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.

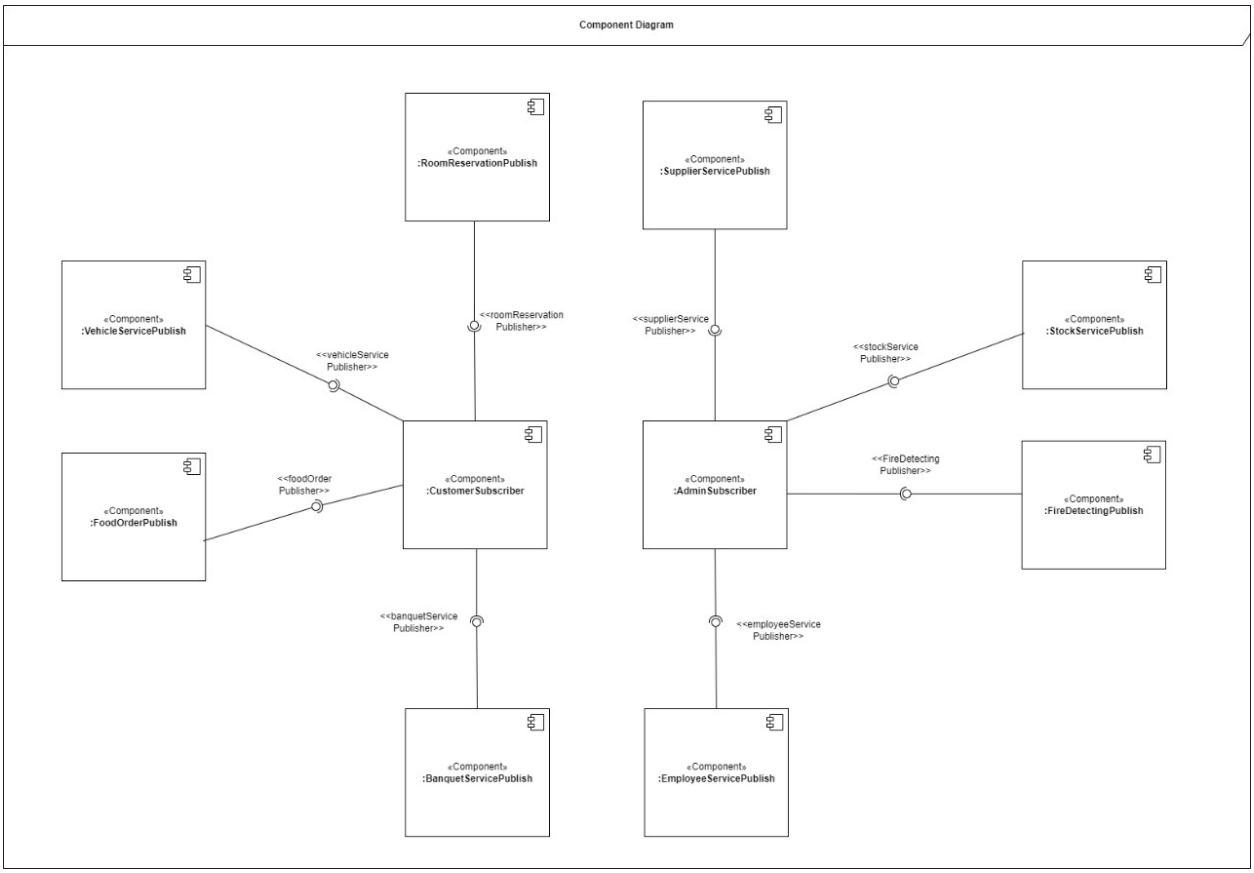

Figure 1: Component diagram

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 ×

```
Manifest-Version: 1.0
Bundle-ManifestVersion: 2
Bundle-Name: MainApp
Bundle-SymbolicName: MainApp
Bundle-Version: 1.0.0.qualifier
Bundle-Activator: mainapp.MainAppActivator
Bundle-RequiredExecutionEnvironment: JavaSE-1.8
Automatic-Module-Name: MainApp
Import-Package: banquetsevice,
 employeeservice,
 firealarm,
 food_order,
 org.osgi.framework;version="1.3.0",
 roomreservation,
 stockservice,
 supplierservice,
 vehicleservice
Bundle-ActivationPolicy: lazy

```

Figure 3

Room Reservation Service

Scenario (Flow Chart)

