Sri Lanka Institute of Information Technology

Software Architecture
Assignment 1- SE3030
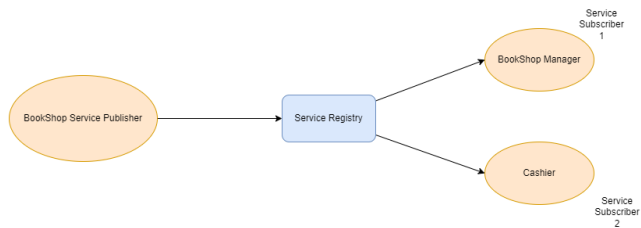
Group Details: Y3S2.WD.SE

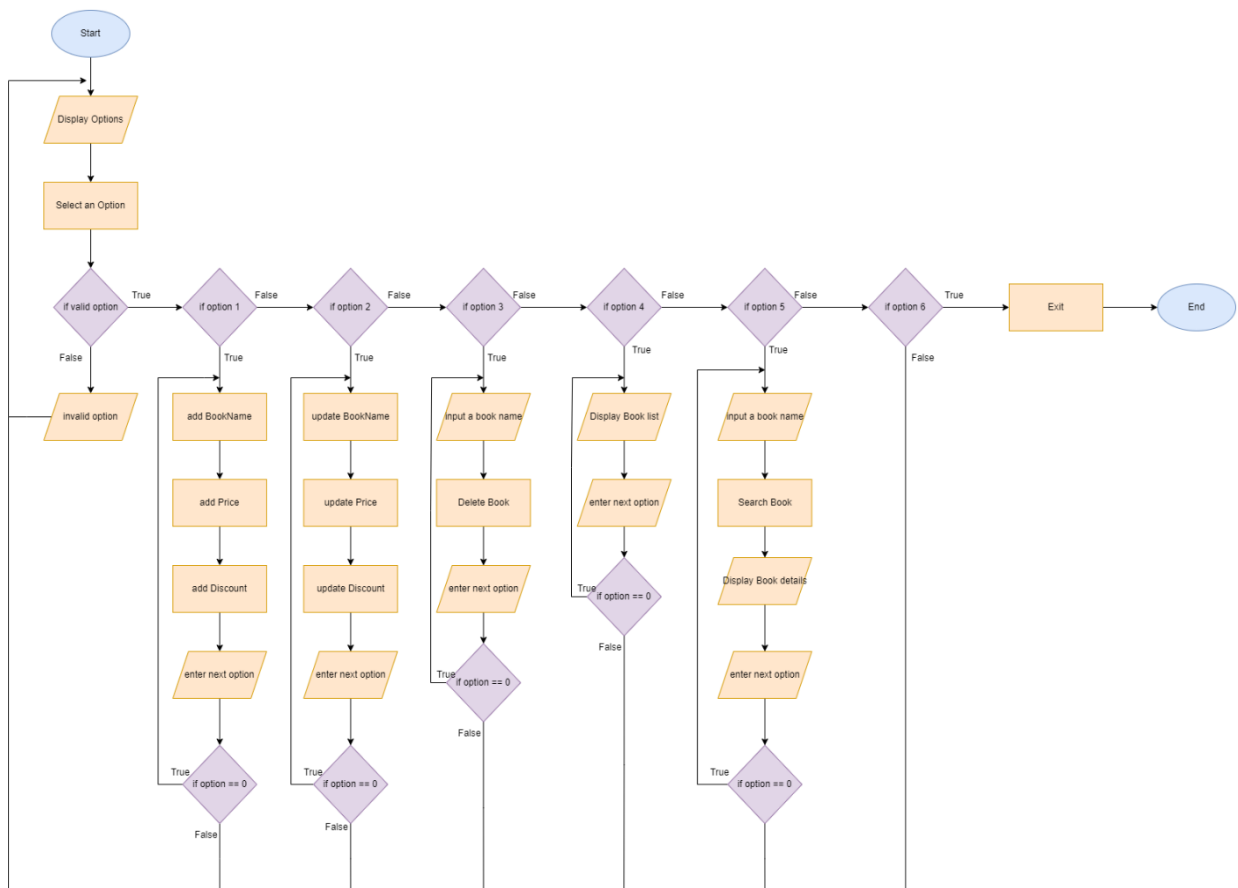| Registration Number	Name
IT21219566	Thathsara S. M. K.

