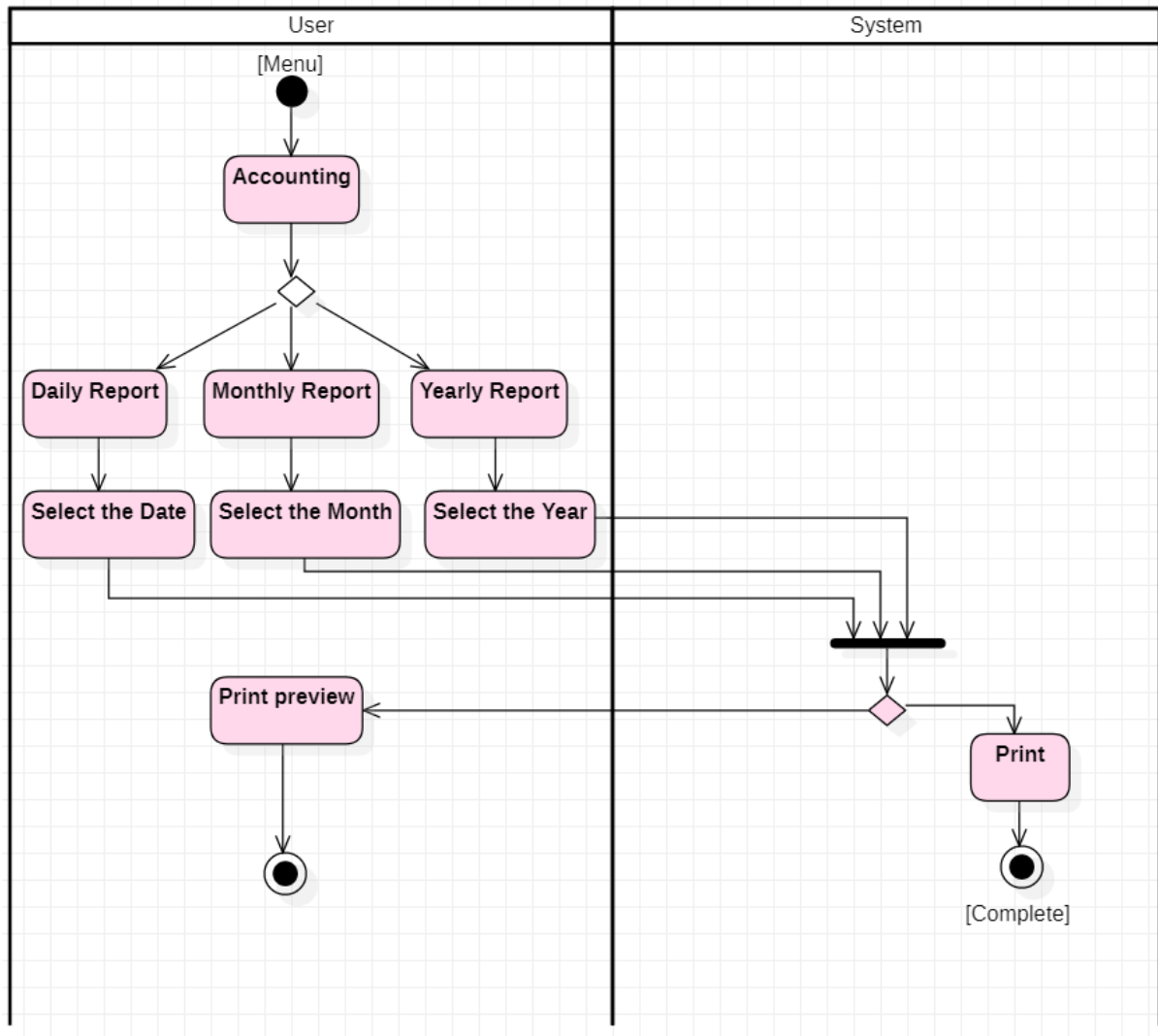


Figure 27: Activity diagram Accounting

Above State diagram represents the Accounting which includes reporting on daily, monthly and yearly basis.

Admin must select the function which need to be executed and fill the data accordingly. Once admin enter the data, report can be printed or previewed.

