

Hotel Management System

Software Architecture

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System Overview Diagram

For this Assignment, we selected a scenario connected to a hotel system and created publishers that can be related to it.

The Hotel Management System is consisted with 8 producer components and 1 consumer component. The producer Components are,

1. Room Service
2. Food & Beverage Service
3. Banquet Hall Service
4. Vehicle Service.
5. Employee Management Service
6. Supplier Management Service
7. Stock Management Service
8. Fire Detector Service

The consumer component is the Hotel Management System.

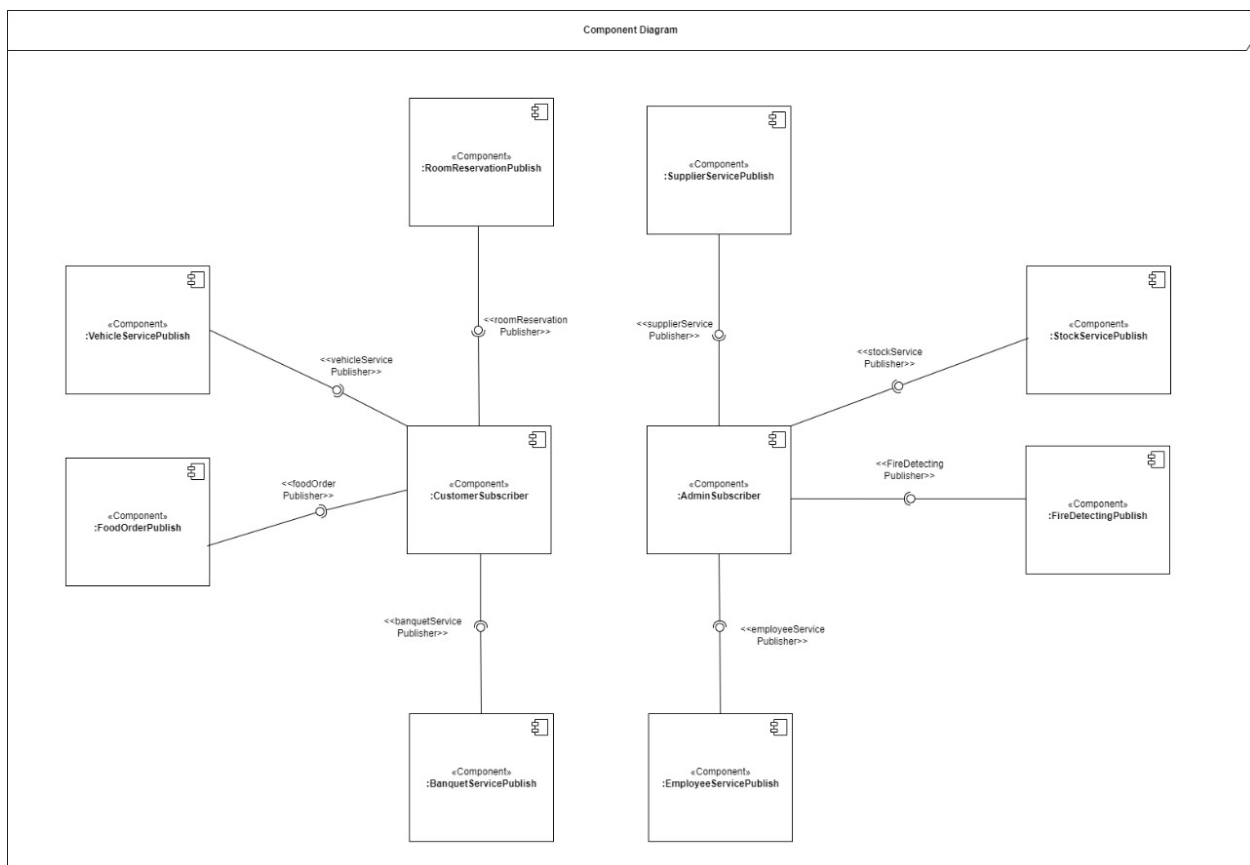


Figure 1: Component diagram

Hotel Management System

```
Start Hotel Management System

#####
::: Welcome to Hotel Management System :::
#####
#
#                               MAIN MENU                               #
# ----- #
# 1 -> Food and Beveragers      #
# 2 -> Room Service            #
# 3 -> Banquet Service         #
# 4 -> vehicle Service         #
# ----- #
# 5 -> Employee Service        #
# 6 -> Supplier Service        #
# 7 -> Stock Service           #
# 8 -> Fire Dictetor Service   #
# 0 -> EXIT                    #
# ----- #

Enter Menu No:
```

Figure 2

Manifest Implementation

```
MainApp x
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: MainApp
4 Bundle-SymbolicName: MainApp
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: mainapp.MainAppActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: MainApp
9 Import-Package: banquetsevice,
10 employeeservice,
11 firealarm,
12 food_order,
13 org.osgi.framework;version="1.3.0",
14 roomreservation,
15 stockservice,
16 supplierservice,
17 vehicleservice
18 Bundle-ActivationPolicy: lazy
19
```

Figure 3

Room Reservation Service Scenario (Flow Chart)

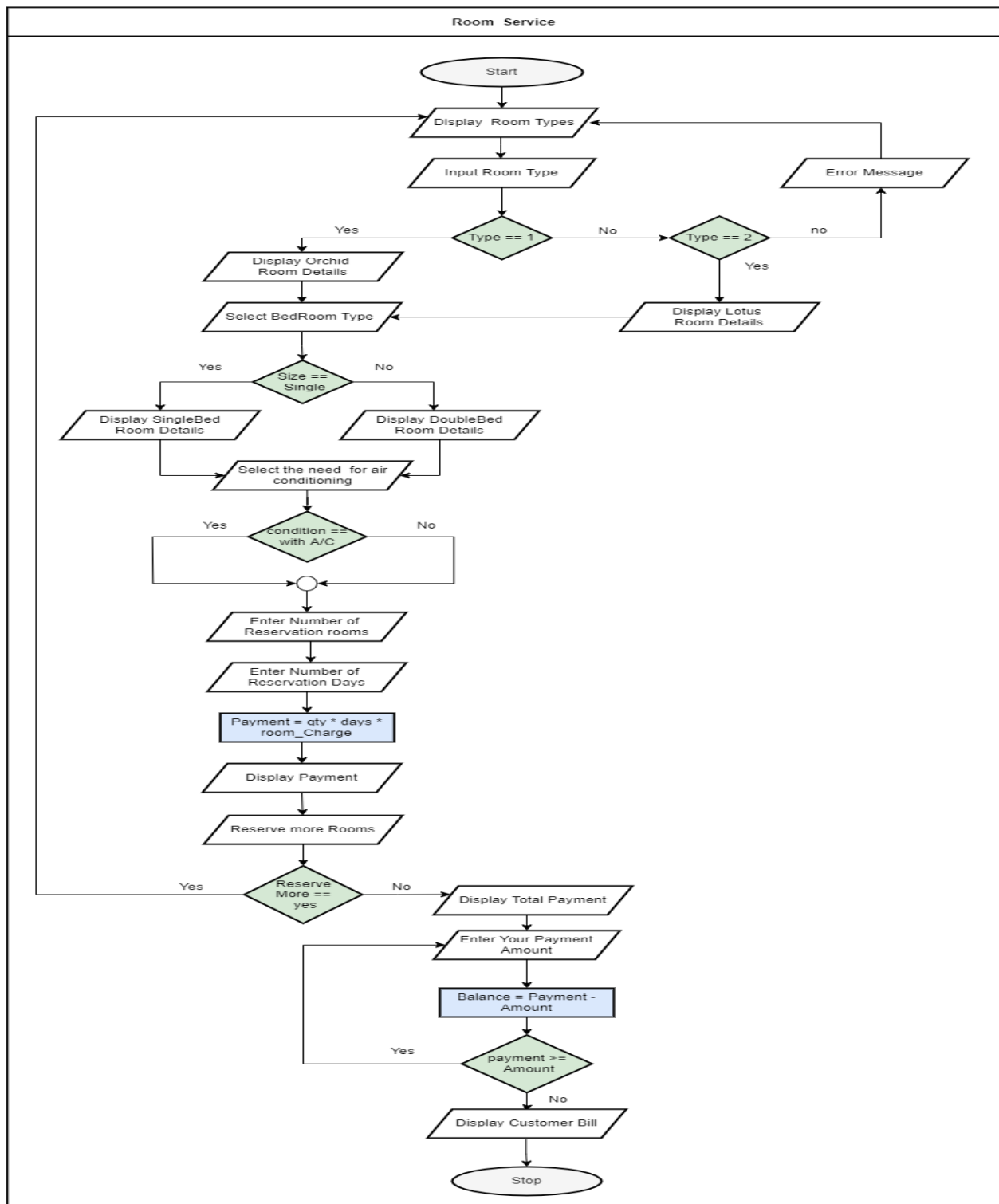
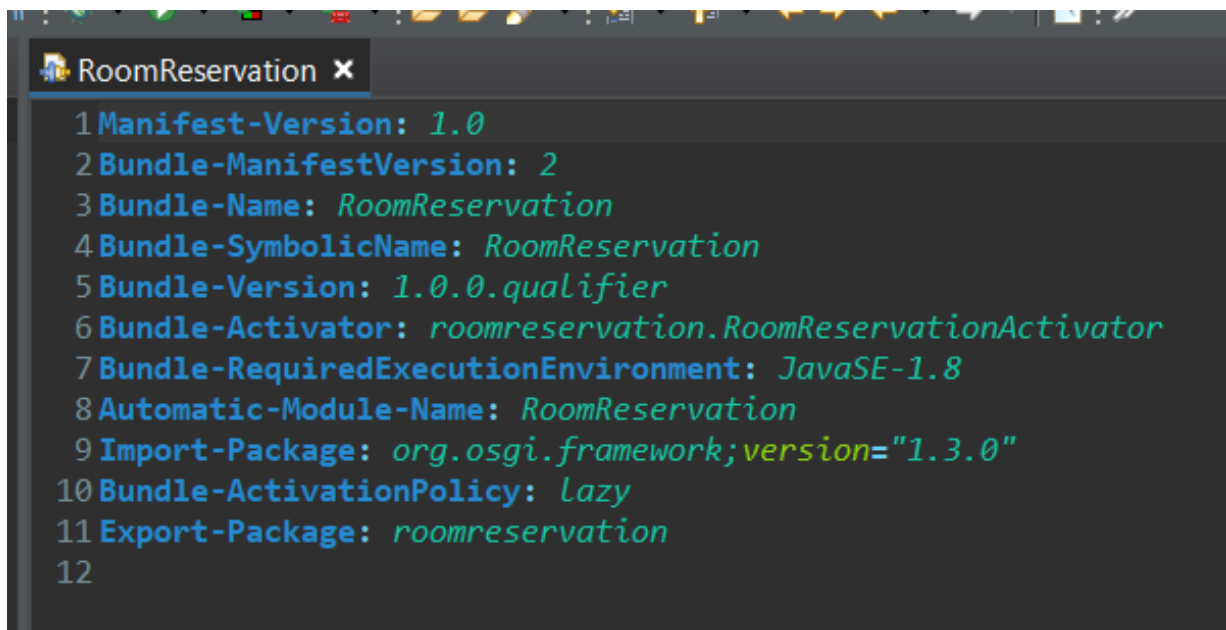


Figure 4

This Hotel management system is consisting of a Room Reservation Service which gives the users the opportunity to reserve a room. First, the user will be asked the select room type. After select the room type system asks to enter room size and air condition type what customer need and the number of rooms and number of days that customer need to reserve the room. After insert all the details system display “Do you need to Reserve more rooms” message and if user insert “yes” System again display the room types and user can continue the room reservation process. If the user input “No” system display total amount of the room reservation charge.