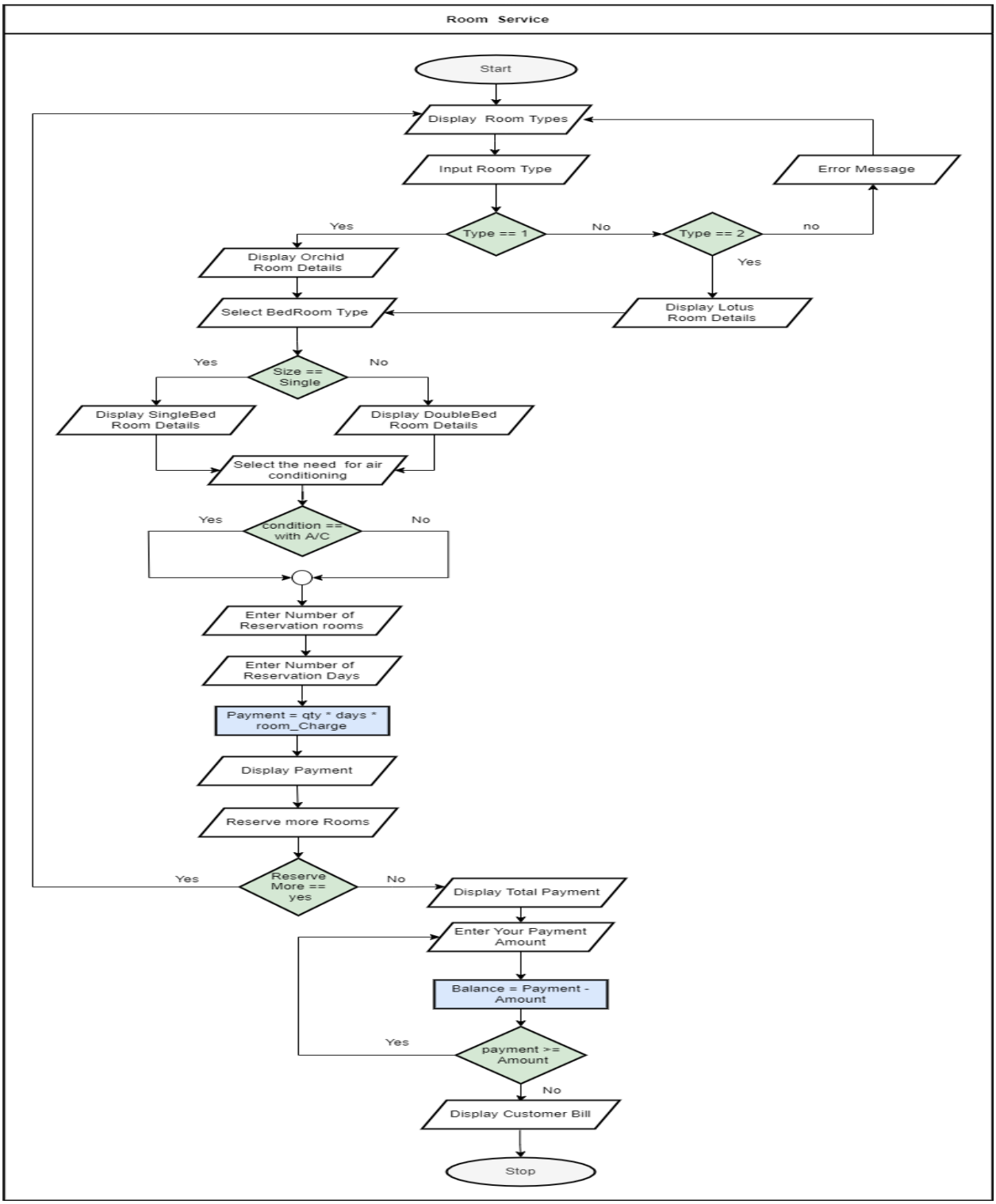

Figure 4

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

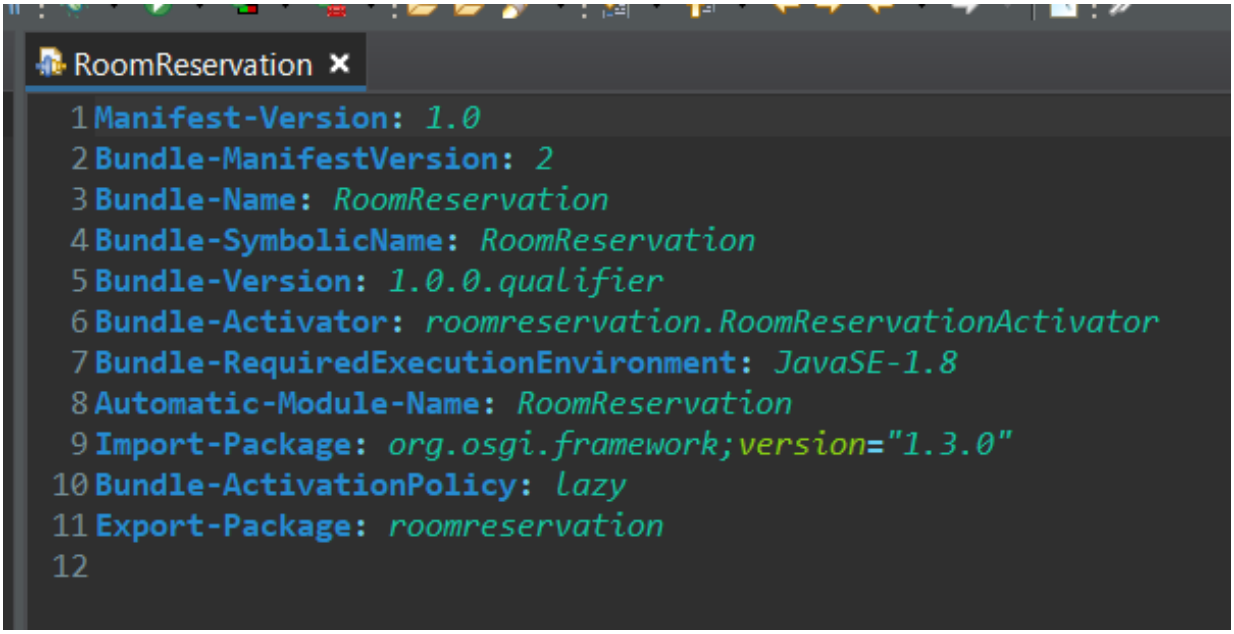

Figure 5

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)