## 11 Package diagram
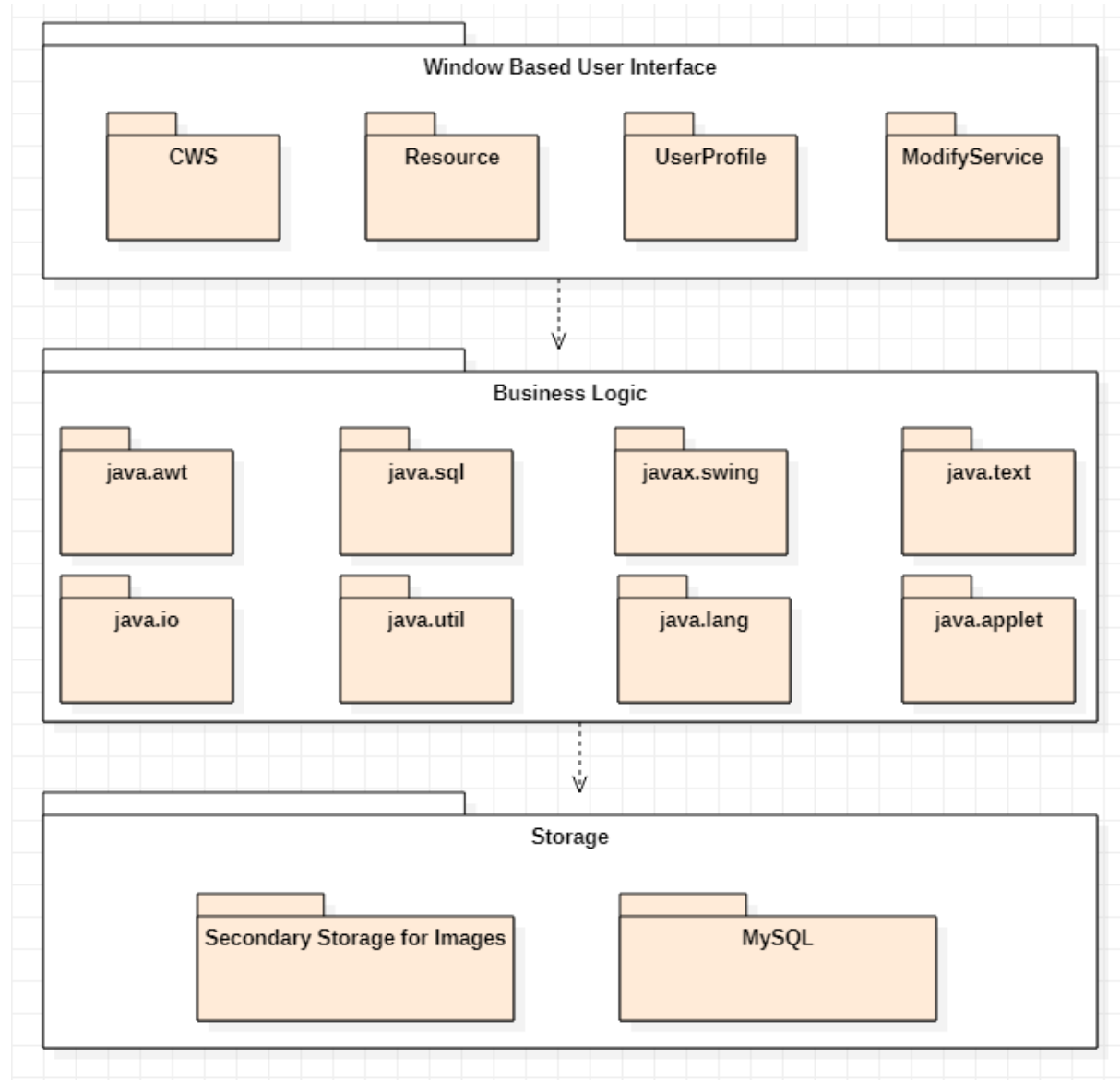


Figure 28: Package diagram

The Package Diagram depicts multi-layered application with windows-based User Interface, Business layer using java libraries. It also shows different packages used internally like util, awt, swing. At the end, storage layer shows MySQL database and secondary storage to store the image files.

# 12 Deployment Diagram
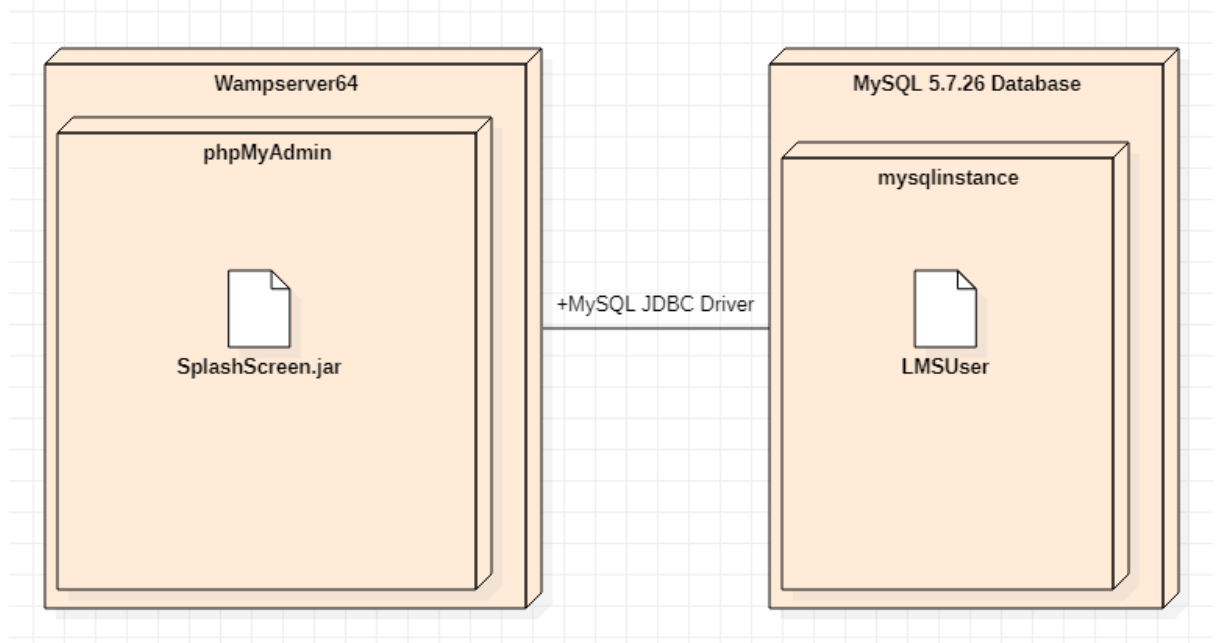


Figure 29: Deployment diagram

Laundry Management System is packaged into jar file SplashScreen.jar and is deployed onto Wampserver64 using phpMyAdmin. Application connects to LMSUSER which is mysql database of laundry management system. Database used is MySQL 5.7.26. Database is connected using MySQL JDBC driver.