Book Shop Service
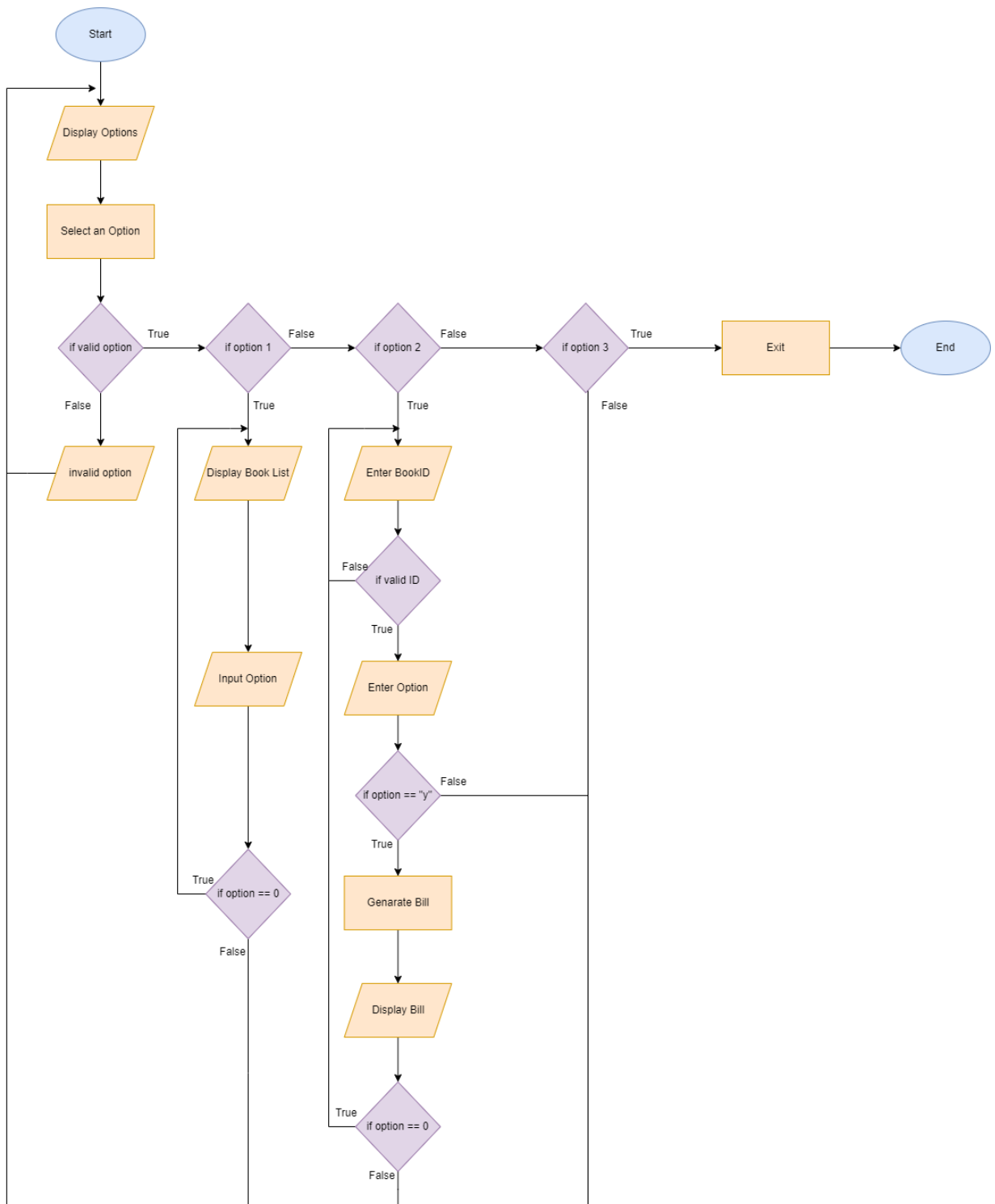
a) Explain The scenario using a diagram