After the user enter their payment, if the customer has entered enough payment to proceed with the order the system will calculate, display the change and the user can receive their room and their change. If the payment user entered isn’t sufficient to proceed with the order the system will display an error message saying that there isn’t sufficient payment. End of the room service process, thankyou message will be displayed.

Manifest Implementation

A screenshot of an IDE window titled 'RoomReservation'. The window displays the bundle's manifest information in a list format. The text is as follows:

```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: RoomReservation
4 Bundle-SymbolicName: RoomReservation
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: roomreservation.RoomReservationActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: RoomReservation
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: roomreservation
12
```

Figure 5

Sample Outputs

```
Enter Menu No: 2
|
---- Room Service ----

Room Reservation is started

-----
----- ROOM DETAILS -----
-----

ROOM TYPE 1 ( ORCHID )

Single Bed Room          8000.00 LKR
Single Bed Room With A/C 10000.00 LKR
Double Bed Room          12000.00 LKR
Double Bed Room With A/C 14000.00 LKR

-----

ROOM TYPE 2 ( LOTUS )

Single Bed Room          9000.00 LKR
Single Bed Room With A/C 11000.00 LKR
Double Bed Room          13000.00 LKR
Double Bed Room With A/C 15000.00 LKR

-----

Select Room Type (1. Orchid / 2. Lotus ) :
```

Figure 6

```
Select Room Type (1. Orchid / 2. Lotus ) : 1
Your Room Type is ORCHID Do you need (1. Single Bed Room / 2. Double Bed Room ) : 2
Select Room Condition (1. Without A/C / 2. With A/C ) : 2
How many rooms do you need to book : 1
How many days do you need to reserve the room : 3
You have booked 1 Orchid With A/C Double Bed Room for 3 days.
Your payment is 42000.00 LKR

Do you want to reserve more Rooms (Yes/No)?yes
Select Room Type (1. Orchid / 2. Lotus ) : 2
Your Room Type is LOTUS Do you need (1. Single Bed Room / 2. Double Bed Room ) : 1
Select Room Condition (1. Without A/C / 2. With A/C ) : 1
How many rooms do you need to book : 3
How many days do you need to reserve the room : 3
You have booked 3 Lotus WithOut A/C Single Bed Room for 3 days.
Your payment is 81000.00 LKR

Do you want to reserve more Rooms (Yes/No)?no
|
Your Total Bill is : 123000.00 LKR
```

Figure 7

```

Your Total Bill is : 123000.00 LKR
How much would you pay ? : 123000
-----
----- CUSTOMER BILL -----
-----

Your Total Bill is : 123000.00 LKR
Your Payment is : 123000.00 LKR
Your Balance is : 0.00 LKR

-----
Thank you ! Have a nice day !!
----- End of the Room Service -----
-----

```

Figure 8

```

----- ROOM DETAILS -----
-----

ROOM TYPE 1 ( ORCHID )

Single Bed Room      8000.00 LKR
Single Bed Room With A/C 10000.00 LKR
Double Bed Room      12000.00 LKR
Double Bed Room With A/C 14000.00 LKR

-----

ROOM TYPE 2 ( LOTUS )

Single Bed Room      9000.00 LKR
Single Bed Room With A/C 11000.00 LKR
Double Bed Room      13000.00 LKR
Double Bed Room With A/C 15000.00 LKR

-----

Select Room Type (1. Orchid / 2. Lotus ) : 2
Your Room Type is LOTUS Do you need (1. Single Bed Room / 2. Double Bed Room ) : 3
INVALID ROOM NUMBER

```

Figure 9

Food Order Service Scenario (Flow Chart)

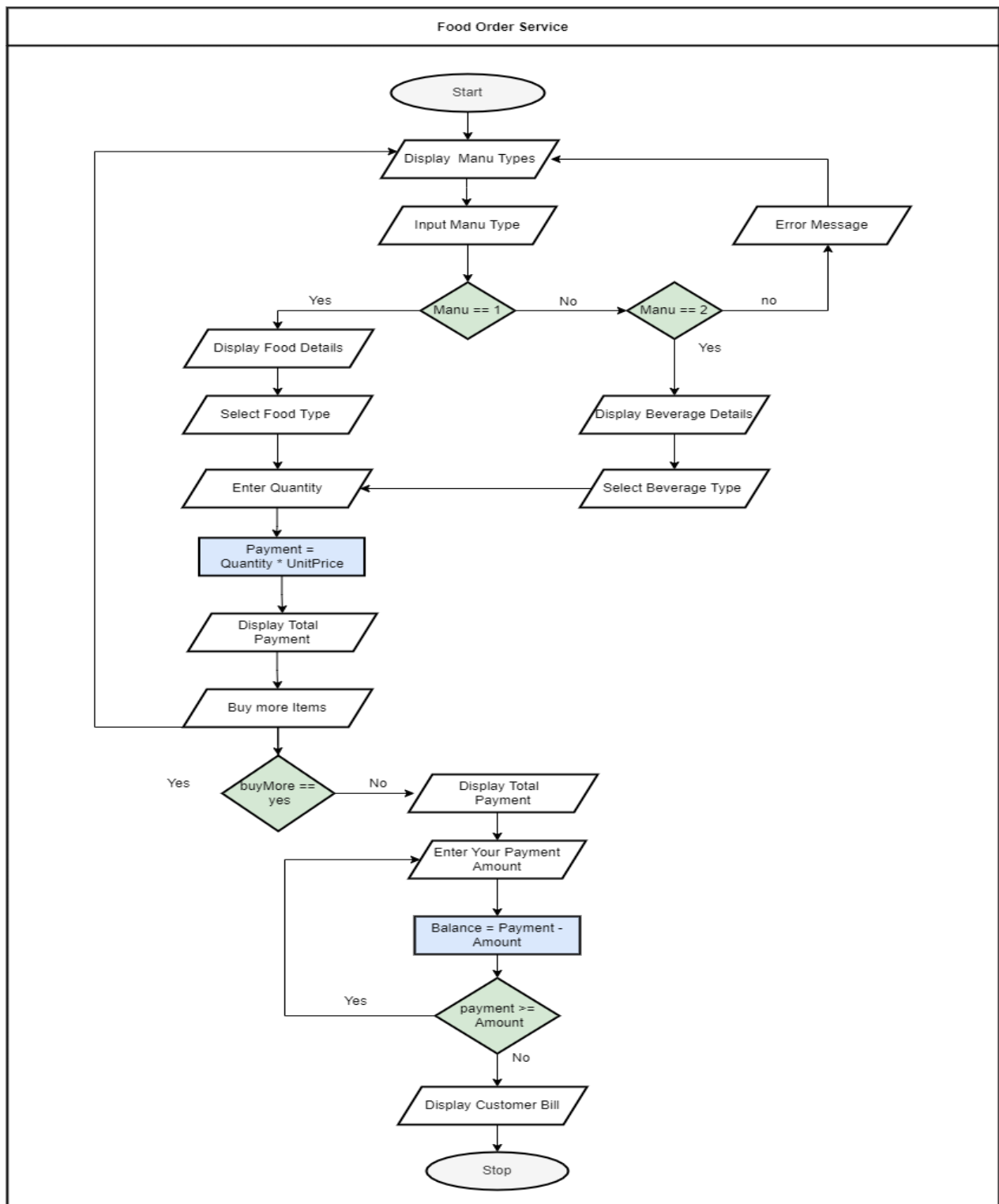
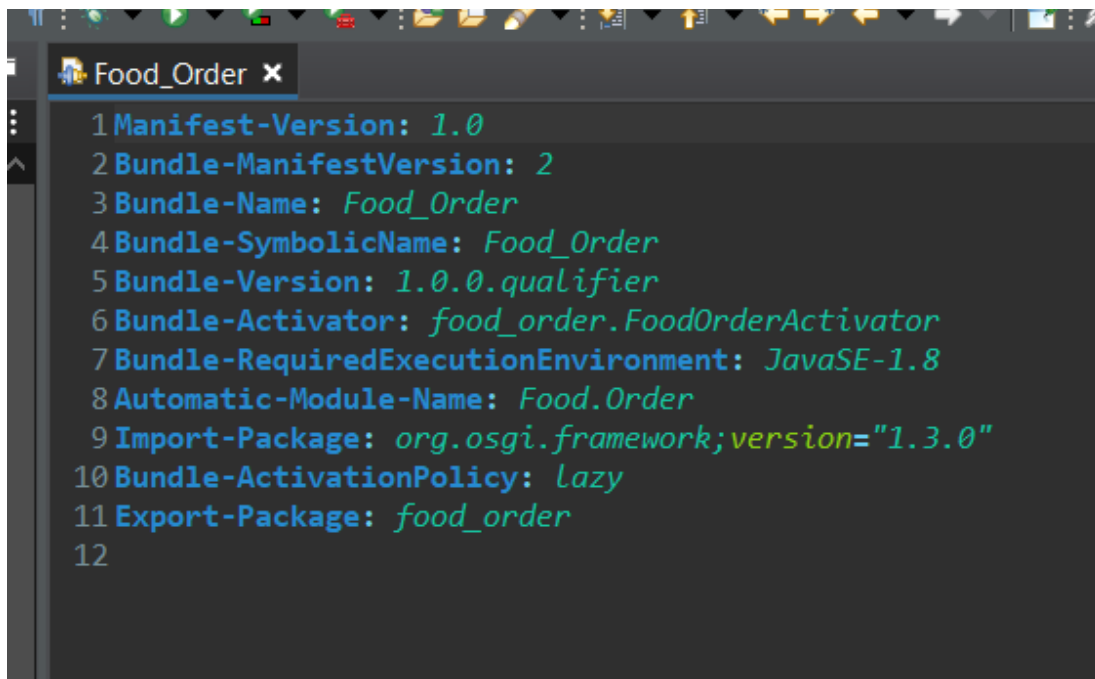


Figure 10

This Hotel management system is consisting of a Food Ordering Service which gives the users the opportunity to order food and beverages. First, the user will be asked to select the Food and Beverage from the menu. then user can select food or beverage. If the user selects foods system will display all the food items available in the system and if user selects beverages, system will display all the beverages. After select the food type system asks to enter Quantity of the item that you need to order. After insert all the details system display “Do you need to order more food items” message and if user insert “yes” System again display the menu type and user can continue the order food service. If the user input “No” system display total amount of food service charges.