# 13  User Interface

## Splash Screen of LMS
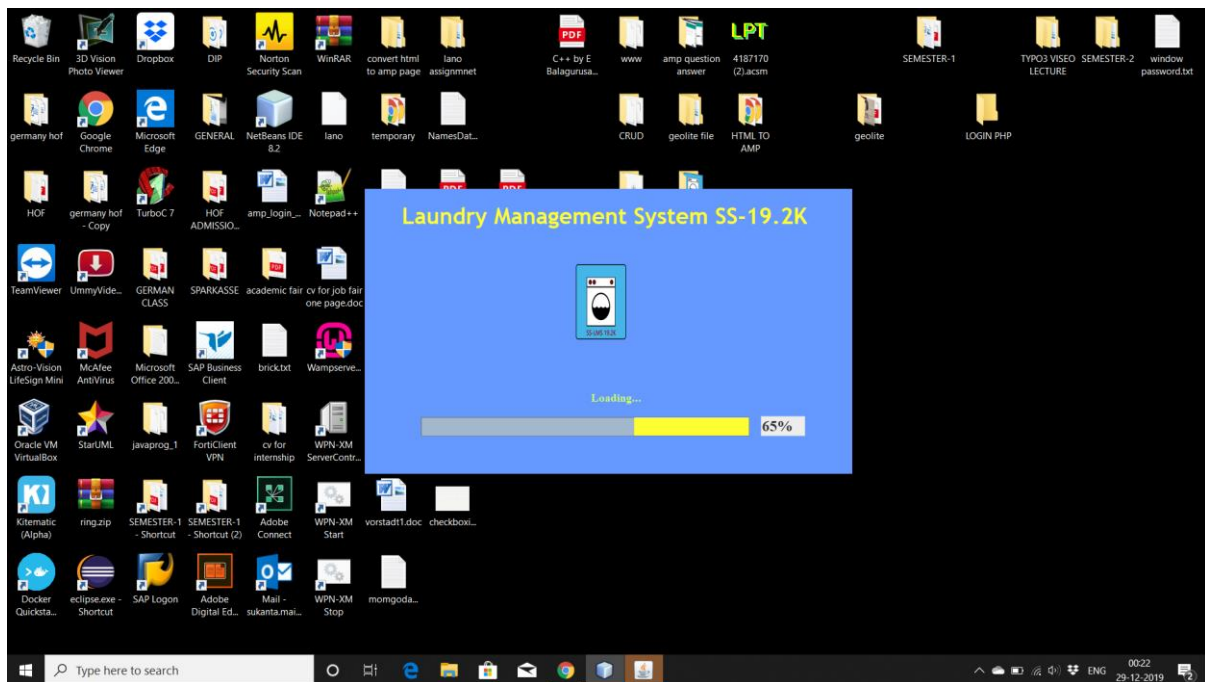


Figure 30: Launch Screen

## User Login
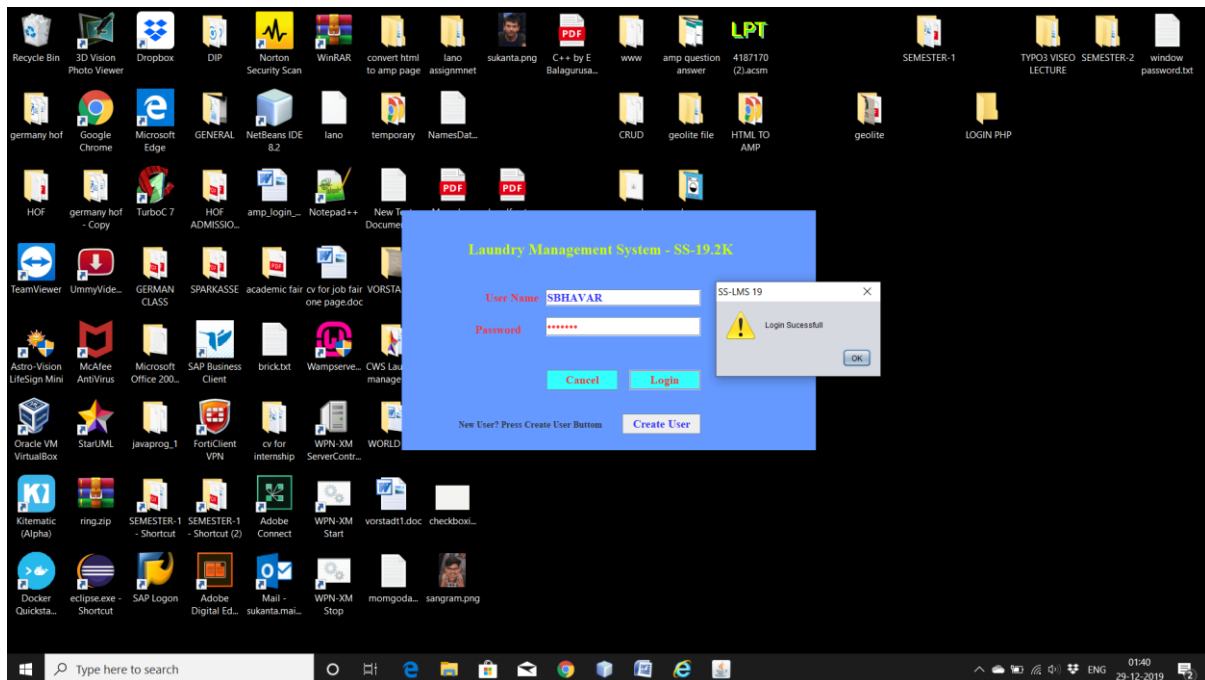


Figure 31: Login Screen

## New User Profile Creation



Figure 32: User profile creation