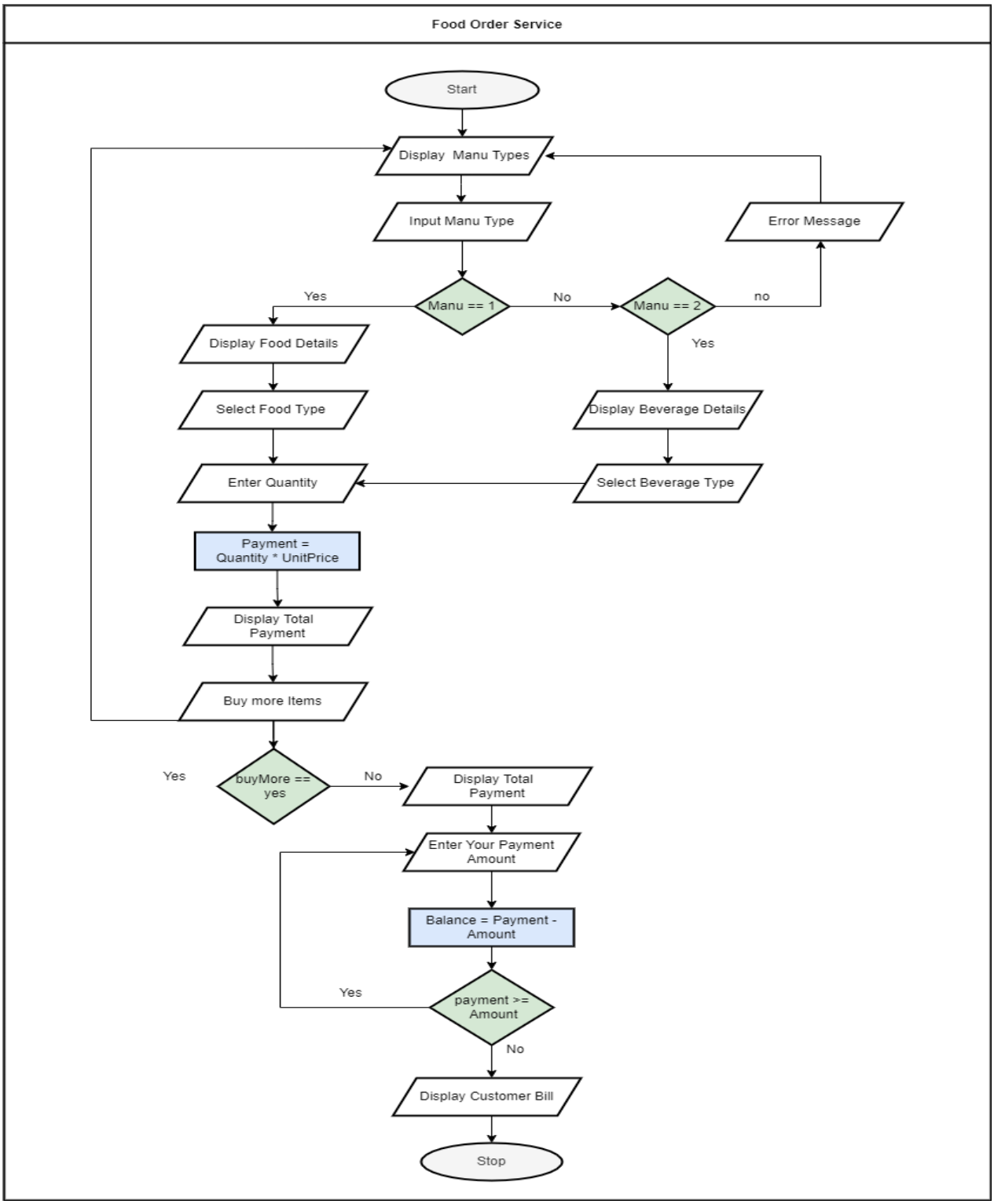

Figure 10

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

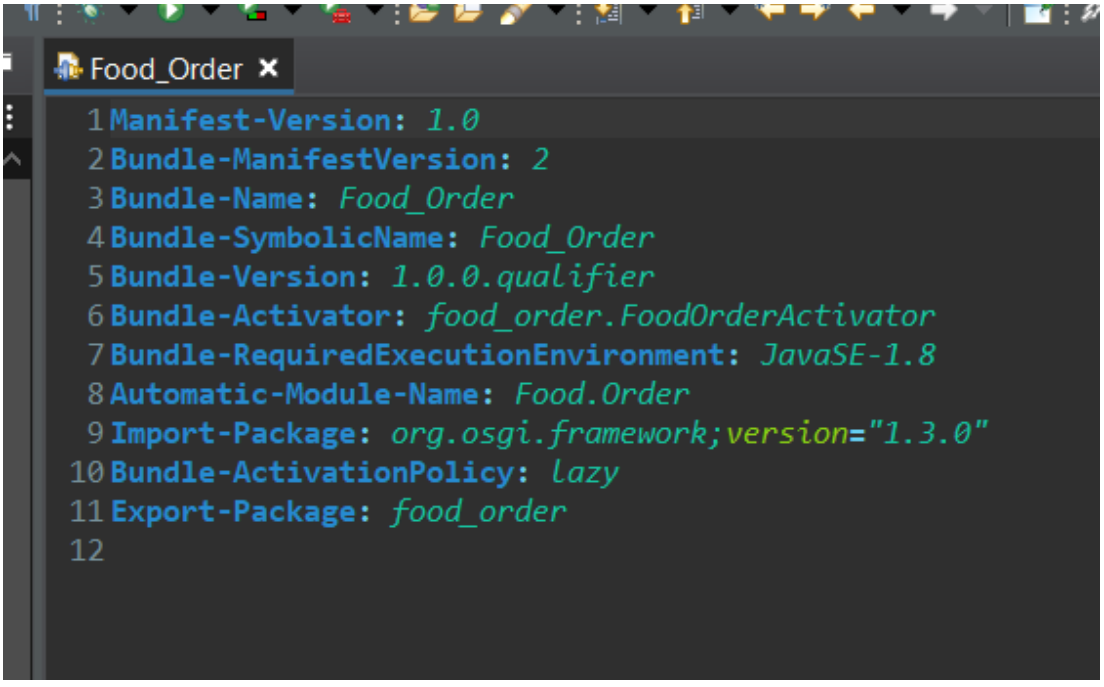

Figure 11

Sample Outputs

Figure 12

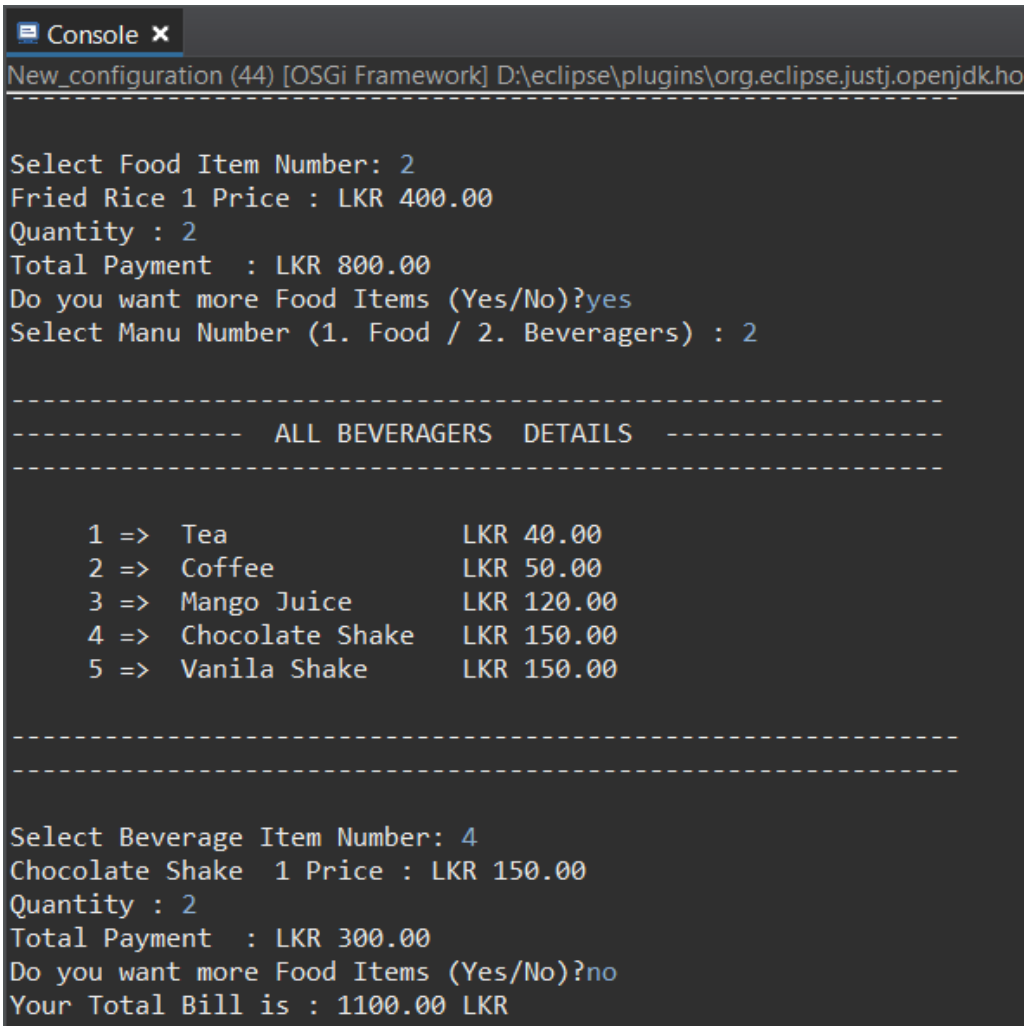

Figure 13

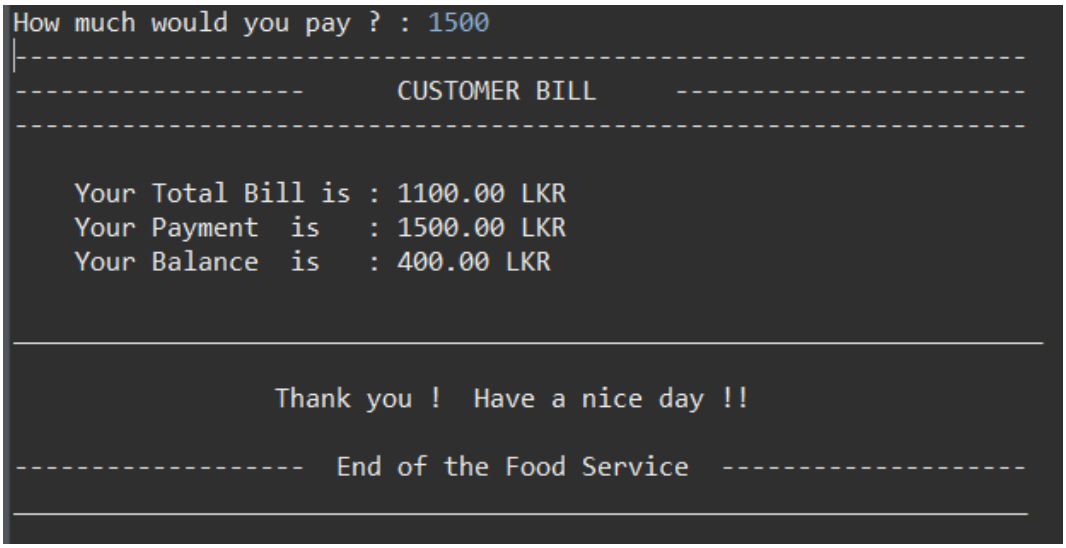

Figure 14

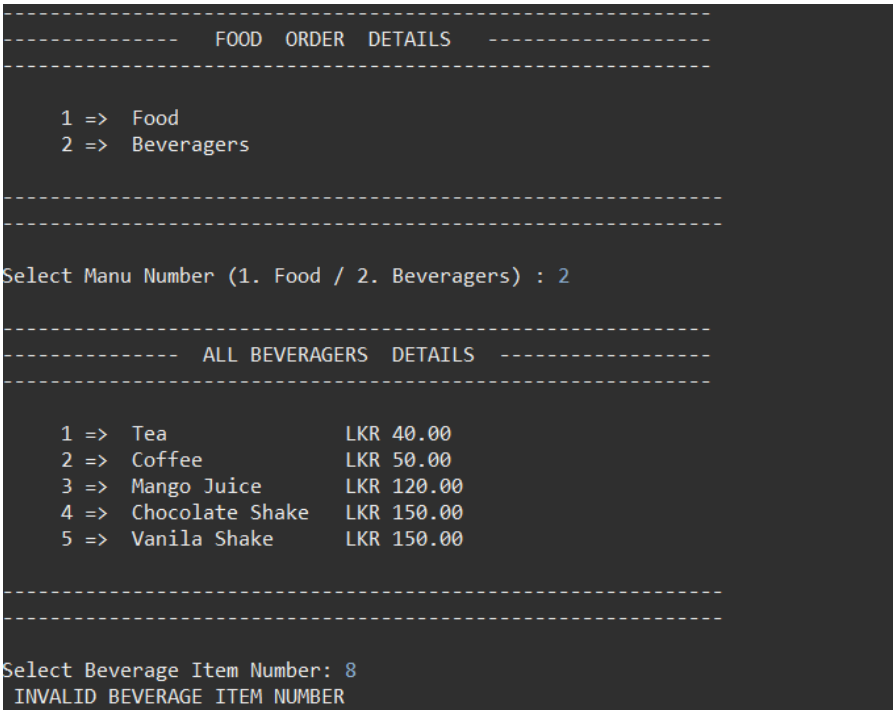
FOOD ORDER DETAILS
1 => Food
2 => Beveragers
Select Manu Number (1. Food / 2. Beveragers) : 2
ALL BEVERAGERS DETAILS
1 => Tea LKR 40.00
2 => Coffee LKR 50.00
3 => Mango Juice LKR 120.00
4 => Chocolate Shake LKR 150.00
5 => Vanila Shake LKR 150.00
Select Beverage Item Number: 8
INVALID BEVERAGE ITEM NUMBER

Figure 15

Banquet Hall Service

Scenario (Flow Chart)