After the user enter their payment, if the customer has entered enough payment to proceed with the order the system will calculate, display the change and the user can receive their food order and their change. If the payment that user entered isn’t sufficient to proceed with the order the system will display an error message saying that there isn’t sufficient payment. End of the service process, thankyou message will be displayed.

Manifest Implementation

A screenshot of an IDE window titled 'Food_Order x'. The window displays the contents of a Manifest file. The text is as follows:

```
1Manifest-Version: 1.0
2Bundle-ManifestVersion: 2
3Bundle-Name: Food_Order
4Bundle-SymbolicName: Food_Order
5Bundle-Version: 1.0.0.qualifier
6Bundle-Activator: food_order.FoodOrderActivator
7Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8Automatic-Module-Name: Food.Order
9Import-Package: org.osgi.framework;version="1.3.0"
10Bundle-ActivationPolicy: lazy
11Export-Package: food_order
12
```

Figure 11

Sample Outputs

```
Console x
New_configuration (44) [OSGi Framework] D:\eclipse\plugins\org.eclipse.justj.openjdk.h

Enter Menu No: 1

---- Food Order Service ----

----- FOOD ORDER DETAILS -----

1 => Food
2 => Beveragers

-----

Select Manu Number (1. Food / 2. Beveragers) : 1

----- ALL FOOD DETAILS -----

1 => Briyani Rice          LKR 450.00
2 => Fried Rice           LKR 400.00
3 => Rice & Curry (Veg)   LKR 250.00
4 => Rice & Curry (Egg)   LKR 270.00
5 => Rice & Curry (Chicken) LKR 300.00
6 => StringHoppers        LKR 5.00
7 => FrenchFries          LKR 100.00
8 => Cookies              LKR 100.00
9 => Cake                 LKR 50.00
10 => Pastries            LKR 50.00

-----

Select Food Item Number:
```

Figure 12

```
Console x
New_configuration (44) [OSGi Framework] D:\eclipse\plugins\org.eclipse.justj.openjdk.ho

Select Food Item Number: 2
Fried Rice 1 Price : LKR 400.00
Quantity : 2
Total Payment : LKR 800.00
Do you want more Food Items (Yes/No)?yes
Select Manu Number (1. Food / 2. Beveragers) : 2

-----
----- ALL BEVERAGERS DETAILS -----
-----

1 => Tea           LKR 40.00
2 => Coffee        LKR 50.00
3 => Mango Juice   LKR 120.00
4 => Chocolate Shake LKR 150.00
5 => Vanila Shake  LKR 150.00

-----
-----

Select Beverage Item Number: 4
Chocolate Shake 1 Price : LKR 150.00
Quantity : 2
Total Payment : LKR 300.00
Do you want more Food Items (Yes/No)?no
Your Total Bill is : 1100.00 LKR
```

Figure 13

```
How much would you pay ? : 1500
|-----
|----- CUSTOMER BILL -----
|-----

Your Total Bill is : 1100.00 LKR
Your Payment is : 1500.00 LKR
Your Balance is : 400.00 LKR

-----
Thank you ! Have a nice day !!
-----
End of the Food Service -----
-----
```

Figure 14

```
-----  
----- FOOD ORDER DETAILS -----  
-----  
1 => Food  
2 => Beveragers  
  
-----  
-----  
Select Manu Number (1. Food / 2. Beveragers) : 2  
  
-----  
----- ALL BEVERAGERS DETAILS -----  
-----  
1 => Tea           LKR 40.00  
2 => Coffee        LKR 50.00  
3 => Mango Juice   LKR 120.00  
4 => Chocolate Shake LKR 150.00  
5 => Vanila Shake  LKR 150.00  
  
-----  
-----  
Select Beverage Item Number: 8  
INVALID BEVERAGE ITEM NUMBER
```

Figure 15

Banquet Hall Service Scenario (Flow Chart)

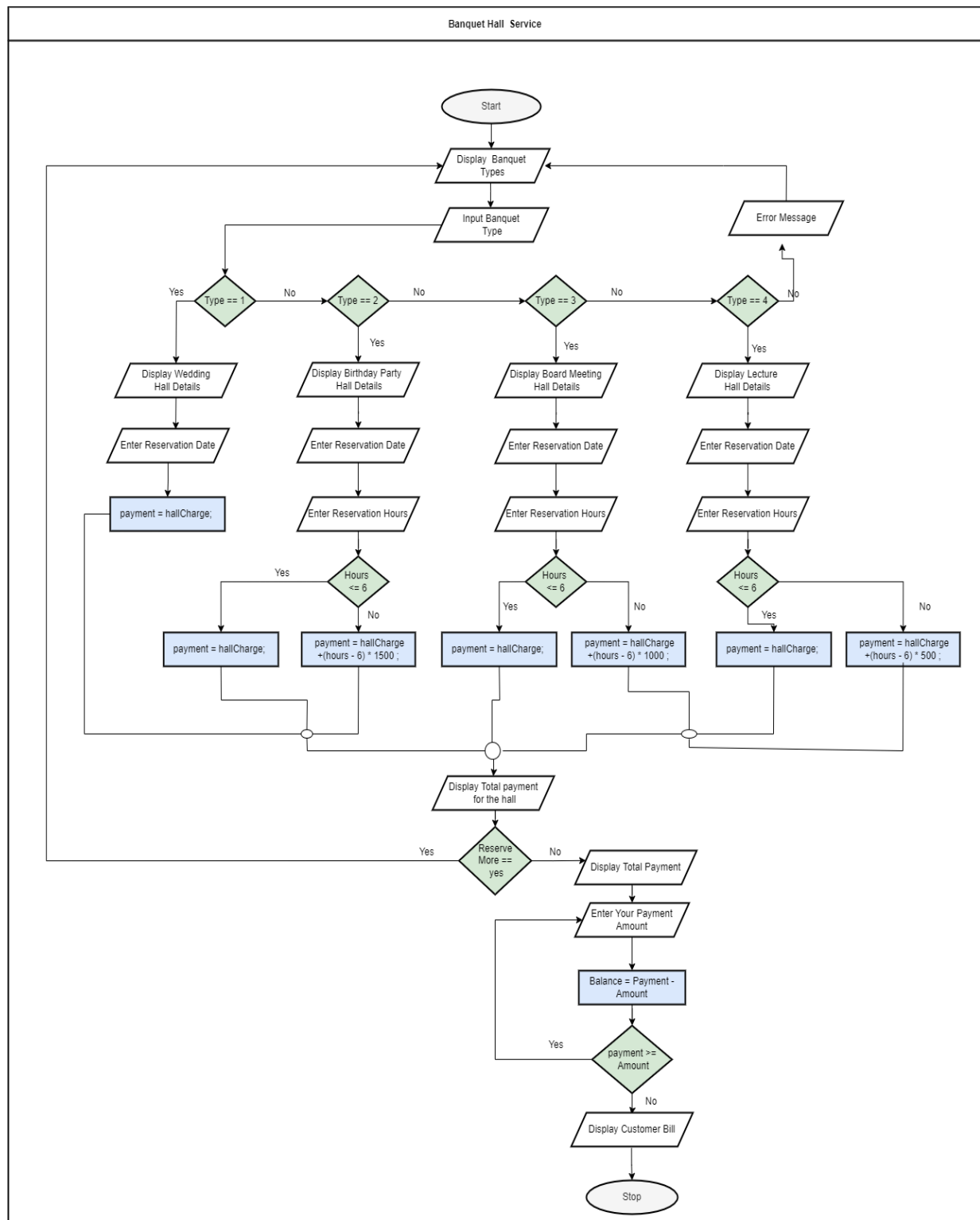
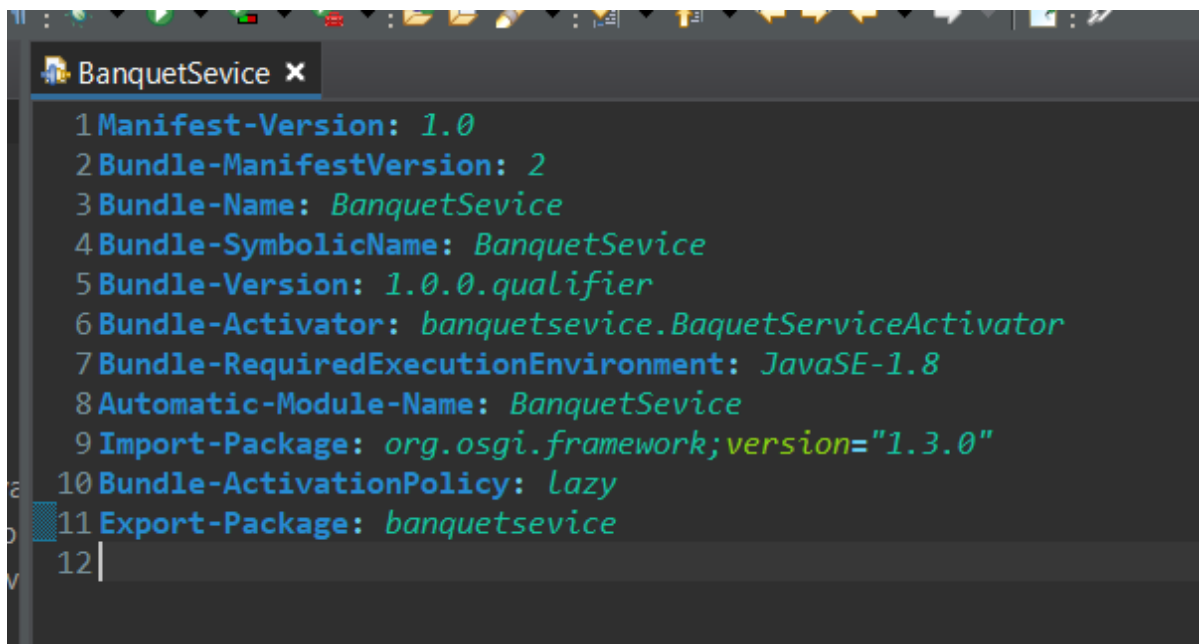


Figure 16

This Hotel management system is consisting of a Banquet reservation Service which gives the users the opportunity to reserve a hall. After select the Banquet Hall Service from the menu, system asks to enter which type of hall that user need to reserve among the birthday party hall, wedding hall, lecturer hall or meeting room. Then user can select the hall type. After select the hall type system asks to enter reservation date. After insert all the details system display “Do you need to order more halls” message and if user insert “yes” System again display the menu type and user can continue the banquet hall reservation service. If the user input “No” system display total amount of the service charges.