# View User Profile



Figure 33: View profile

# Modifying User Profile



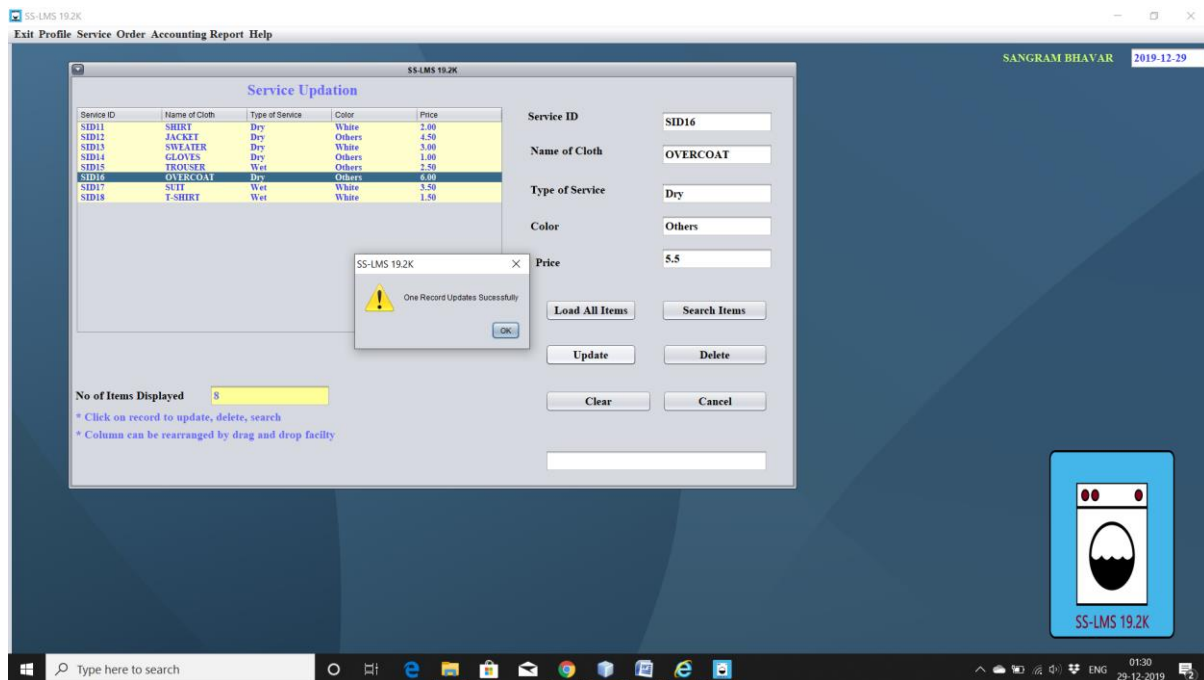Figure 34: Listing available services

## Modify Service



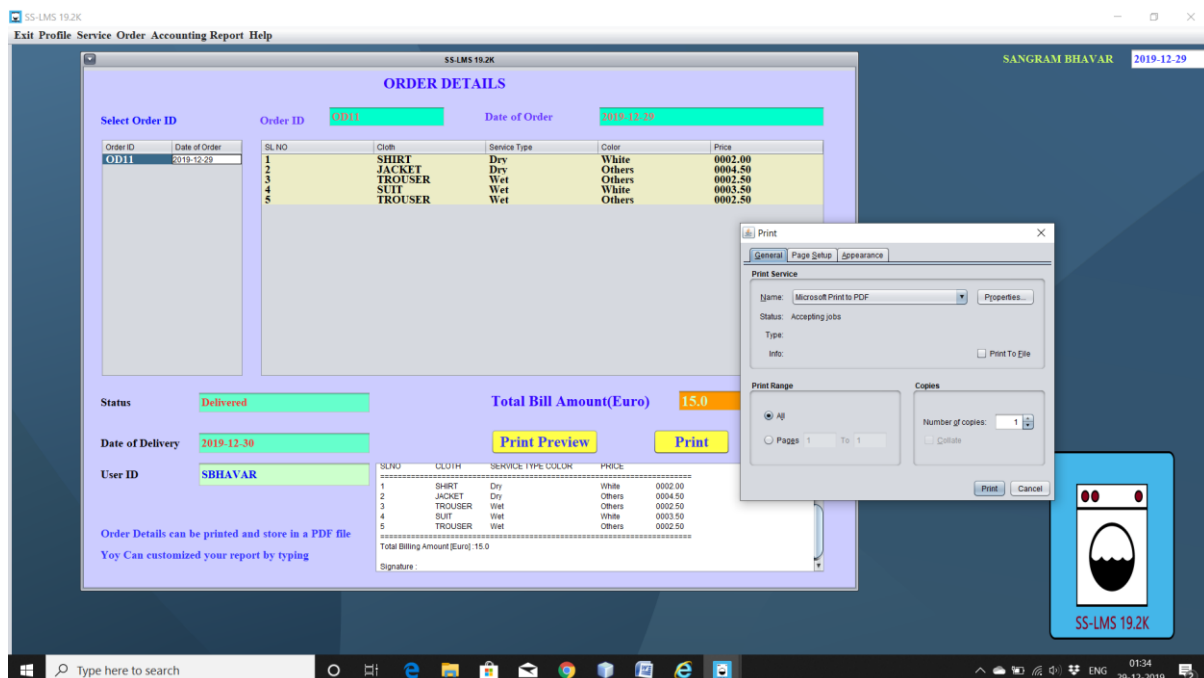Figure 35: Modifying services