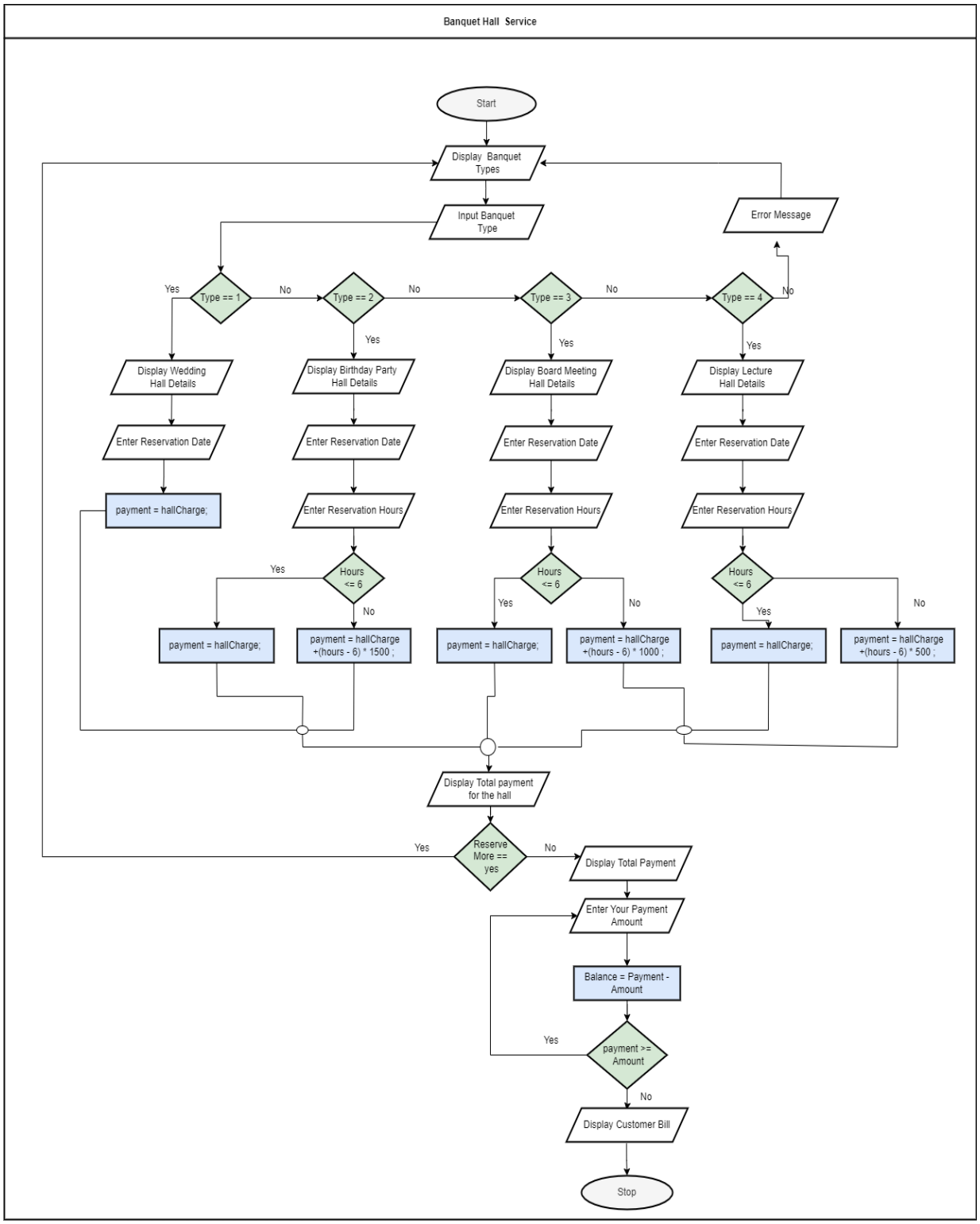

Figure 16

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

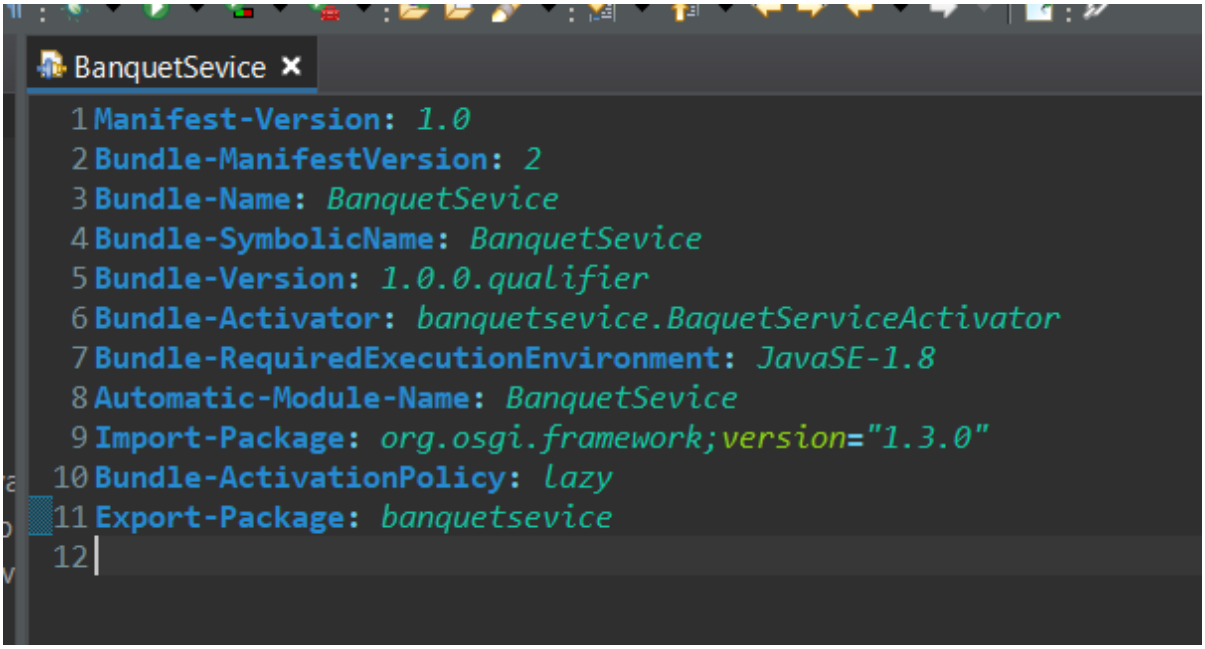

Figure 17

Sample Outputs

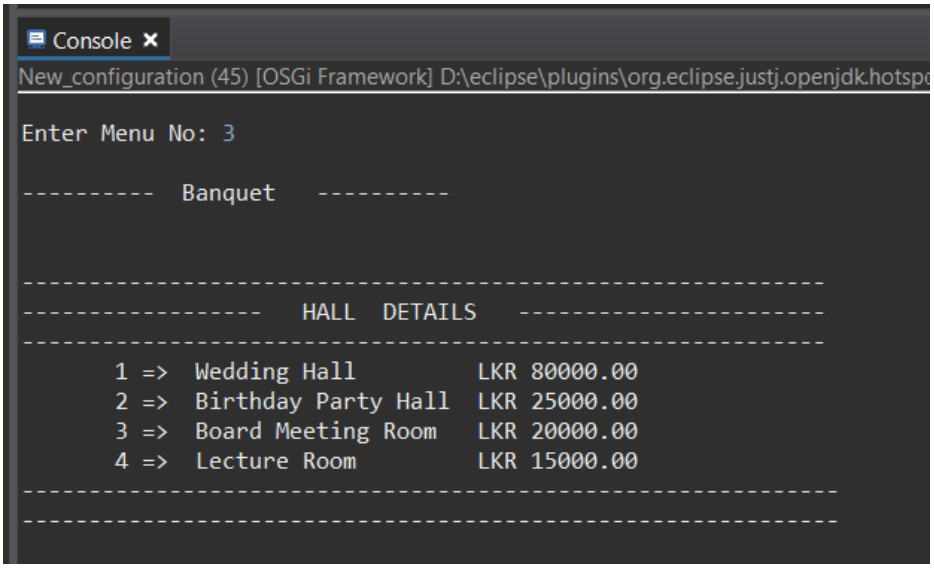

Figure 18

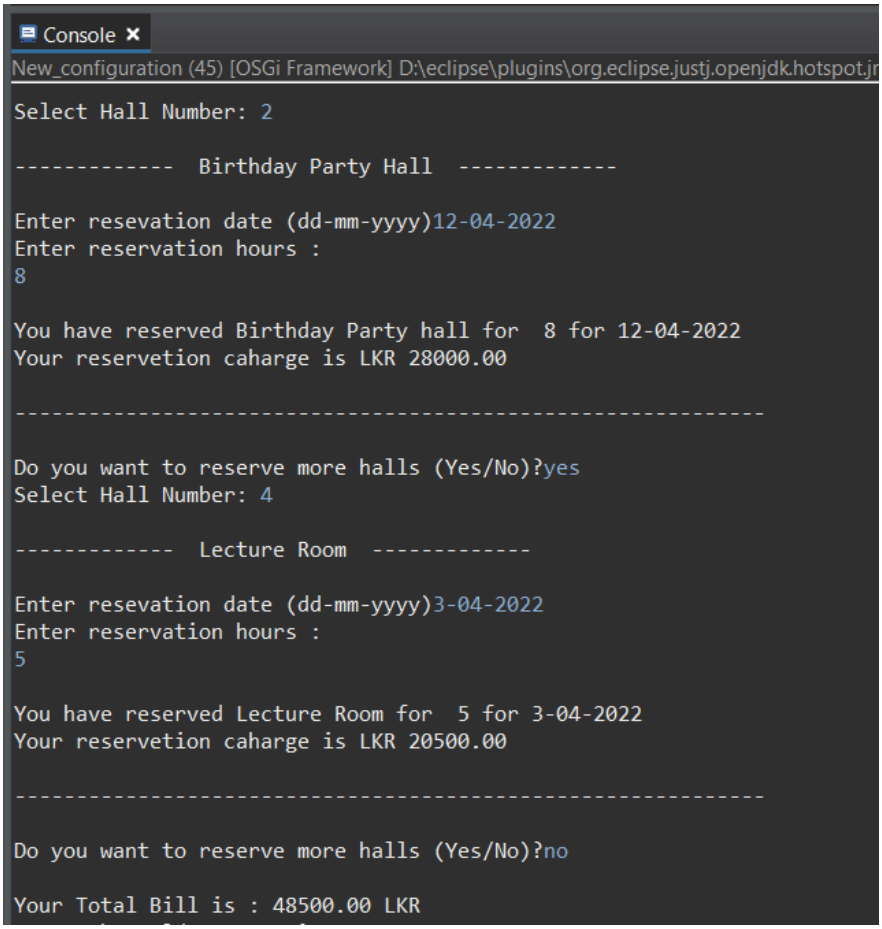

Figure 19

```