After the user enter their payment, if the customer has entered enough payment to proceed with the reservation the system will calculate, display the change and the user can receive their bill and their change. If the payment that user entered isn’t sufficient to proceed with the reservation the system will display an error message saying that there isn’t sufficient payment. End of the service process, thankyou message will be displayed.

Manifest Implementation



```
BanquetService x
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: BanquetService
4 Bundle-SymbolicName: BanquetService
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: banquetsevice.BaquetServiceActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: BanquetService
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: banquetsevice
12
```

Figure 17

Sample Outputs

```
Console x
New_configuration (45) [OSGi Framework] D:\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full\jre\bin\java.exe
Enter Menu No: 3

----- Banquet -----

----- HALL DETAILS -----
1 => Wedding Hall          LKR 80000.00
2 => Birthday Party Hall   LKR 25000.00
3 => Board Meeting Room    LKR 20000.00
4 => Lecture Room          LKR 15000.00
```

Figure 18

```
Console x
New_configuration (45) [OSGi Framework] D:\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full\jre\bin\java.exe
Select Hall Number: 2

----- Birthday Party Hall -----

Enter resevation date (dd-mm-yyyy)12-04-2022
Enter reservation hours :
8

You have reserved Birthday Party hall for 8 for 12-04-2022
Your reservetion caharge is LKR 28000.00

-----

Do you want to reserve more halls (Yes/No)?yes
Select Hall Number: 4

----- Lecture Room -----

Enter resevation date (dd-mm-yyyy)3-04-2022
Enter reservation hours :
5

You have reserved Lecture Room for 5 for 3-04-2022
Your reservetion caharge is LKR 20500.00

-----

Do you want to reserve more halls (Yes/No)?no

Your Total Bill is : 48500.00 LKR
```

Figure 19


```
Your Total Bill is : 48500.00 LKR
How much would you pay ? : 50000
```

```
|
-----
----- CUSTOMER BILL -----
-----
```

```
Your Total Bill is : 48500.00 LKR
Your Payment is : 50000.00 LKR
Your Balance is : 1500.00 LKR
```

```
Thank you ! Have a nice day !!
```

```
----- End of the Banquet Service -----
-----
```

Figure 20

```
Enter Menu No: 3
```

```
----- Banquet -----
```

```
----- HALL DETAILS -----
```

```
1 => Wedding Hall      LKR 80000.00
2 => Birthday Party Hall LKR 25000.00
3 => Board Meeting Room LKR 20000.00
4 => Lecture Room       LKR 15000.00
```

```
Select Hall Number: 5
```

```
|
Invalid inputs
```

Figure 21

Vehicle Service

Scenario (Flow Chart)

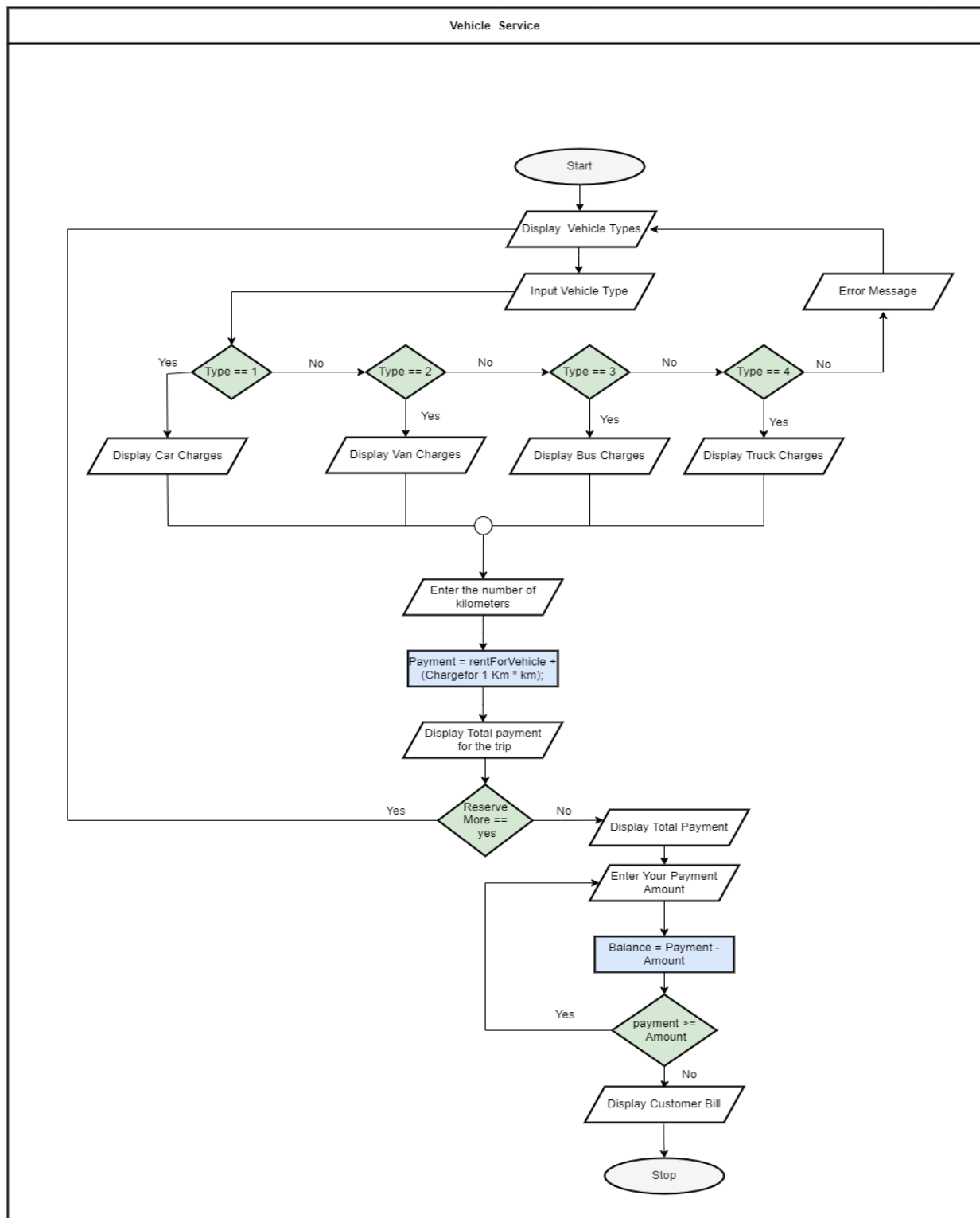
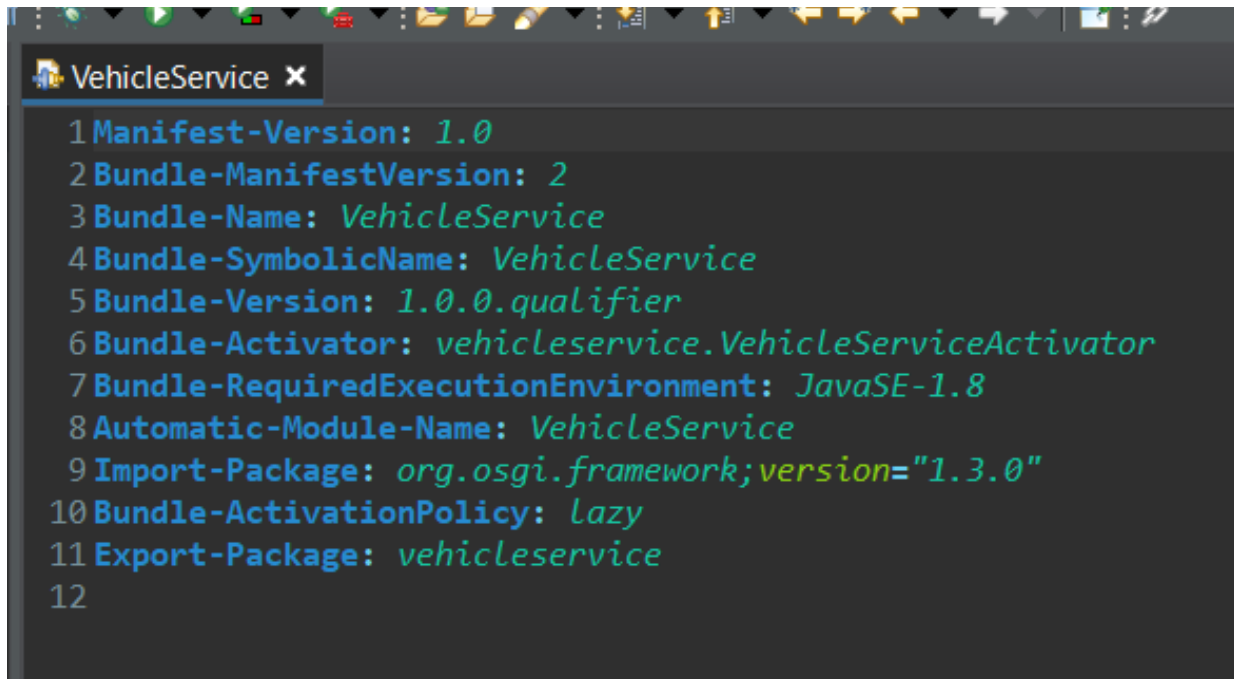


Figure 22

This Hotel management system is consisting of a vehicle Service which gives the users the opportunity to book a vehicle. After select the vehicle Service from the menu, system asks to enter which type of vehicle that user need to book among the car, van, bus, and truck. Then user can select the vehicle type. After select the vehicle type system displays the charges of vehicle. Then asks to input the “What is the distance in kilometers”. Then system will calculate the total payment of user’s trip. After insert all the details system display “Do you need to book more vehicles” message and if user insert “yes” System again display the vehicle types and user can continue the vehicle reservation service. If the user input “No” system display total amount of the service charges.