## Order details



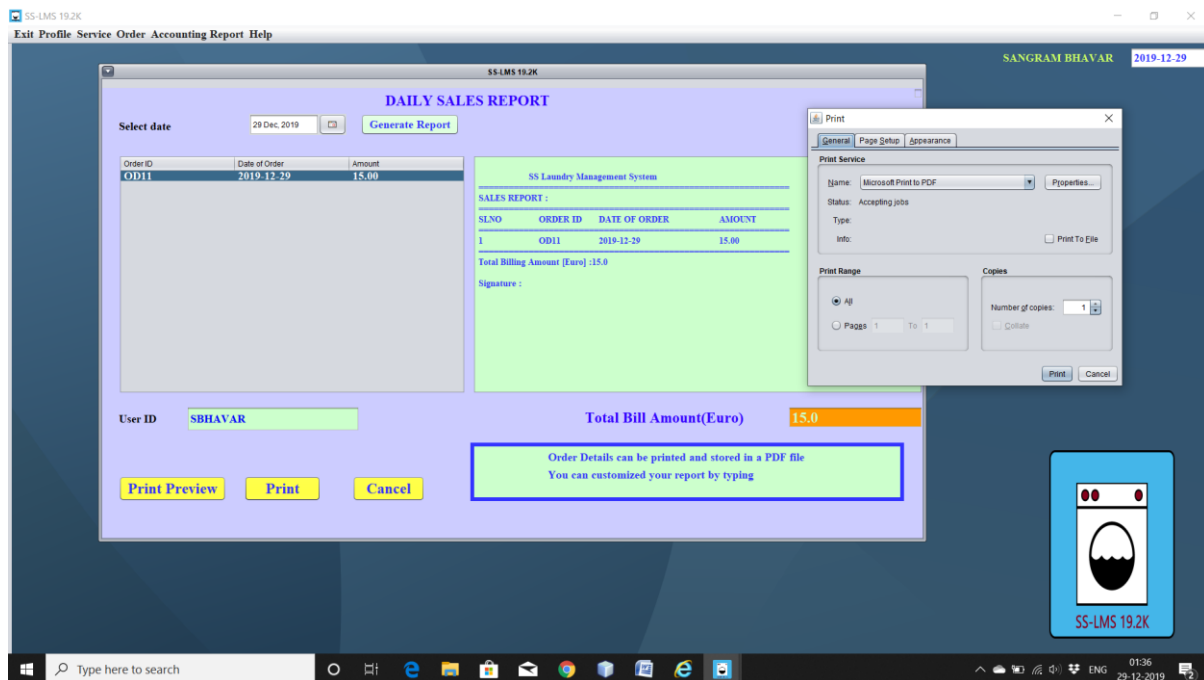Figure 36: View and print Order details

## Daily Report



Figure 37: Accounting: Daily report
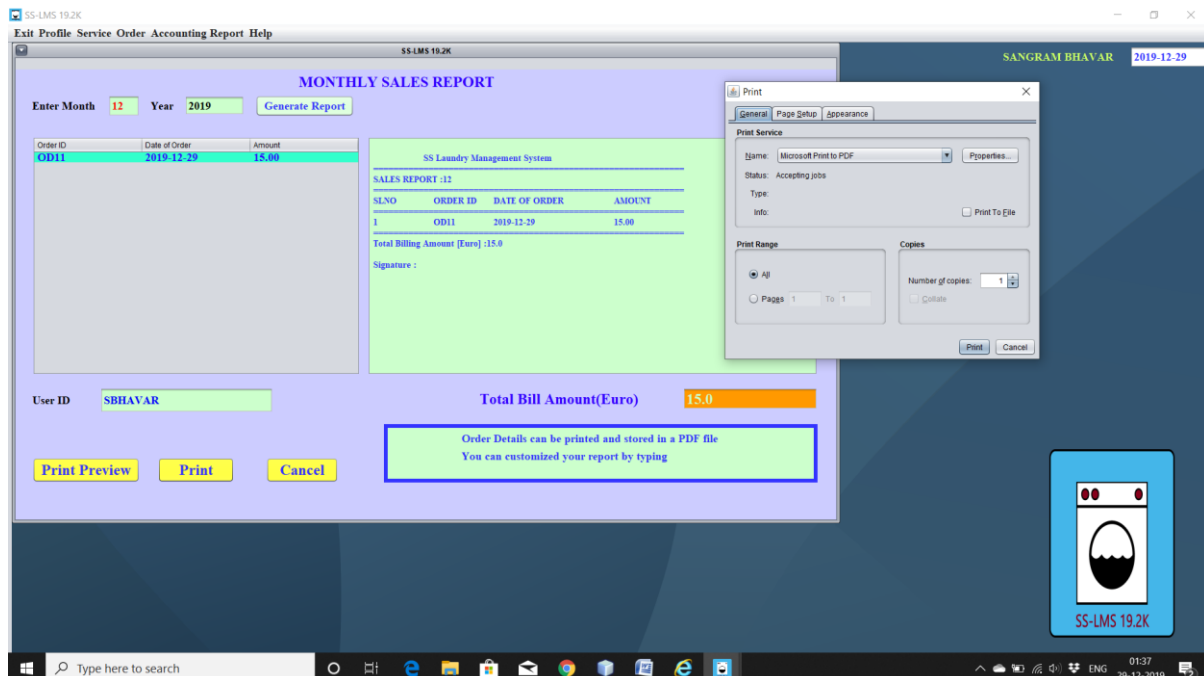
## Monthly report