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)

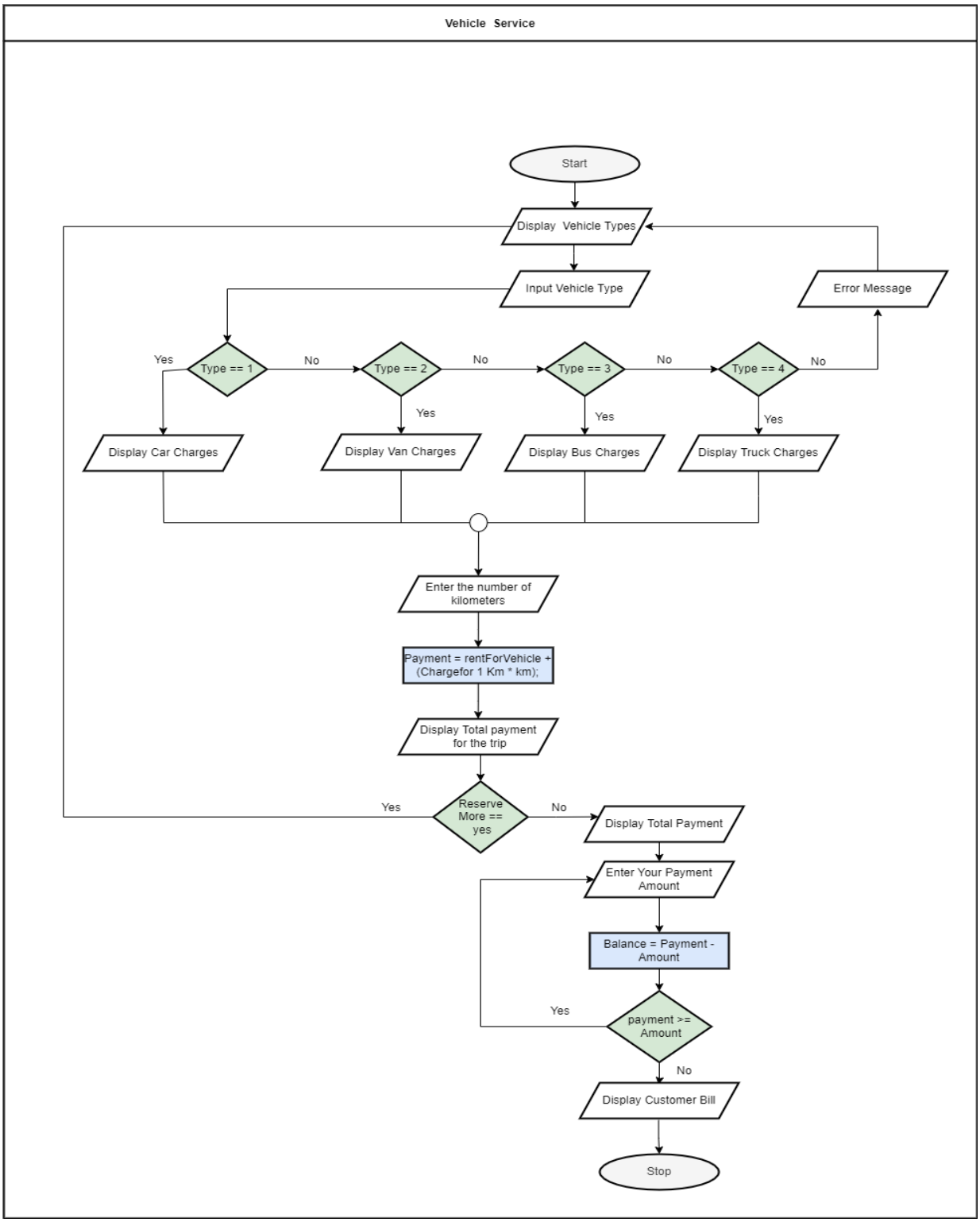

Figure 22

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

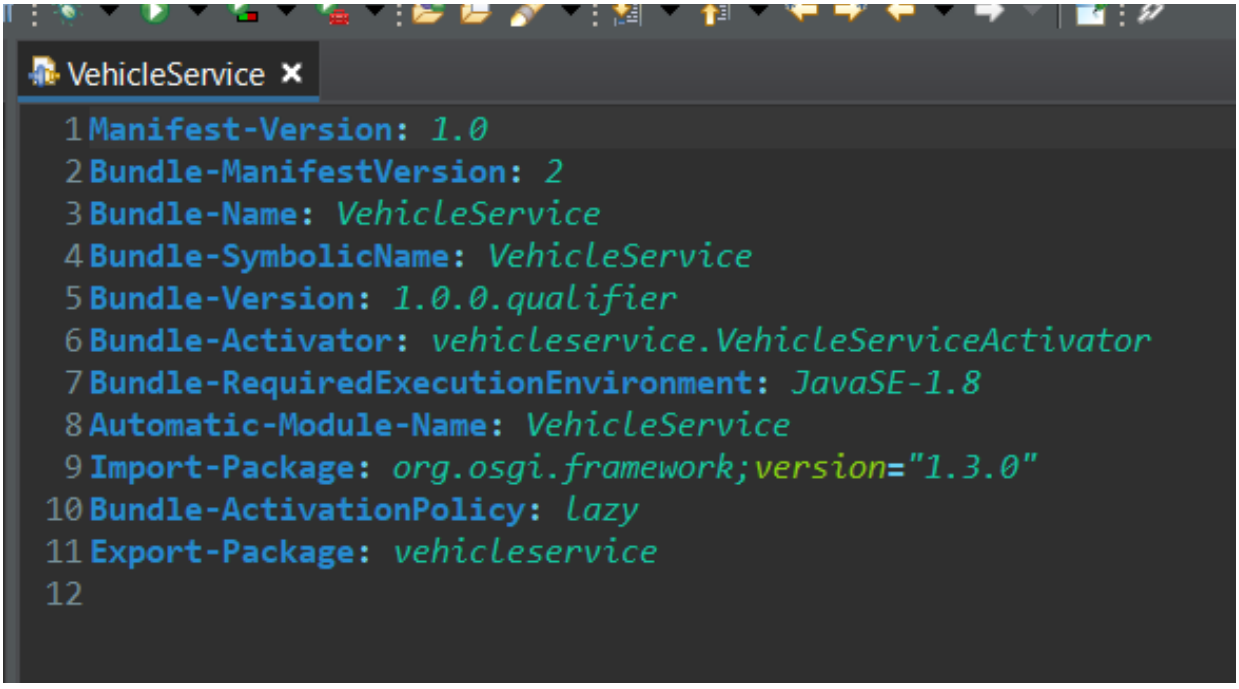

Figure 23

Sample Outputs

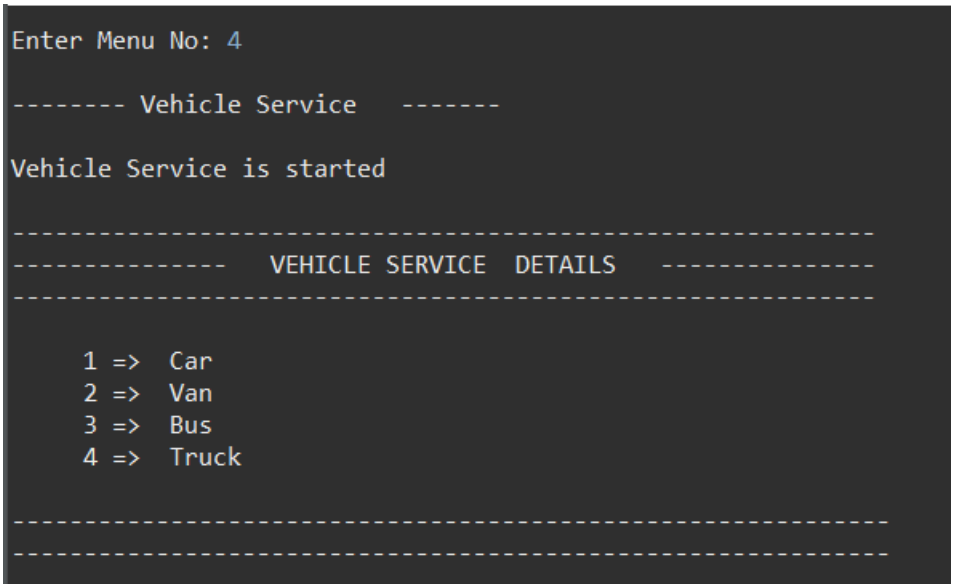

Figure 24

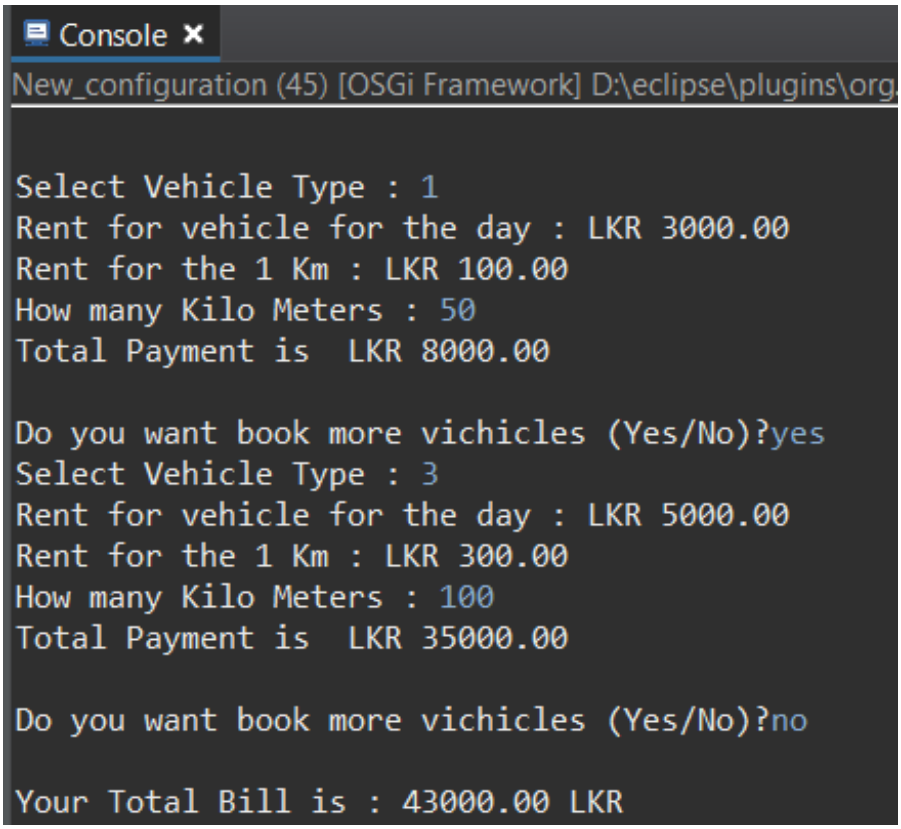

Figure 25