After the user enter their payment, if the customer has entered enough payment to proceed with the reservation the system will calculate, display the change and the user can receive their bill and their change. If the payment that user entered isn’t sufficient to proceed with the reservation the system will display an error message saying that there isn’t sufficient payment. End of the vehicle service process, thankyou message will be displayed.

Manifest Implementation



```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: VehicleService
4 Bundle-SymbolicName: VehicleService
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: vehiculeservice.VehicleServiceActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: VehicleService
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: vehiculeservice
12
```

Figure 23

Sample Outputs

```
Enter Menu No: 4

----- Vehicle Service -----

Vehicle Service is started

-----
----- VEHICLE SERVICE DETAILS -----
-----

1 => Car
2 => Van
3 => Bus
4 => Truck

-----
-----
```

Figure 24

```
Console x
New_configuration (45) [OSGi Framework] D:\eclipse\plugins\org

Select Vehicle Type : 1
Rent for vehicle for the day : LKR 3000.00
Rent for the 1 Km : LKR 100.00
How many Kilo Meters : 50
Total Payment is LKR 8000.00

Do you want book more vichicles (Yes/No)?yes
Select Vehicle Type : 3
Rent for vehicle for the day : LKR 5000.00
Rent for the 1 Km : LKR 300.00
How many Kilo Meters : 100
Total Payment is LKR 35000.00

Do you want book more vichicles (Yes/No)?no

Your Total Bill is : 43000.00 LKR
```

Figure 25

```
Your Total Bill is : 43000.00 LKR
How much would you pay ? : 45000
-----
----- CUSTOMER BILL -----
-----
Your Total Bill is : 43000.00 LKR
Your Payment is : 45000.00 LKR
Your Balance is : 2000.00 LKR
-----
Thank you ! Have a nice day !!
----- End of the Vehicle Service-----
-----
```

Figure 26

```
----- Vehicle Service -----
Vehicle Service is started
-----
----- VEHICLE SERVICE DETAILS -----
-----
1 => Car
2 => Van
3 => Bus
4 => Truck
-----
-----
Select Vehicle Type : 5
| INVALID MANUE NUMBER
```

Figure 27

Employee Register Service Scenario (Flow Chart)

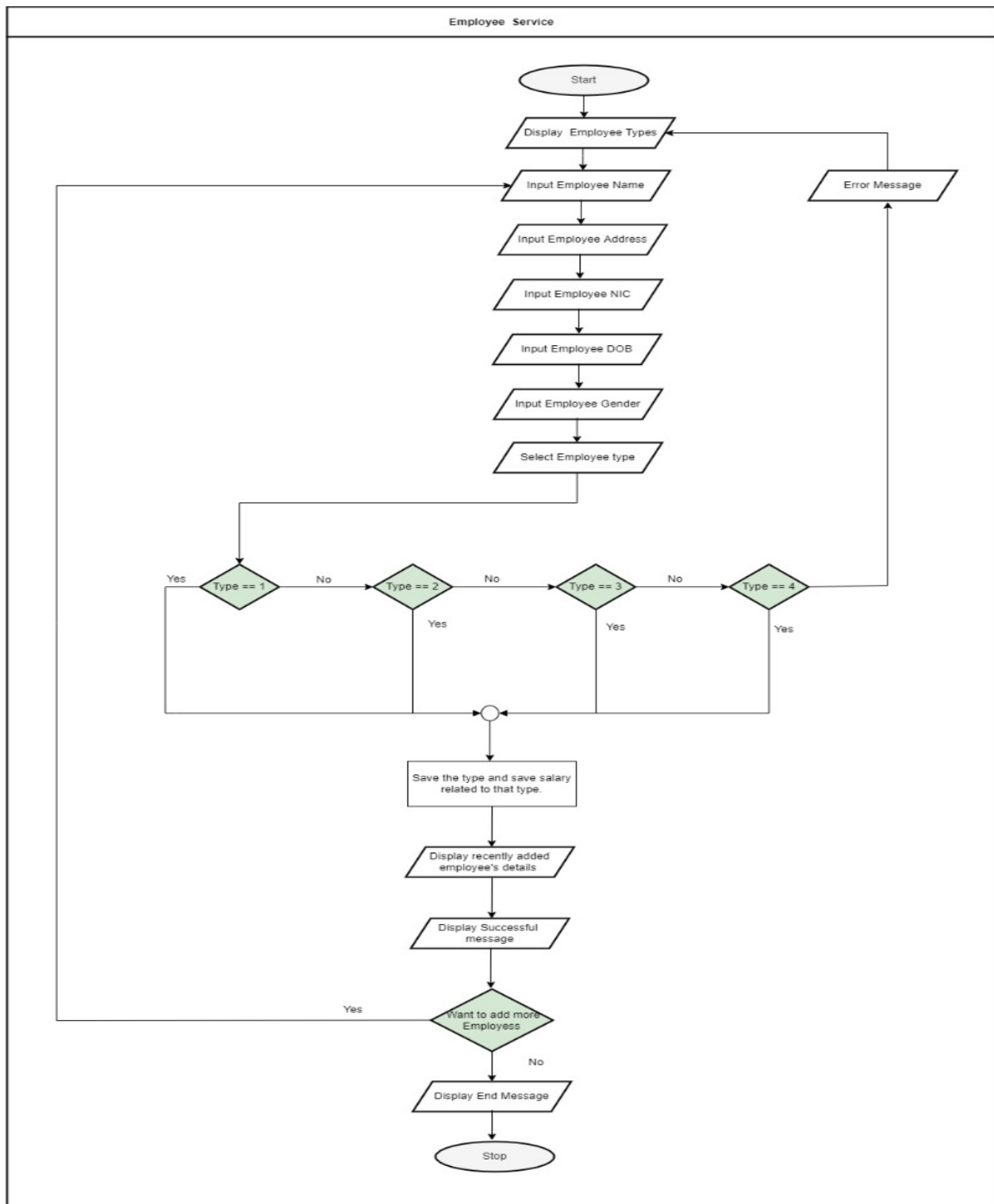
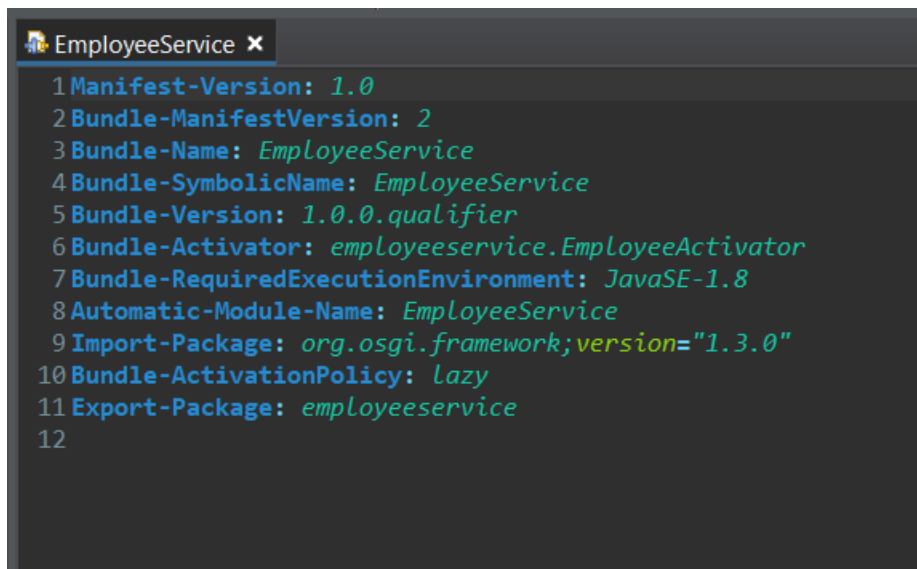


Figure 28

This Hotel management system is consisting of an Employee Registration Service which gives the admin to the opportunity to add employees to the system. First system displays all the employee types in the system. Then admin should input employee name, address, date of birth, NIC number and admin should select the type of the employee. Then system display details of the employee. After insert all the details system display “Do you need toad more employees to the system” message and if user insert “yes” System again display the employees type and user can continue employee management service. If the user input “No” system display end message.

Manifest Implementation



```
EmployeeService x
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: EmployeeService
4 Bundle-SymbolicName: EmployeeService
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: employeeservice.EmployeeActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: EmployeeService
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: employeeservice
12
```

Figure 29

Sample Outputs

```
Enter Menu No: 5

----- Employee Registration Service -----

-----
----- ALL EMPLOYEE TYPES DETAILS -----
-----

1 => Manager
2 => Receptionist
3 => Chef
4 => Cleaning Service
5 => Security
6 => Driver

-----
-----
```

Figure 30

```
Employee Name : Perera
Employee Address : Piliyandala
Employee NIC Number : 907564344V
Employee Birth Date : 22-12-1990
Employee Gender : Male
Select Employee type (1. Manager 2. Receptionist 3. Chef 4. Cleaning Service 5. Security 6. Driver ) : 1

-----
----- RECENTLY ADDED EMPLOYEE DETAILS -----
-----

Employee Name : Perera
Employee Address : Piliyandala
Employee NIC : 907564344V
Employee Date Of Birth : 22-12-1990
Employee Gender : Male
Employee Type : Manager
Employee Basic Salary : 100000.00

----- Employee Successfully Added -----

Do you want add more employees (Yes/No) ?no

----- End of the Employee Registration Service -----
```

Figure 31

Supplier Management Service Scenario (Flow Chart)