This is a Book Shop service where 2 consumers (book shop manager, cashier) can add and sell books to the customers. Through this service the manager consumer can add new books, update book details, delete books from the book list and add discounts to the books to sell. The cashier consumer can sell the books in the book list and generate bills. Both consumers can search and view the book list.
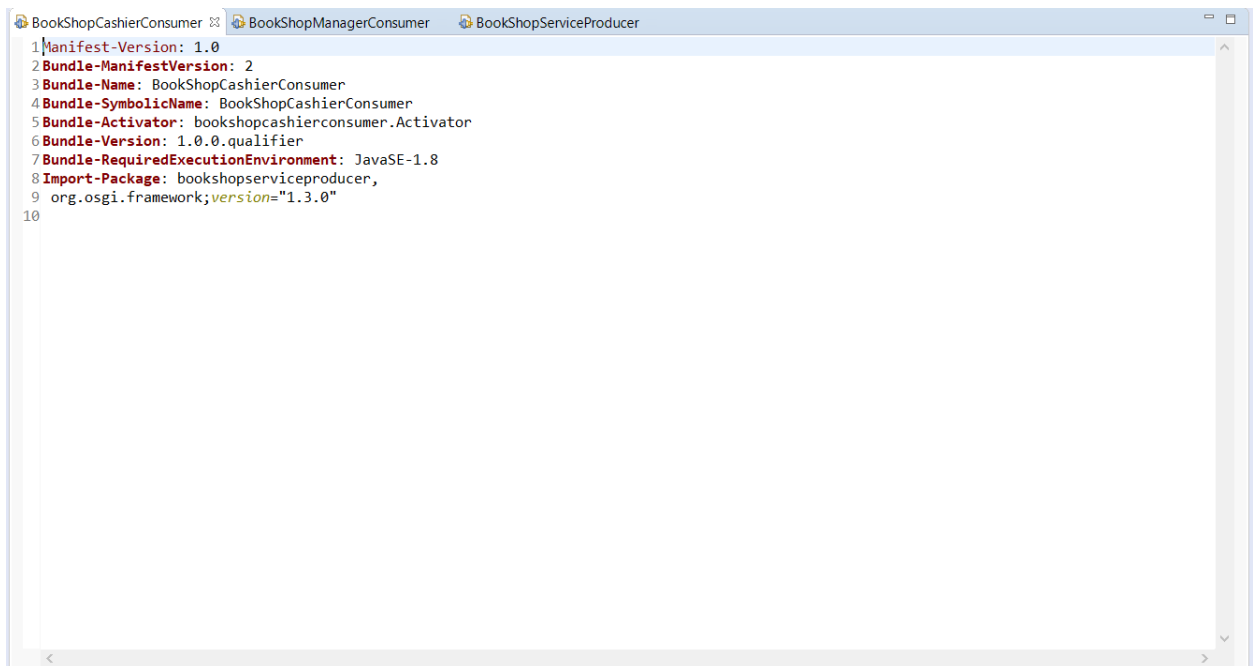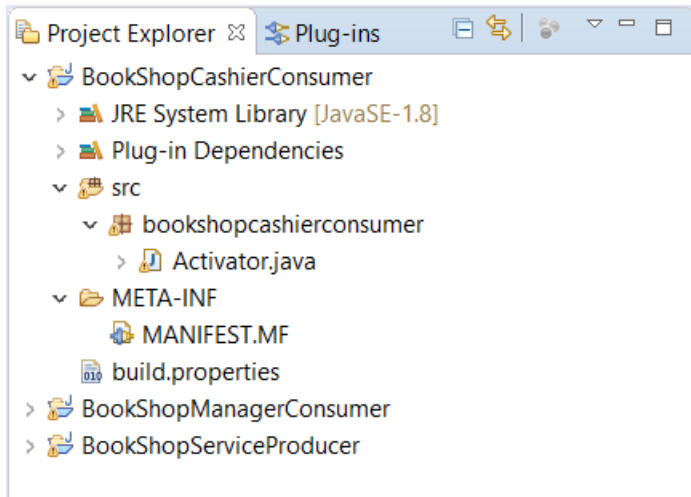
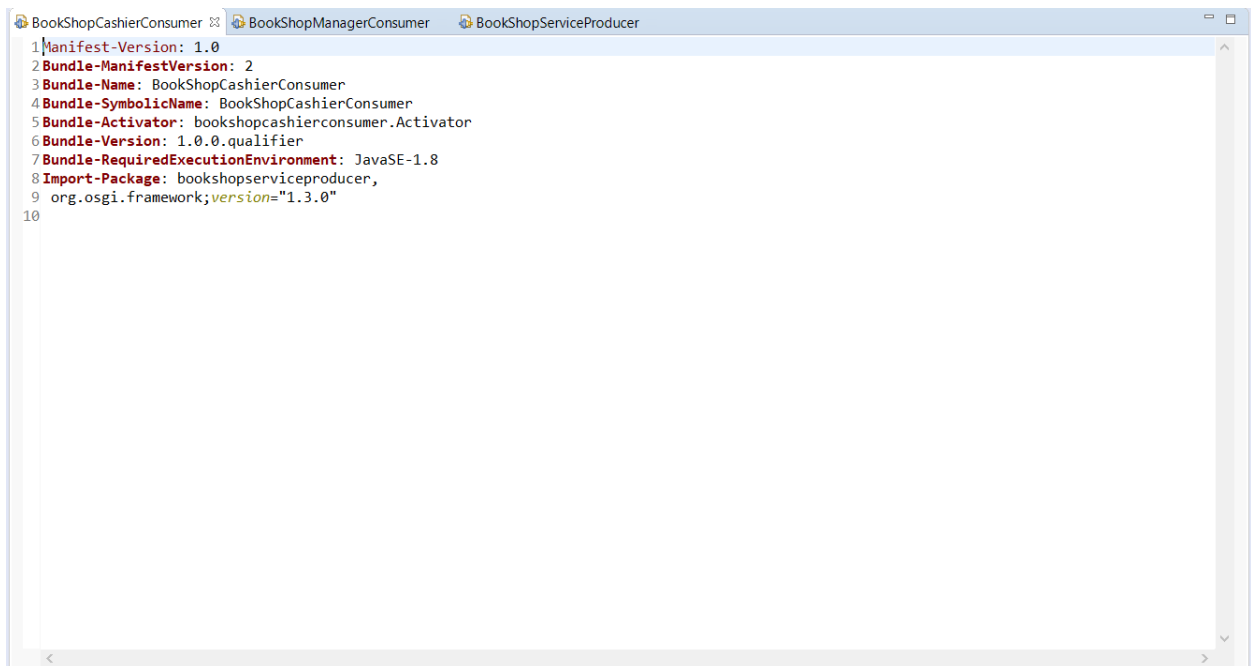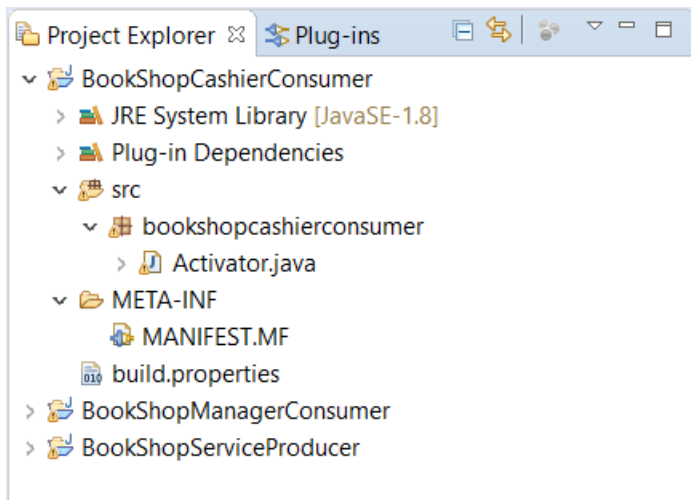Book Shop Manager Consumer Diagram