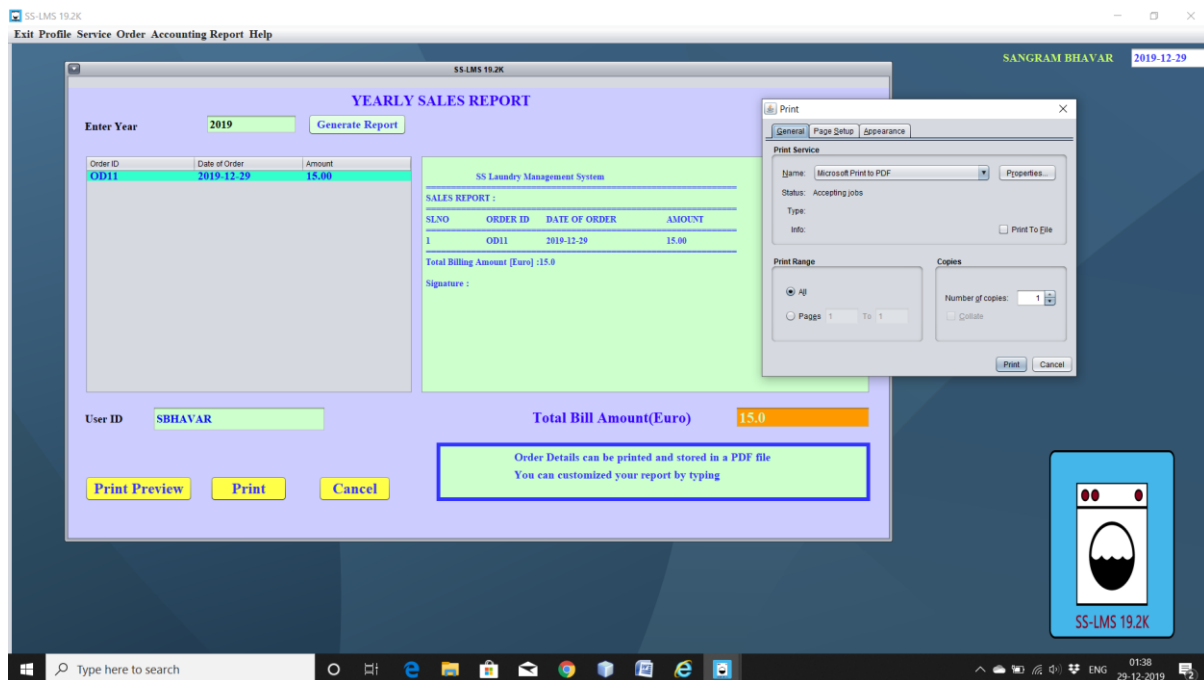Figure 38: Accounting: Monthly report

# Yearly report
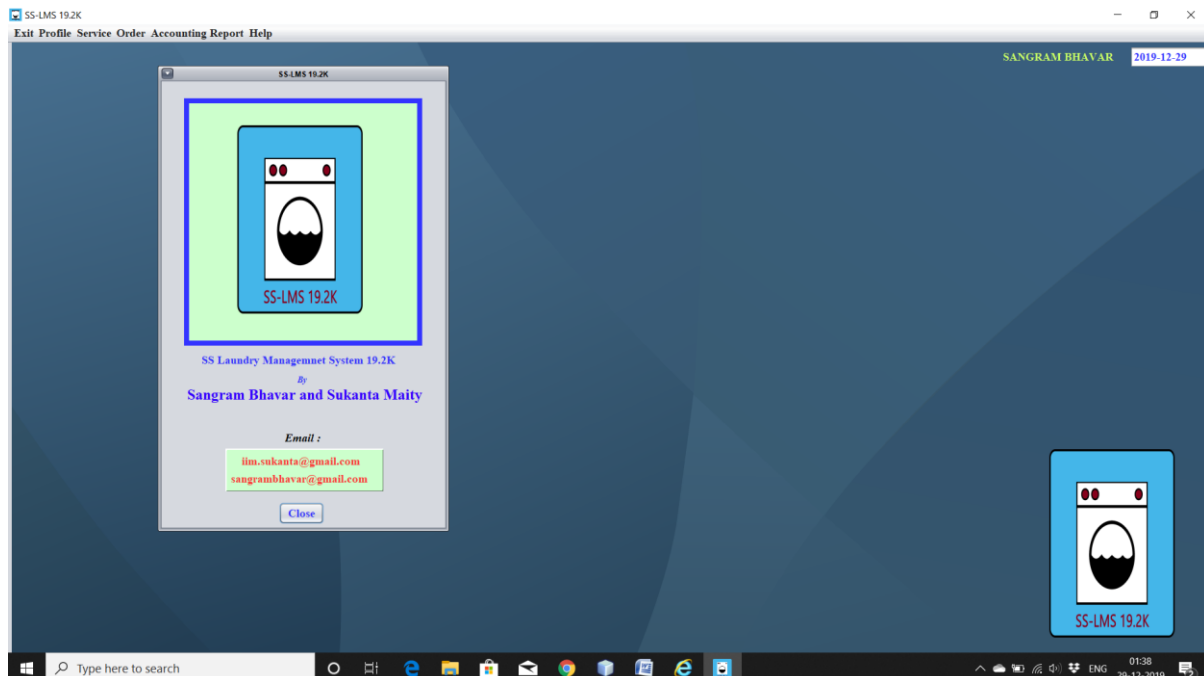


Figure 39: Accounting: Yearly report

# Help menu
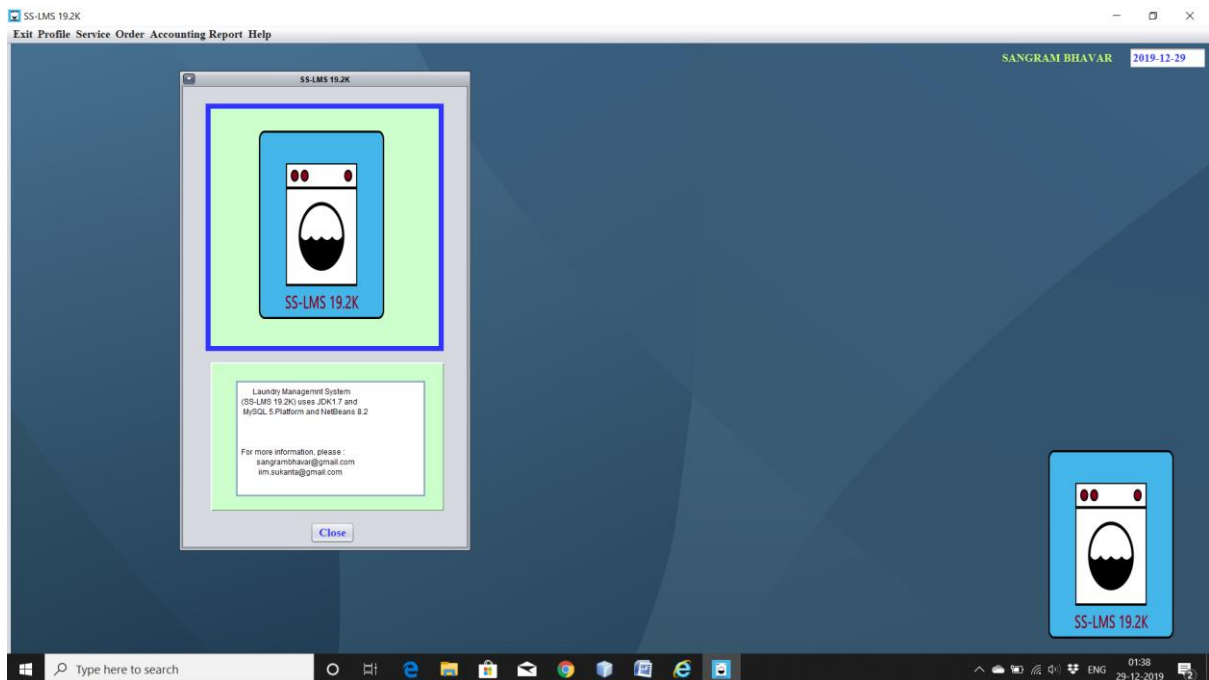