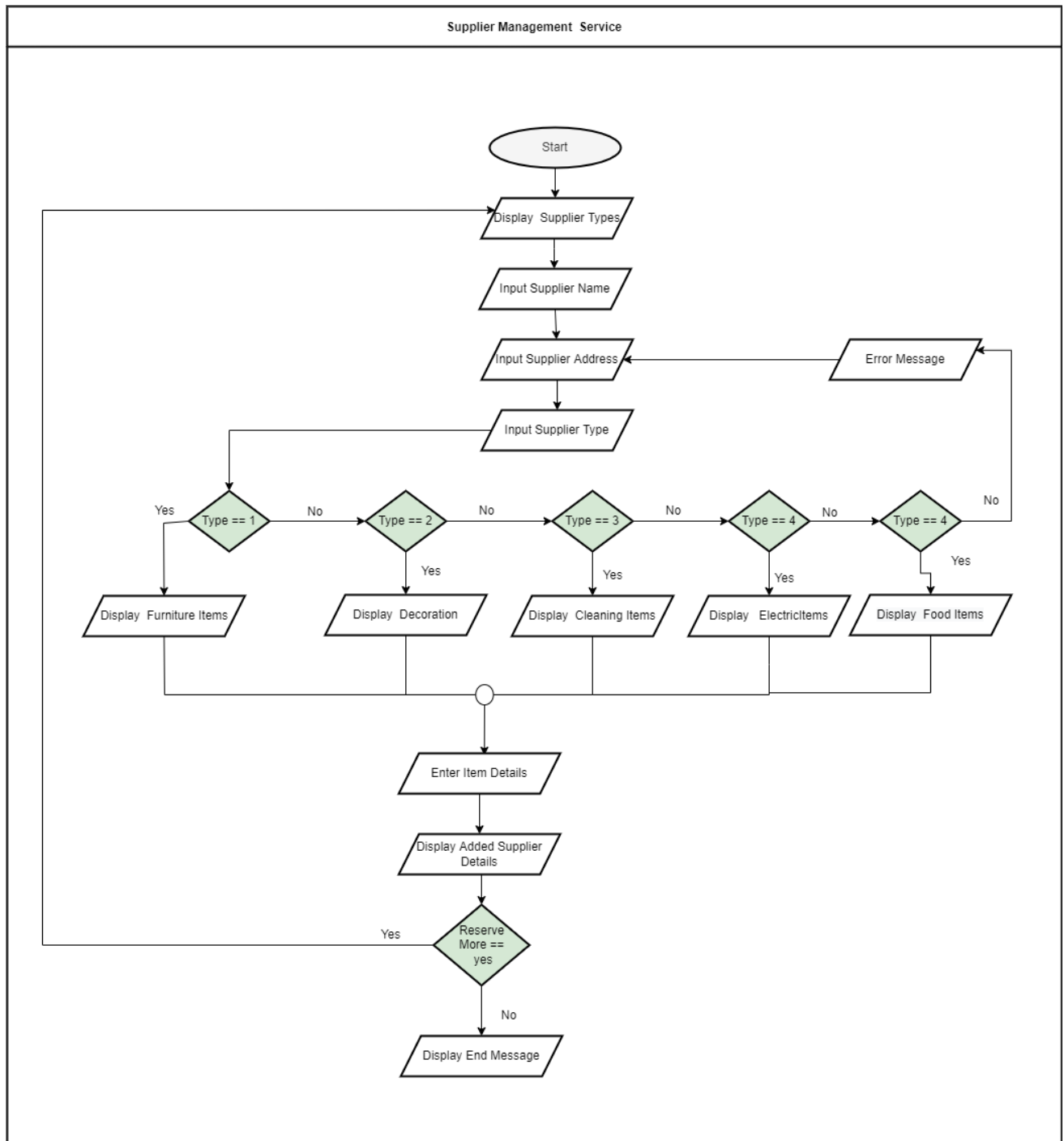
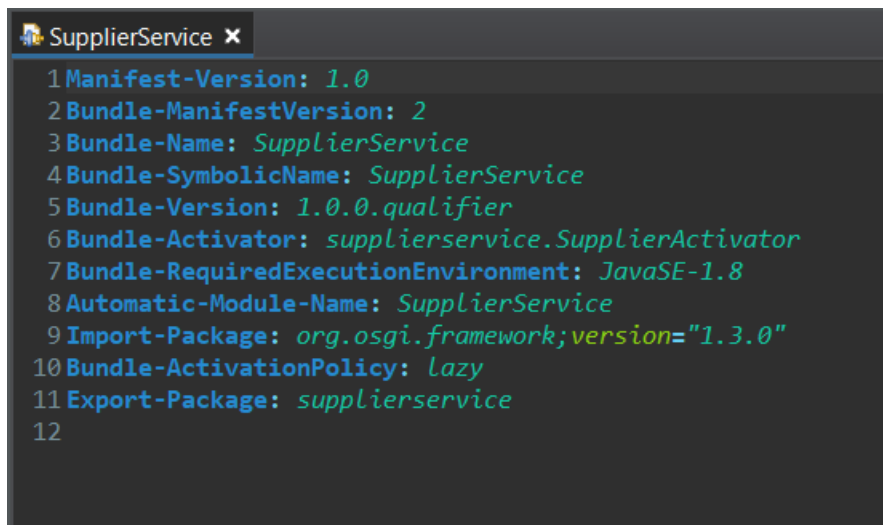


Figure 32

This supplier service is a system which gives admin the opportunity to add supplier and add the supplied items. First, the system gives admin the list of Menu to select Supplier service from the list. After selecting, the system displays all types of suppliers. To get all the user inputs, system first asks the supplier's name which is going to be added as the new supplier. Then asks to enter address and NIC number. Next the system displays the list of supplier types and let the admin to select one as his or her need. According to the selecting, the supplier type is going to be saved and if there is any Invalid type of the error message will be appeared by providing the opportunity to select a valid supplier type. After entering the type, system asks to enter the supplied item and there is a loop to add more items and also if user needs to exit the loop iteration, the "No" word needed to be entered. All the entered items are added to an arrayList after entering all items. Finally, all the user inputs are displayed properly and then asks to add more suppliers. If it is "Yes", the loop will iterate till the user enters the "No".

Manifest Implementation

A screenshot of a code editor window titled "SupplierService x". The editor displays the following manifest text:

```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: SupplierService
4 Bundle-SymbolicName: SupplierService
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: supplierservice.SupplierActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: SupplierService
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: supplierservice
12
```

Figure 33

Sample Outputs

```

Enter Menu No: 6

----- Supplier Registration Service -----

Supplier Registration Service started

-----
----- ALL SUPPLIER TYPES DETAILS -----
-----

1 => Furniture
2 => Decorations
3 => Cleaning Items
4 => Electric Items
5 => Food Items

-----
-----

```

Figure 34

```

Supplier Name : Shan
Supplier Address : Colombo
Supplier NIC Number : 890956344V
Select Supplier type (1. Furniture 2. Decoration 3. Cleaning Items 4. Electric Items 5. Food Items ) : 1
Types of Furniture items :
-- please enter 'No' after enter all the ietms --
Table
chair
Bed
no

-----
----- RECENTLY ADDED SUPPLIER DETAILS -----
-----

Supplier Name : Shan
Supplier Address : Colombo
Supplier NIC : 890956344V
Supplier Type : Furniture
Types of items : [Table, chair, Bed]

----- Supplier Successfully Added -----

```

Figure 35

```
----- Employee Successfully Added -----  
  
Do you want add moe suppliers (Yes/No)?yes  
  
Supplier Name : kamal  
Supplier Address : piliyandala  
Supplier NIC Number : 890989788V  
Select Supplier type (1. Furniture 2. Decoration 3. Cleaning Items 4. Electric Items 5. Food Items ) : 8  
Invalid Supplier Type Number  
Select Supplier type (1. Furniture 2. Decoration 3. Cleaning Items 4. Electric Items 5. Food Items ) :  
<
```

Figure 36

Stock Management Service

Scenario (Flow Chart)

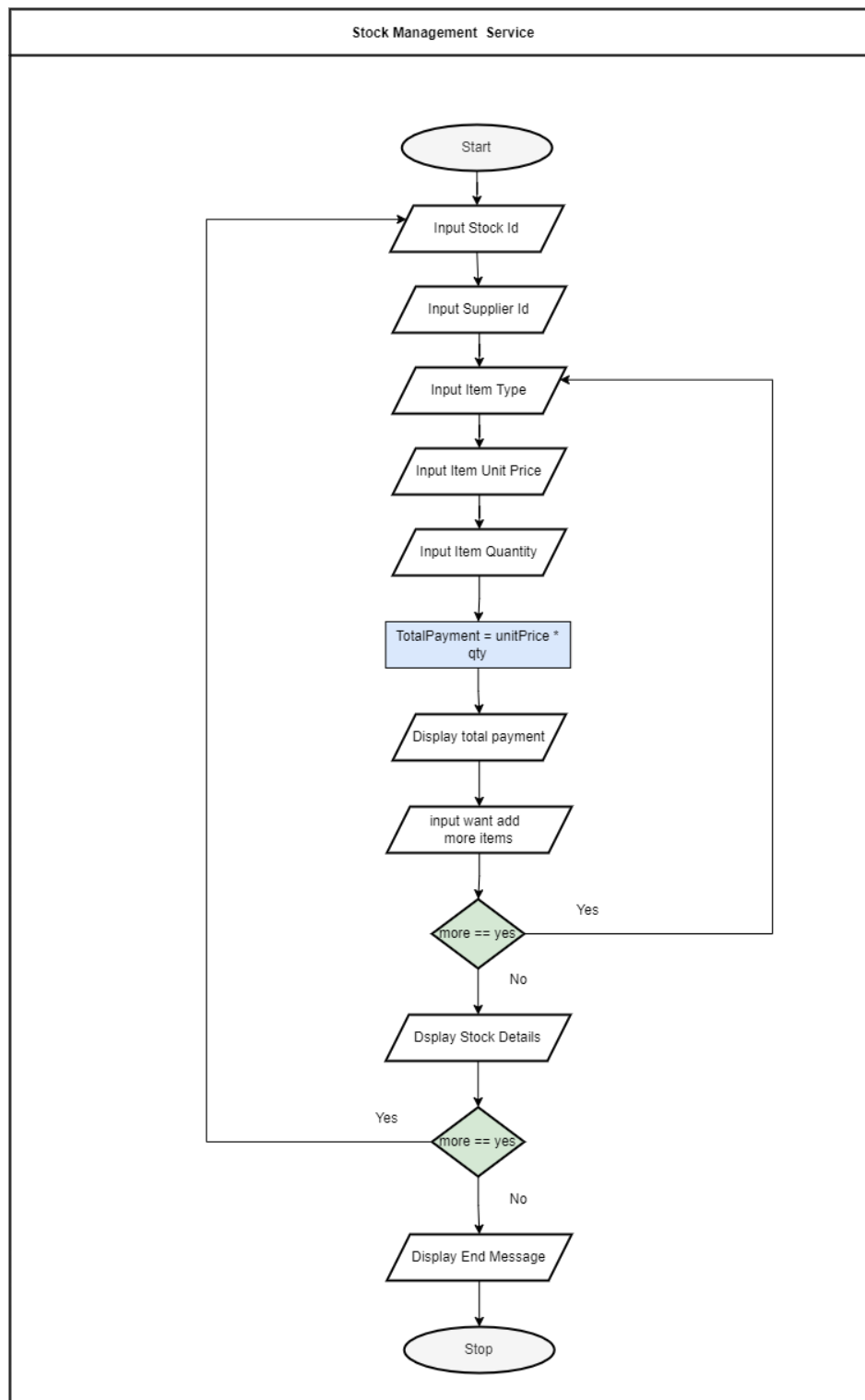
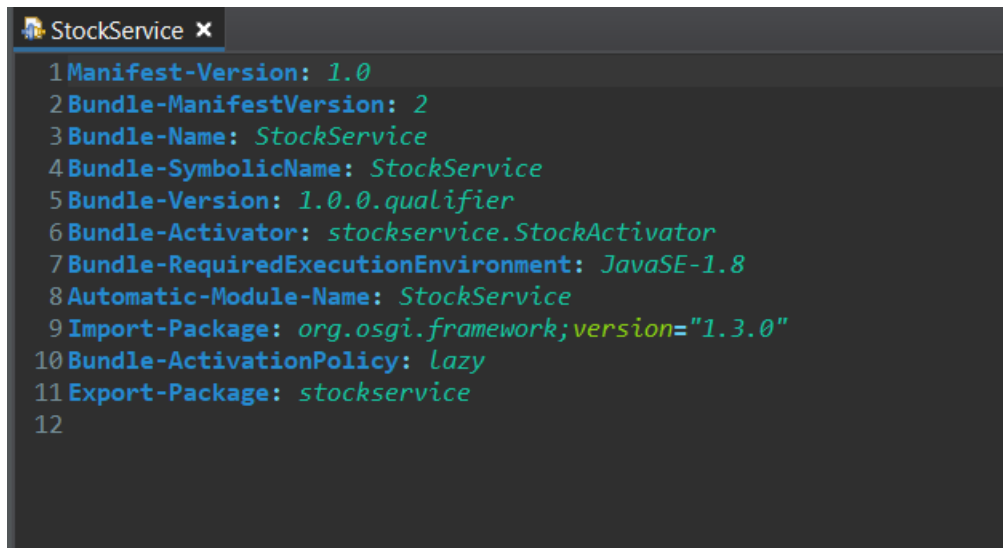