```
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)

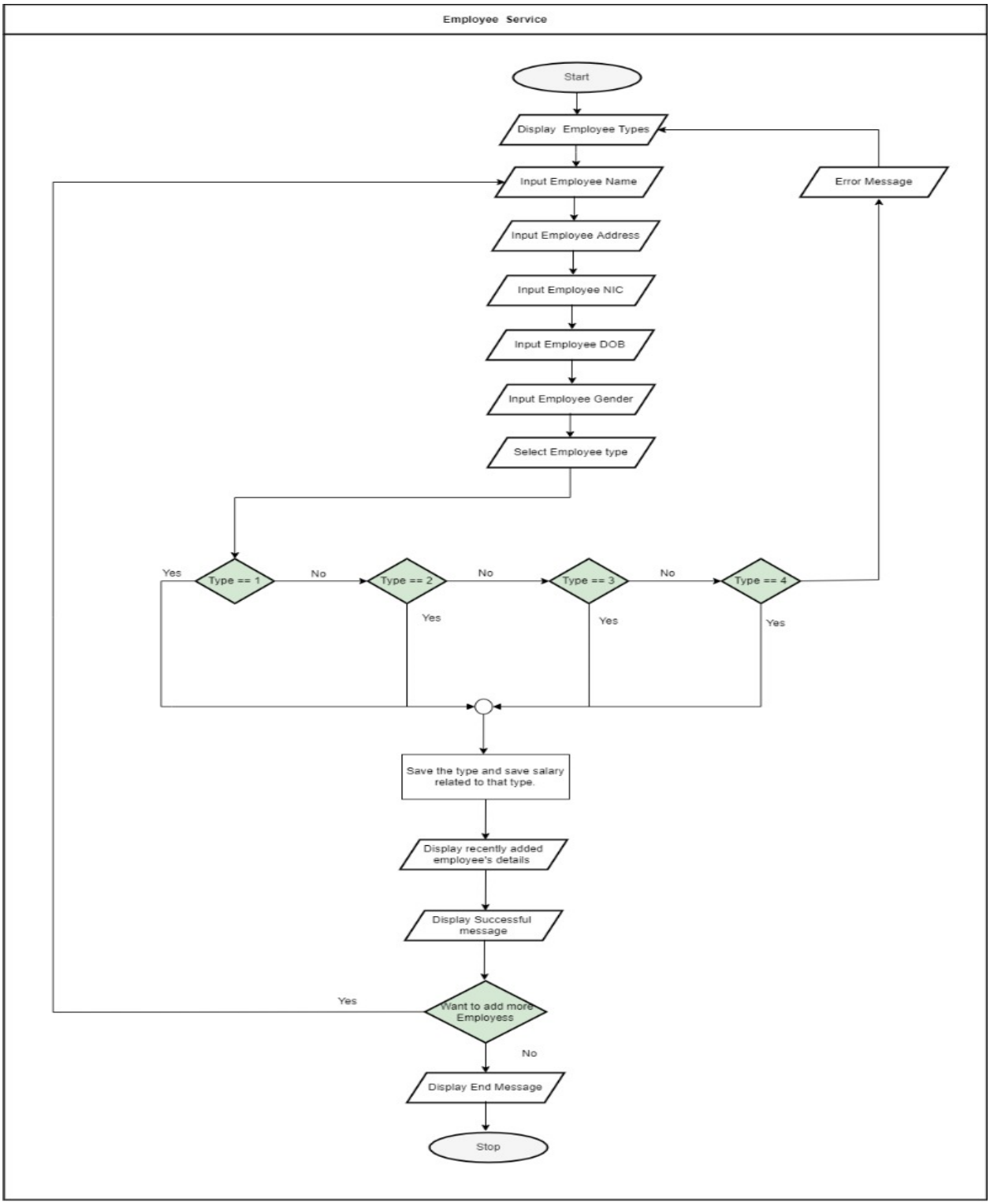

Figure 28

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

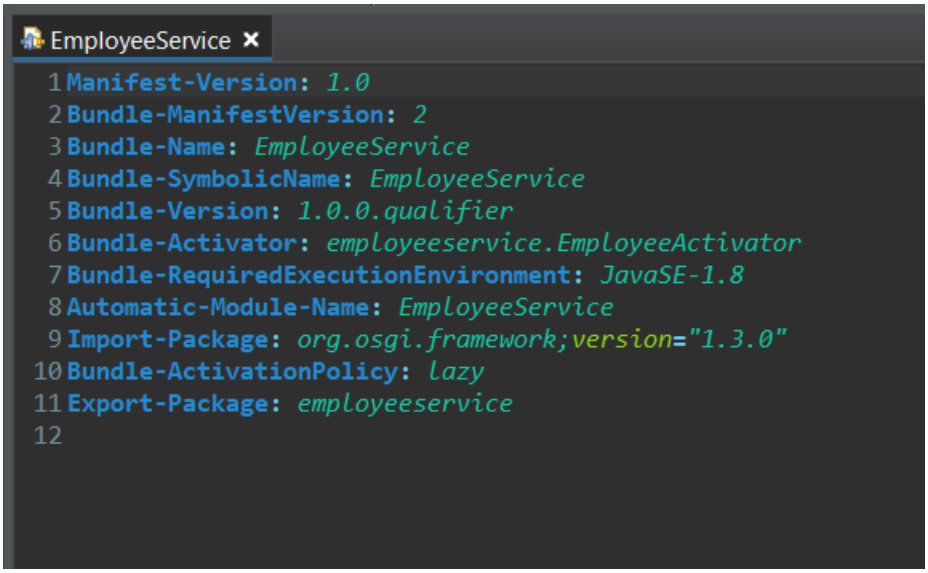

Figure 29

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)