Book Shop Cashier Consumer

```
Start
  │
  ▼
Display Options
  │
  ▼
Select an Option
  │
  ▼
if valid option ──True──> if option 1 ──False──> if option 2 ──False──> if option 3 ──True──> Exit ──> End
  │                          │                       │                     │
  False                     True                    True                  False
  │                          │                       │                     │
  ▼                          ▼                       ▼                     │
invalid option         Display Book List       Enter BookID               │
                            │                       │                      │
                            ▼                       ▼                      │
                       Input Option          if valid ID ──False──        │
                            │                       │                      │
                            ▼                      True                    │
                  if option == 0 (True)            ▼                       │
                            │                  Enter Option                │
                         False                      │                      │
                            │                       ▼                      │
                            │              if option == "y" ──False──      │
                            │                       │                      │
                            │                      True                    │
                            │                       ▼                      │
                            │                 Genarate Bill                │
                            │                       │                      │
                            │                       ▼                      │
                            │                  Display Bill                │
                            │                       │                      │
                            │                       ▼                      │
                            │           if option == 0 (True)              │
                            │                       │                      │
                            │                     False                    │
```

b) Manifest Implementation

Book Shop Manager Consumer Manifest


```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: BookShopCashierConsumer
4 Bundle-SymbolicName: BookShopCashierConsumer
5 Bundle-Activator: bookshopcashierconsumer.Activator
6 Bundle-Version: 1.0.0.qualifier
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Import-Package: bookshopserviceproducer,
9  org.osgi.framework;version="1.3.0"
10
```

Book Shop Cashier Consumer Manifest


```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: BookShopCashierConsumer
4 Bundle-SymbolicName: BookShopCashierConsumer
5 Bundle-Activator: bookshopcashierconsumer.Activator
6 Bundle-Version: 1.0.0.qualifier
7 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
8 Import-Package: bookshopserviceproducer,
9  org.osgi.framework;version="1.3.0"
10
```

Book Shop Service Producer Manifest


```
1 Manifest-Version: 1.0
2 Bundle-ManifestVersion: 2
3 Bundle-Name: BookShopServiceProducer
4 Bundle-SymbolicName: BookShopServiceProducer
5 Bundle-Version: 1.0.0.qualifier
6 Bundle-Activator: bookshopserviceproducer.Activator
7 Export-Package: bookshopserviceproducer
8 Import-Package: org.osgi.framework;version="1.3.0"
9 Bundle-RequiredExecutionEnvironment: JavaSE-1.8
10
```