Figure 36

This Hotel management system is consisting of a Stock Management Service which gives the admin to the opportunity to manage stocks. First system asks from the user to enter stock id, supplier name, input item type and quantity. Then the system calculates the total payment and system asks to enter more items question from the user. If user say “yes” system, ask to input stock details again and if user say “No” it displays total payment of the items. After insert all the details system display “Do you need toad more stocks” message and if user insert “yes” System again asks to enter stock id and user can continue the Stock Management Service. If the user input “No” system display end message.

Manifest Implementation

A screenshot of a code editor window titled 'StockService'. The editor contains 12 lines of OSGi Manifest text, each preceded by a line number. The text is as follows:

```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: StockService
4 Bundle-SymbolicName: StockService
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: stockservice.StockActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: StockService
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: stockservice
12
```

Figure 37

Sample Outputs

```

Enter Menu No: 7

----- Stock Service -----

Stock Service started

Stock Id : 001
Supplier Id : S123
Item Type : Chair
Item Unit Price : 2800
Item Quantity : 20
Total Payment : 56000.0
Do you want add more items (Yes/No) ?yes
Item Type : Table
Item Unit Price : 8500
Item Quantity : 10
Total Payment : 85000.0
Do you want add more items (Yes/No) ?no

-----
----- STOCK DETAILS -----
-----

Stock Id : 001
Supplier Id : S123
Full Payment : 141000.00

----- Stock Details Successfully Added -----

Do you want add more stock details (Yes/No) ?no

----- All Stock Details Are Successfully Added -----

----- End of the Stock Management Service -----

```

Figure 38

Fire Detector Service Scenario (Flow Chart)

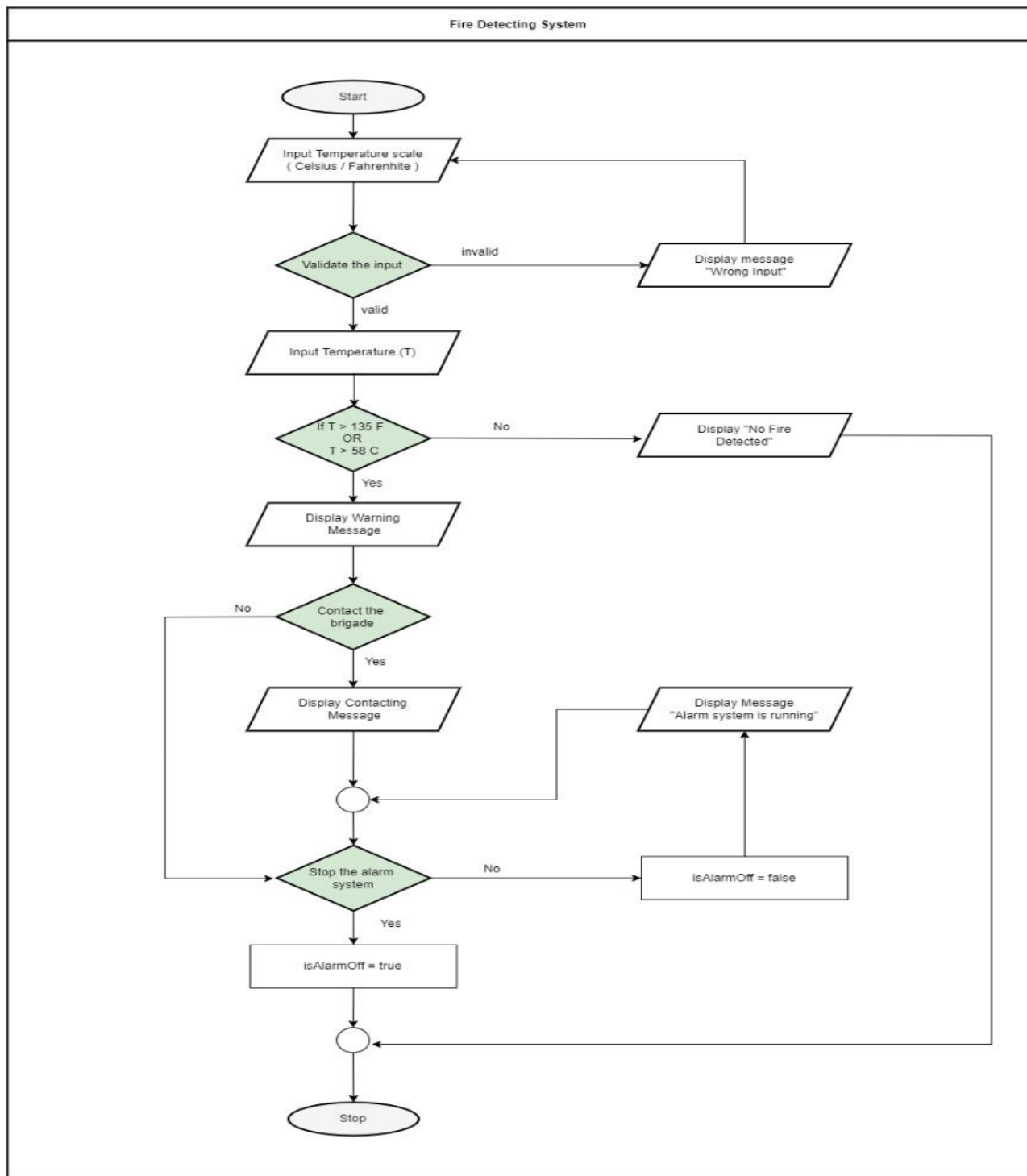
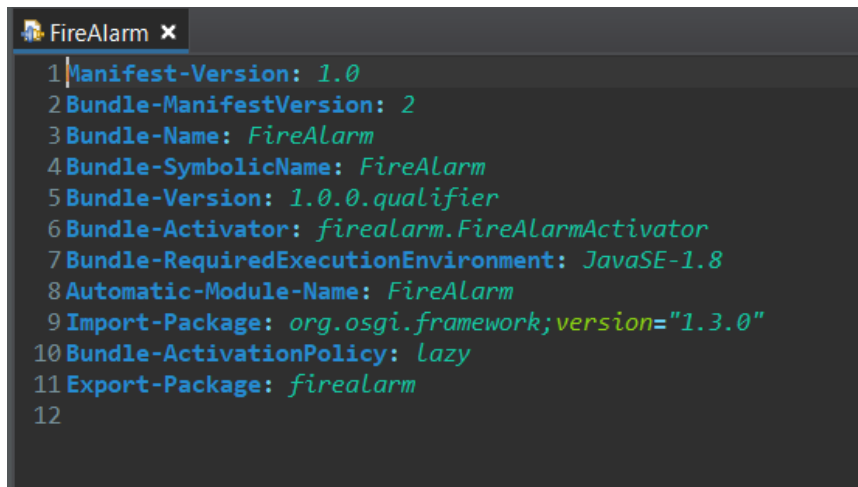


Figure 39

This hotel includes a fire detection system which consists of heat detectors, water sprinklers and an alarm system. The user will be asked to enter the temperature in Celsius or Fahrenheit. Then the system will check if the temperature has exceeded the limits. If so, the system will notify the user about fire detection and displays that the fire alarm and sprinklers are active. User can choose to contact the fire brigade and the system will show the confirmation of it. User can also choose to keep the alarm system running, which the system displays confirmation stating that the alarm system still running. Otherwise, the system will display the confirmation message that the fire alarm and sprinklers have been stopped and the service ends.