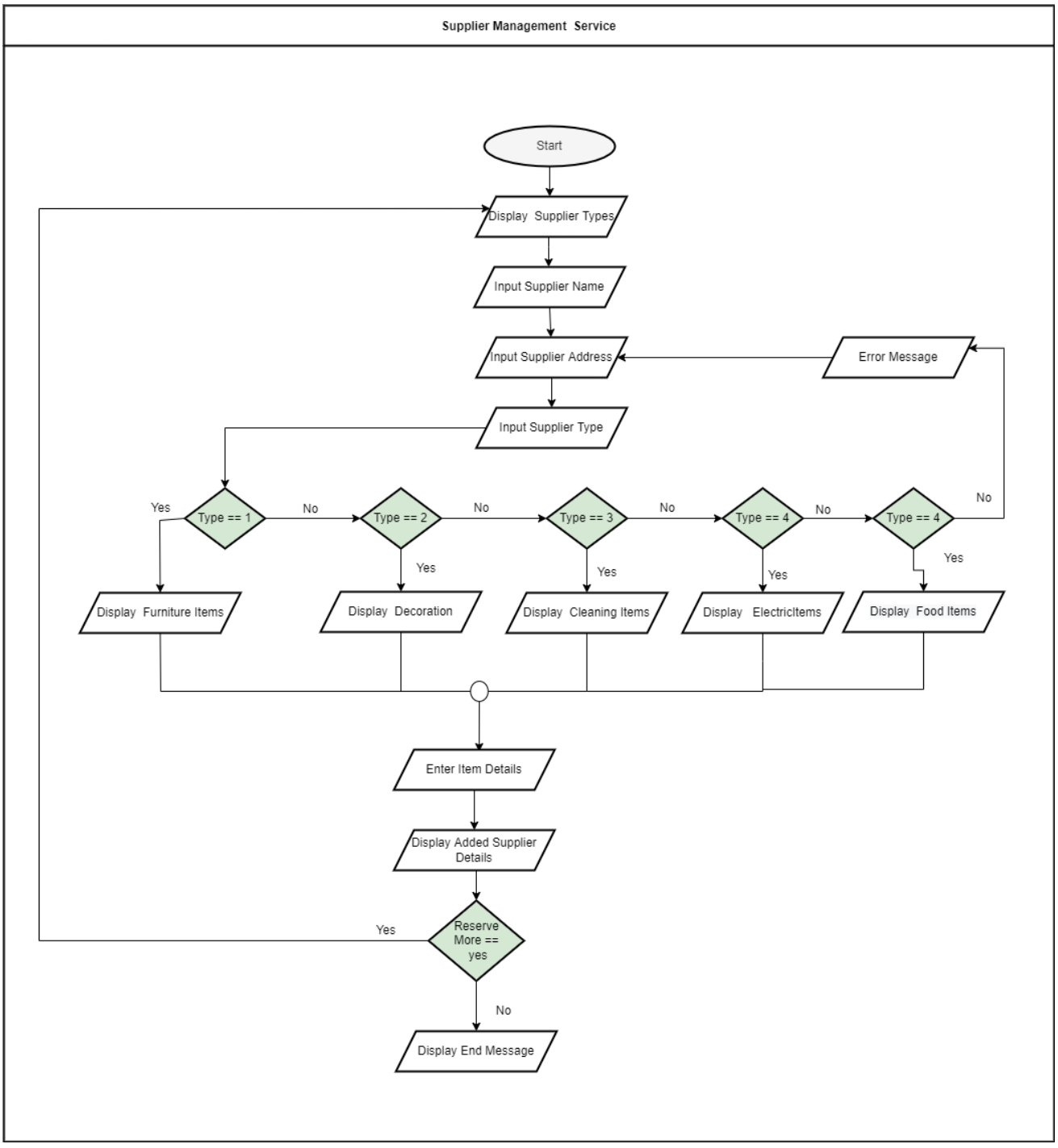

Figure 32

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

SupplierService

```
Manifest-Version: 1.0
Bundle-ManifestVersion: 2
Bundle-Name: SupplierService
Bundle-SymbolicName: SupplierService
Bundle-Version: 1.0.0.qualifier
Bundle-Activator: supplierservice.SupplierActivator
Bundle-RequiredExecutionEnvironment: JavaSE-1.8
Automatic-Module-Name: SupplierService
Import-Package: org.osgi.framework;version="1.3.0"
Bundle-ActivationPolicy: lazy
Export-Package: supplierservice

```

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)

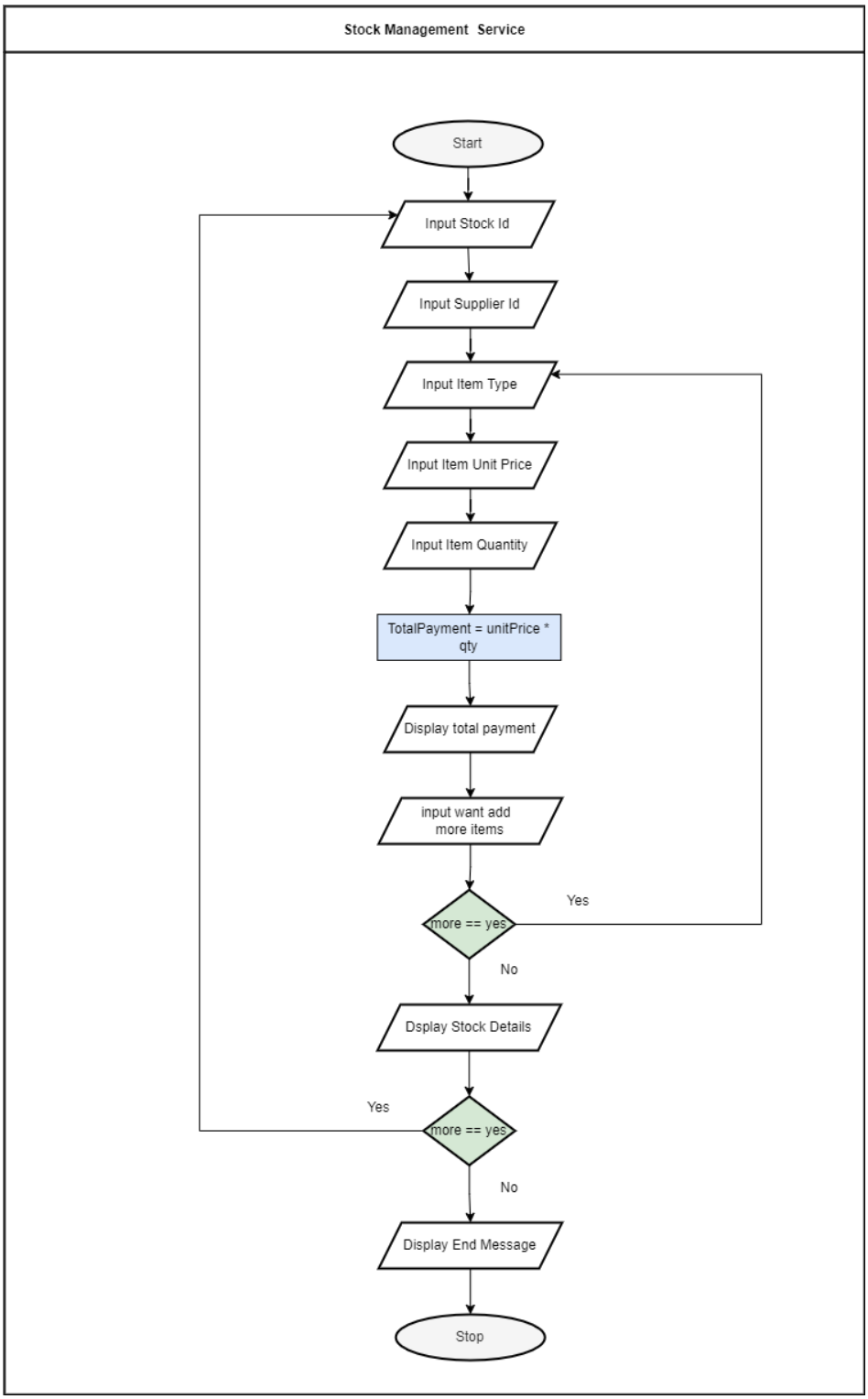

Figure 36

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

StockService

```
Manifest-Version: 1.0
Bundle-ManifestVersion: 2
Bundle-Name: StockService
Bundle-SymbolicName: StockService
Bundle-Version: 1.0.0.qualifier
Bundle-Activator: stockservice.StockActivator
Bundle-RequiredExecutionEnvironment: JavaSE-1.8
Automatic-Module-Name: StockService
Import-Package: org.osgi.framework;version="1.3.0"
Bundle-ActivationPolicy: lazy
Export-Package: stockservice