Figure 40: Contact us

## About Product



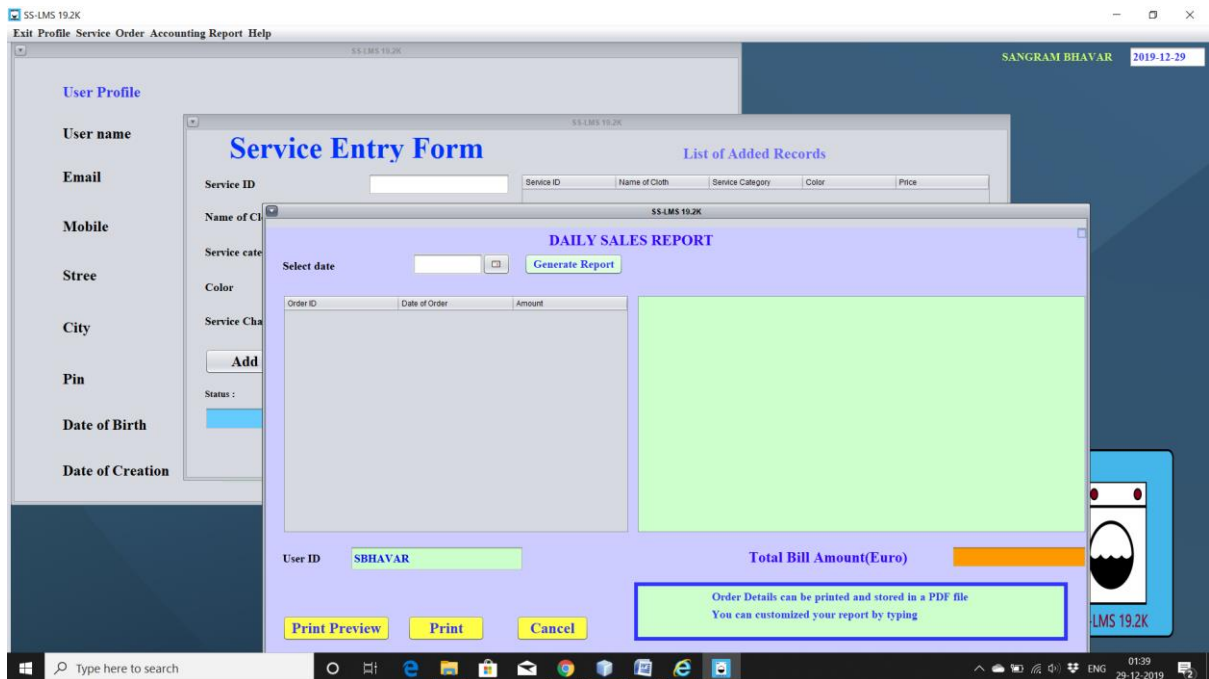Figure 41: About the product

## Multiple Screen at a time



Figure 42: We can open multiple screens at once.