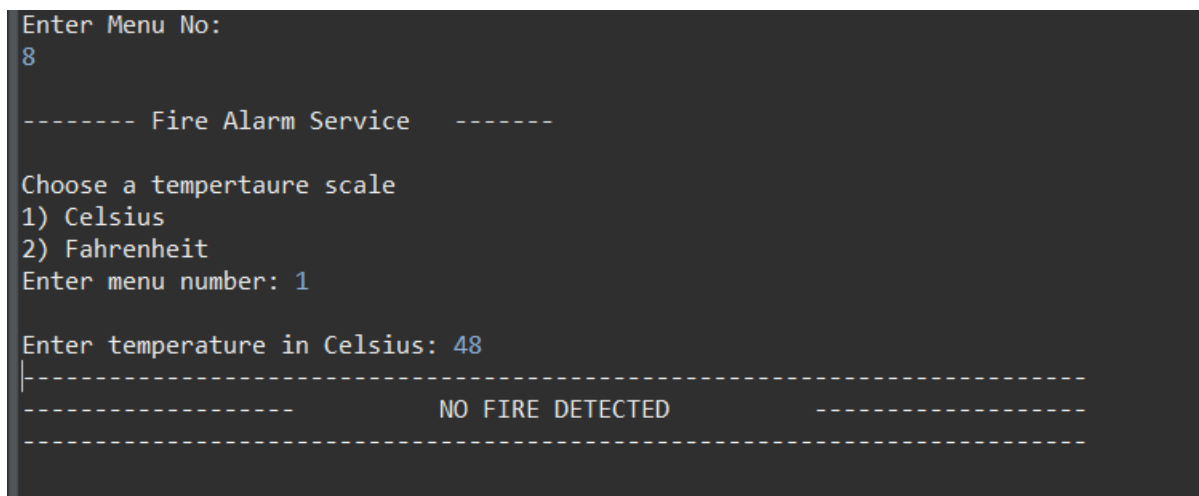
Manifest Implementation



```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: FireAlarm
4 Bundle-SymbolicName: FireAlarm
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: firealarm.FireAlarmActivator
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Automatic-Module-Name: FireAlarm
9 Import-Package: org.osgi.framework;version="1.3.0"
10 Bundle-ActivationPolicy: lazy
11 Export-Package: firealarm
12
```

Figure 40

Sample Outputs



```
Enter Menu No:
8

----- Fire Alarm Service -----

Choose a tempertaure scale
1) Celsius
2) Fahrenheit
Enter menu number: 1

Enter temperature in Celsius: 48
|-----
|----- NO FIRE DETECTED -----
|-----
```

Figure 41

```
Enter Menu No: 8

----- Fire Alarm Service -----

Choose a tempertaure scale
1) Celsius
2) Fahrenheit
Enter menu number: 1

Enter temperature in Celsius: 80

#####
::: WARNING!!! --- FIRE DETECTED --- WARNING!!! :::
#####

-----
----- Fire Alarm      : ACTIVE -----
----- Water Sprinklers : ACTIVE -----
-----

Do you want to contact fire brigade ? (Y/N): y

Contacting fire brigade....
.....

Do you want to stop the alarm system ? (Y/N): y

-----
----- Fire Alarm      : INACTIVE -----
----- Water Sprinklers : INACTIVE -----
-----

--- Thank you for using the service ---
```

Figure 42

```
Enter Menu No: 8

----- Fire Alarm Service -----

Choose a tempertaure scale
1) Celsius
2) Fahrenheit
Enter menu number: 1

Enter temperature in Celsius: 80

#####
::: WARNING!!! --- FIRE DETECTED --- WARNING!!! :::
#####

-----
----- Fire Alarm      :  ACTIVE  -----
----- Water Sprinklers :  ACTIVE  -----
-----

Do you want to contact fire brigade ? (Y/N): y

Contacting fire brigade....
.....

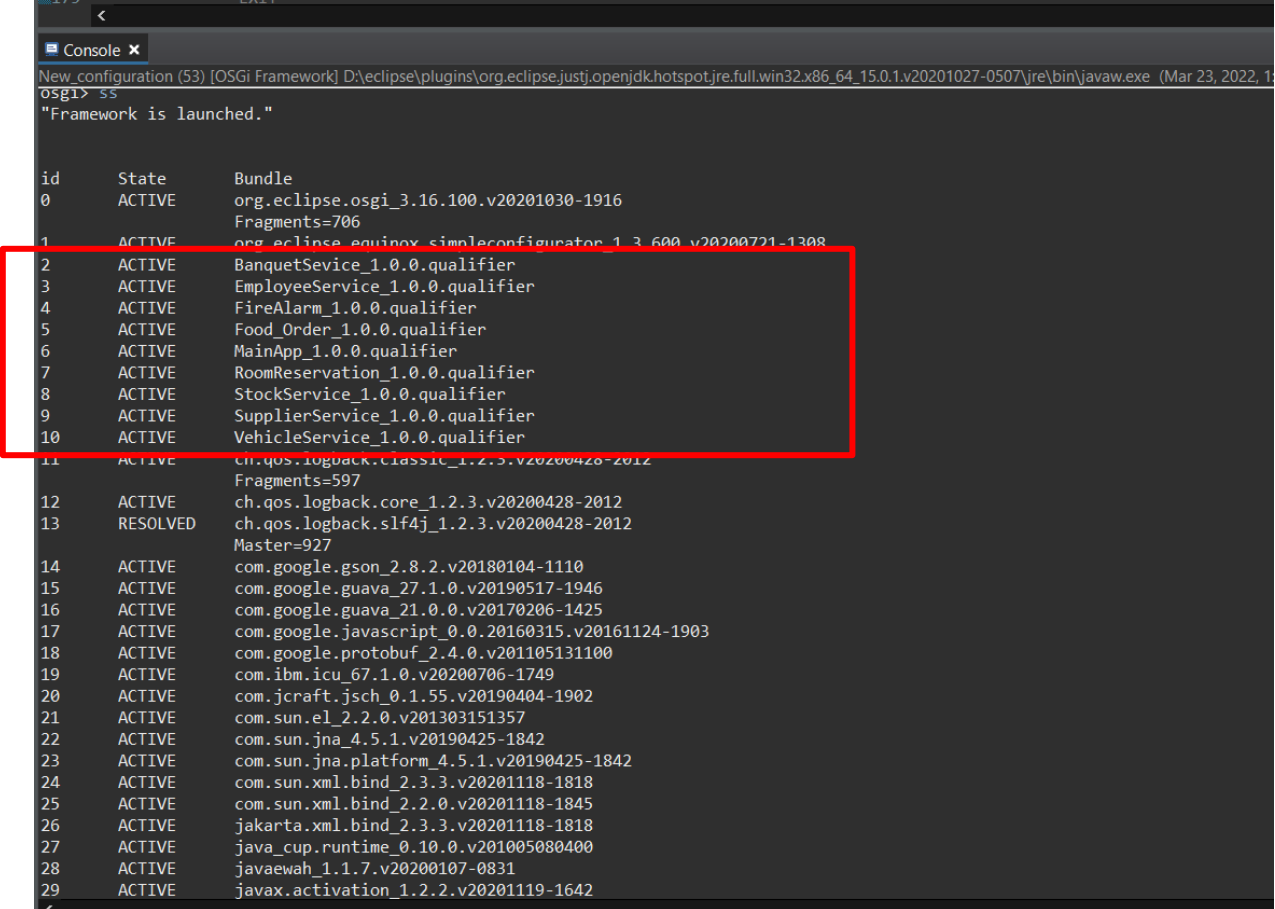
Do you want to stop the alarm system ? (Y/N): y

-----
----- Fire Alarm      :  INACTIVE -----
----- Water Sprinklers :  INACTIVE -----
-----

--- Thank you for using the service ---
```

Figure 43

All Commands of Bundle install and run



```
New_configuration (53) [OSGi Framework] D:\eclipse\plugins\org.eclipse.justi.openjdk.hotspot.jre.full.win32.x86_64_15.0.1.v20201027-0507\jre\bin\javaw.exe (Mar 23, 2022, 1:05:12 PM)
OSGi> ss
"Framework is launched."

id      State      Bundle
0       ACTIVE     org.eclipse.osgi_3.16.100.v20201030-1916
          Fragments=706
1       ACTIVE     org.eclipse.equinox.simpleconfigurator_1.3.600.v20200721-1308
2       ACTIVE     BanquetService_1.0.0.qualifier
3       ACTIVE     EmployeeService_1.0.0.qualifier
4       ACTIVE     FireAlarm_1.0.0.qualifier
5       ACTIVE     Food_Order_1.0.0.qualifier
6       ACTIVE     MainApp_1.0.0.qualifier
7       ACTIVE     RoomReservation_1.0.0.qualifier
8       ACTIVE     StockService_1.0.0.qualifier
9       ACTIVE     SupplierService_1.0.0.qualifier
10      ACTIVE     VehicleService_1.0.0.qualifier
11      ACTIVE     ch.qos.logback.classic_1.2.3.v20200428-2012
          Fragments=597
12      ACTIVE     ch.qos.logback.core_1.2.3.v20200428-2012
13      RESOLVED   ch.qos.logback.slf4j_1.2.3.v20200428-2012
          Master=927
14      ACTIVE     com.google.gson_2.8.2.v20180104-1110
15      ACTIVE     com.google.guava_27.1.0.v20190517-1946
16      ACTIVE     com.google.guava_21.0.0.v20170206-1425
17      ACTIVE     com.google.javascript_0.0.20160315.v20161124-1903
18      ACTIVE     com.google.protobuf_2.4.0.v201105131100
19      ACTIVE     com.ibm.icu_67.1.0.v20200706-1749
20      ACTIVE     com.jcraft.jsch_0.1.55.v20190404-1902
21      ACTIVE     com.sun.el_2.2.0.v201303151357
22      ACTIVE     com.sun.jna_4.5.1.v20190425-1842
23      ACTIVE     com.sun.jna.platform_4.5.1.v20190425-1842
24      ACTIVE     com.sun.xml.bind_2.3.3.v20201118-1818
25      ACTIVE     com.sun.xml.bind_2.2.0.v20201118-1845
26      ACTIVE     jakarta.xml.bind_2.3.3.v20201118-1818
27      ACTIVE     java_cup.runtime_0.10.0.v201005080400
28      ACTIVE     javaewah_1.1.7.v20200107-0831
29      ACTIVE     javax.activation_1.2.2.v20201119-1642
```

Figure 44

- First, we must run our project in the Eclipse IDE.
- Then we can enter 'lb' or 'ss' to get the list of running bundles.
- By going through the bundle list, we can find out our bundles and their own IDs.
- We must use those id numbers to bellow configuration commands.

```

osgi> stop 2
Banquet Service is stopped

osgi> stop 3
Employee Registration Service stopped

osgi> stop 4
Fire Alarm Service stopped

osgi> stop 5
Food Order Service stopped

osgi> stop 7
Room Reservation is stopped

osgi> stop 8
Stock Service stopped

osgi> stop 9
Supplier Registration Service stopped

osgi> stop 10
Vehicle Service is stopped

```

Figure 45: commands of bundle run

```

osgi> start 2
Banquet Service is started
osgi> start 3
Employee Registration Service started
osgi> start 4
Fire Alarm Service started
osgi> start 5
Food Order Service started
osgi> start 7
Room Reservation is started
osgi> start 8
Stock Service started
osgi> start 9
Supplier Registration Service started
osgi> start 10
Vehicle Service is started
osgi>
osgi>
osgi>
osgi>
osgi>
osgi> start 6
Start Hotel Management System

#####
::: Welcome to Hotel Management System :::
#####

```

Figure 46: commands of bundle run