```

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)

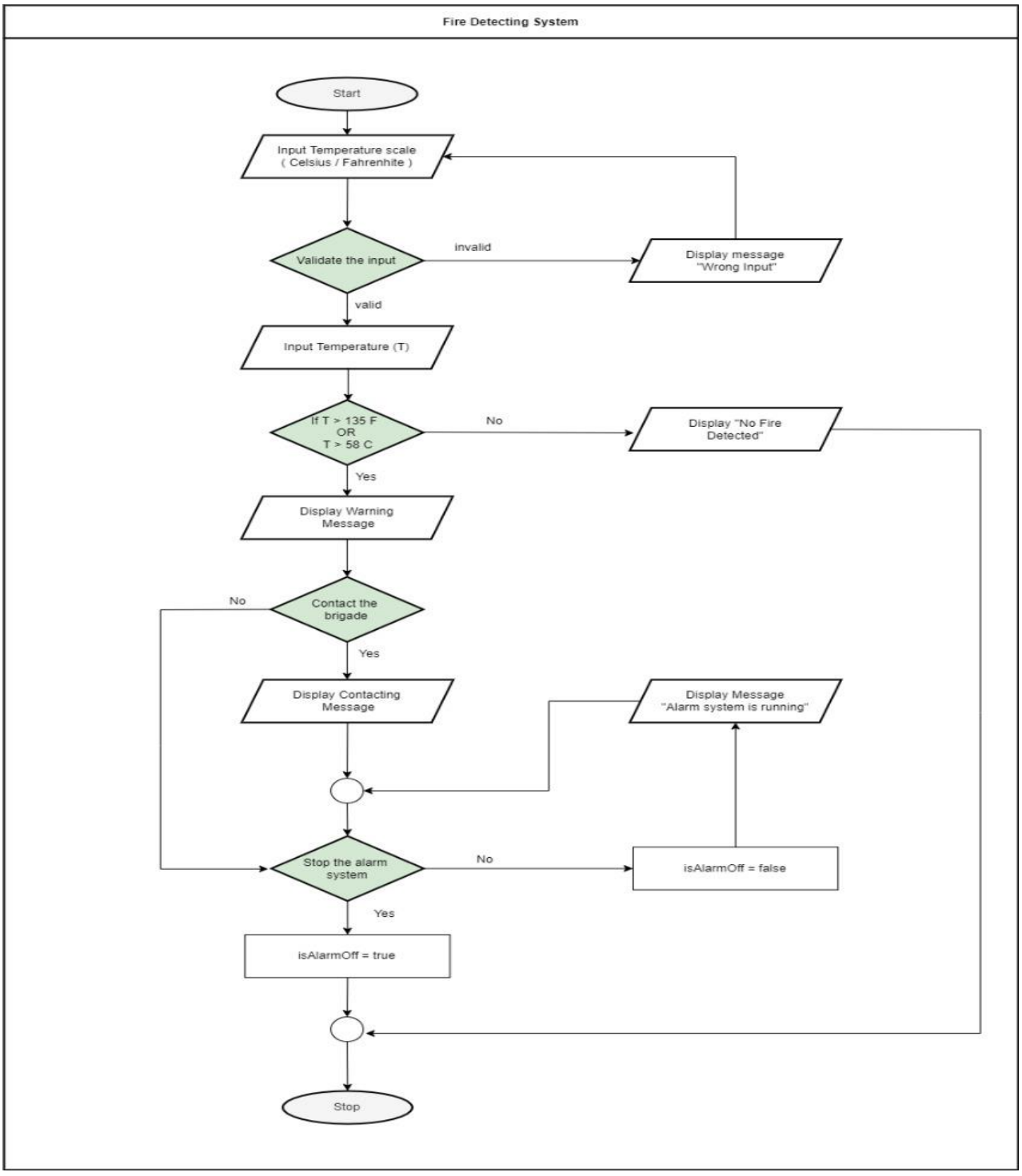

Figure 39

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

FireAlarm

```
Manifest-Version: 1.0
Bundle-ManifestVersion: 2
Bundle-Name: FireAlarm
Bundle-SymbolicName: FireAlarm
Bundle-Version: 1.0.0.qualifier
Bundle-Activator: firealarm.FireAlarmActivator
Bundle-RequiredExecutionEnvironment: JavaSE-1.8
Automatic-Module-Name: FireAlarm
Import-Package: org.osgi.framework;version="1.3.0"
Bundle-ActivationPolicy: lazy
Export-Package: firealarm

```

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

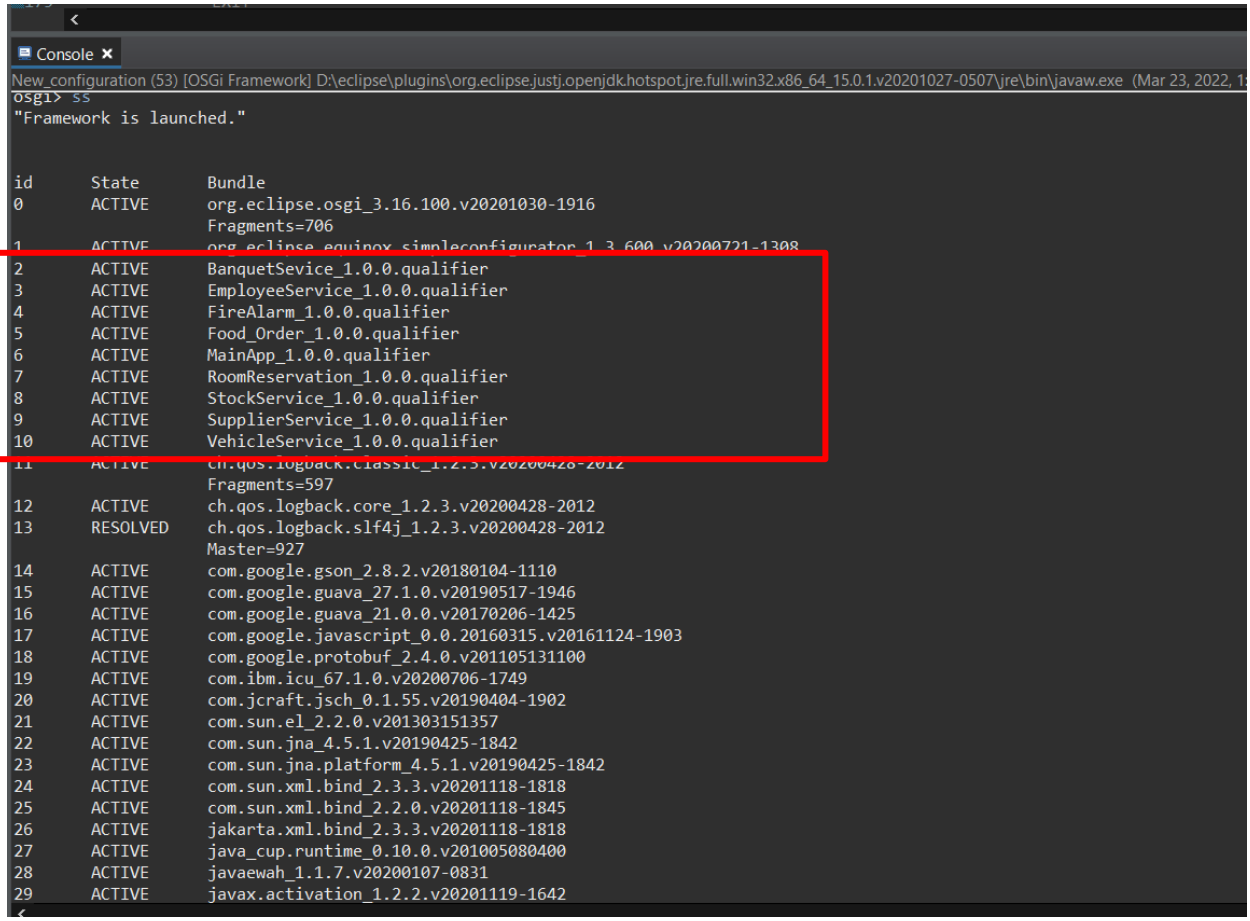

Figure 44

- 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