## 14 Test phase

The test cases are designed based on UI Screens.

**Test Case – User Profile Creation**

Test Plan ID: 0001
Test Priority: (Low/Med/High): Med
Module Name: NewUserProfileCreationJFrame1
Test Title: New User Profile Creation
Description:  Create New user profile to access main program

Pre-conditions: User is a valid user.
Dependencies: none

|     | Test Steps | Test Data | Expected Result | Actual Result | Status (Pass/Fail) |
|-----|------------|-----------|-----------------|---------------|--------------------|
| 1.  | Launch user Profile Creation |  |  |  |  |
| 2.  | Provide Username | SBHAVAR |  |  |  |
| 3.  | Provide Password | SBHAVAR |  |  |  |
| 4.  | Retype Password | SBHAVAR |  |  |  |
| 5.  | Provide Email | sangrambhavar @gmail.com |  |  |  |
| 6.  | Provide Contact Number | 9960805137 |  |  |  |
| 7.  | Provide Date of birth | 10-10-1994 |  |  |  |
| 8.  | Street Name with Number | VORSTADT 1 |  |  |  |
| 9.  | Provide City | Hof |  |  |  |
| 10. | Provide Pin No | 98025 |  |  |  |
| 11. | Add Profile Photo | sangram.png |  |  |  |
| 12. | Click on "Create Profile" |  | Get accessing the LMS. Now in your user you can do your operations |  |  |

**Test Case – Add New Services**

Test Plan ID: 0002
Test Priority: (Low/Med/High): Med
Module Name: AddNewServiceNewCreationJFrame1
Test Title: New Service Entry Form
Description:  New services are added for usage

Pre-conditions: User is a valid user.
Dependencies: none

| | Test Steps | Test Data | Expected Result | Actual Result | Status (Pass/Fail) |
|---|---|---|---|---|---|
| 1 | Launch Service Entry Form | | | | |
| 2 | Provide Service ID | SID11 | | | |
| 3 | Provide Name of Cloth | SHIRT | | | |
| 4 | Provide Service Category | Dry | | | |
| 5 | Provide Colour | White | | | |
| 6 | Provide Service Charge | 2.0 | | | |
| 7 | Click on "Add" Button | | List of Services will be added in the table on the right-hand side with Proper headings | List of Services will be added in the table on the right-hand side with Proper headings | |

## Test Case – Buy Services

Test Plan ID: 0003
Test Priority: (Low/Med/High): Med
Module Name: NewOrderNewCreationJFrame1
Test Title: Buy Service Entry Form
Description:  Buy the services form the existing Service Items

Pre-conditions: User is a valid user and Services are stored
Dependencies:  Services Availability

| | Test Steps | Test Data | Expected Result | Actual Result | Status (Pass/Fail) |
|---|---|---|---|---|---|
| 1 | Launch Order Creation Form | | | | |
| 2 | Provide Service ID one More | SID11 | Added to the Item list for buying | | |
| 3 | Provide Order ID | OD11 | | | |
| 4 | User ID | SBHAVAR | Automatically Generated | | |
| 5 | date of Order | 2019-12-29 | Automatically generated current date | | |
| 6 | Order of Time | 1:32 | Automatically generated current system time | | |
| 7 | Provide Date of Delivery | 2019-12-30 | Select from Calendar | | |
| 8 | Select the Status | Not Delivered | Radio Button will be selected | | |
| 9 | Click on "Buy" Button | | Display A message box and display no of Items and Amount to be paid | In the database "service_order" table will be updated | Pass |

**Test Case – Buy Services**

Test Plan ID: 0004
Test Priority: (Low/Med/High): Med
Module Name: ViewOrderCreationJFrame1
Test Title: View Order Details
Description:  View, Print Preview and Print Order Details

Pre-conditions: User is a valid user and Previous Order is required
Dependencies:  Existing Order

| | Test Steps | Test Data | Expected Result | Actual Result | Status (Pass/Fail) |
|---|---|---|---|---|---|
| 1 | Launch Order Details Form | | | | |
| 2 | Select Order ID | OD11 | Auto loaded in the form if it exists | Display all Items in this Order | Pass |
| 3 | Date of Order | 2019-12-29 | Auto loaded in the form if it exists | Display date of order | |
| 4 | Status | Delivered | Automatically Generated | | |
| 5 | date of Order | 2019-12-29 | Automatically generated current date | | |
| 6 | Order of Time | 1:32 | Automatically generated current system time | | |
| 7 | Provide Date of Delivery | 2019-12-30 | Select from Calendar | | |
| 8 | User ID | SBHAVAR | Automatically generated current system time | Displayed | |
| 9 | Select the Status | Delivered | Automatically generated current system time | | |
| 10 | Total Bill amount | 15.0 | Automatically generated current system time | | |
| 11 | Click on "Print Preview "Button | Generate the Report | | Report will be displayed in text area | |
| 12 | Click on "Print" Button | Printer Dialog Box will be appeared | You can print or Create new file to be stored | Show printing status | Pass |

## 15  Source Code

Please find the source code embedded in this file below.

coding.doc