c) All commands of bundle install and run in OSGI framework

Listing Bundles


```
osgi> lb
START LEVEL 6
   ID|State      |Level|Name
    0|Active     |    0|OSGi System Bundle (3.12.0.v20170512-1932)
    1|Active     |    1|Simple Configurator (1.2.0.v20170110-1705)
    2|Resolved   |    4|BookShopCashierConsumer (1.0.0.qualifier)
    3|Resolved   |    4|BookShopManagerConsumer (1.0.0.qualifier)
    4|Active     |    4|BookShopServiceProducer (1.0.0.qualifier)
    5|Active     |    4|Logback Classic Module (1.0.7.v20121108-1250)
    6|Active     |    4|Logback Core Module (1.0.7.v20121108-1250)
    7|Resolved   |    1|Logback Native SLF4J Logger (1.0.7.v201505121915)
    8|Active     |    4|Gson: Google Json Library for Java (2.7.0.v20170129-0911)
    9|Active     |    4|Guava: Google Core Libraries for Java (21.0.0.v20170206-1425)
   10|Active     |    4|Guava: Google Core Libraries for Java (15.0.0.v201403281430)
   11|Active     |    4|Google Guice (No AOP) (3.0.0.v201312141243)
   12|Resolved   |    1|Google Guice (No AOP) (3.0.0.v201402270930)
   13|Active     |    4|Closure Compiler (0.0.20160315.v20161124-1903)
   14|Active     |    4|Protocol Buffers (2.4.0.v201105131100)
   15|Active     |    4|Gradle Tooling Commons - Tooling Client (0.19.0.v20170412105839)
   16|Active     |    4|Gradle Tooling Commons - Tooling Model (0.19.0.v20170412105839)
   17|Active     |    4|Gradle Tooling Commons - Tooling Utils (0.19.0.v20170412105839)
   18|Active     |    4|ICU4J (58.2.0.v20170418-1837)
   19|Active     |    4|JSch (0.1.54.v20170116-1932)
   20|Active     |    4|Javax Expression Language Reference Implementation Bundle (2.2.0.v201303151357)
   21|Active     |    4|Java Native Access (4.1.0.v20170410-1117)
   22|Active     |    4|Java Native Access Platform (4.1.0.v20170410-1117)
   23|Active     |    4|Java Cup (0.10.0.v201005080400)
   24|Active     |    4|javaewah (1.1.6.v20160919-1400)
   25|Active     |    4|Apache Geronimo Activation Plug-in (1.1.0.v201211130549)
   26|Active     |    4|javax.annotation Bundle (1.2.0.v201602091430)
   27|Active     |    4|Javax Expression Language Bundle (2.2.0.v201303151357)
   28|Active     |    4|Atinject Dependency Injection Annotations (1.0.0.v20091030)
```

Book Shop Manager Consumer Start


```
osgi> start 4
===========Book Shop service started.===========
osgi> start 3
===========Book Shop manager consumer started.===========
---------------------------Welcome Book Shop Manager---------------------------
Please Select an option to continue.....
Options
1.Add a new Book
2.Update a Book
3.Delete a Book
4.Book List
5.Search Book by name
6.Exit
Enter your selection...
```

Book Shop Manager Consumer Stop


```
---------------------------Welcome Book Shop Manager---------------------------
Please Select an option to continue.....
Options
1.Add a new Book
2.Update a Book
3.Delete a Book
4.Book List
5.Search Book by name
6.Exit
Enter your selection...
6
osgi> stop 3
===========Book shop manager consumer stopped.===========
osgi>
```

Book Shop Cashier Consumer Start

```
Console ☒
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 13, 2024, 11:11:09 PM)
Enter your selection...
6
osgi> start 2
============Book shop cashier consumer started.============
----------------------------Welcome to Billing-----------------------------
Please Select an option to continue.....
Options
1.View Book List
2.Generate customer bills
3.Exit
Enter your selection...
```

Book Shop Cashier Consumer Stop

```
Console ☒
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 14, 2024, 6:45:29 PM)
 1002|Active     |    4|W3C SVG DOM (1.1.0.v201011041433)
osgi> Start 2
============Book shop cashier consumer started.============
----------------------------Welcome to Billing-----------------------------
Please Select an option to continue.....
Options
1.View Book List
2.Generate customer bills
3.Exit
Enter your selection...
3
osgi> Stop 2
============Book Shop cashier consumer stopeed.============
osgi>
```
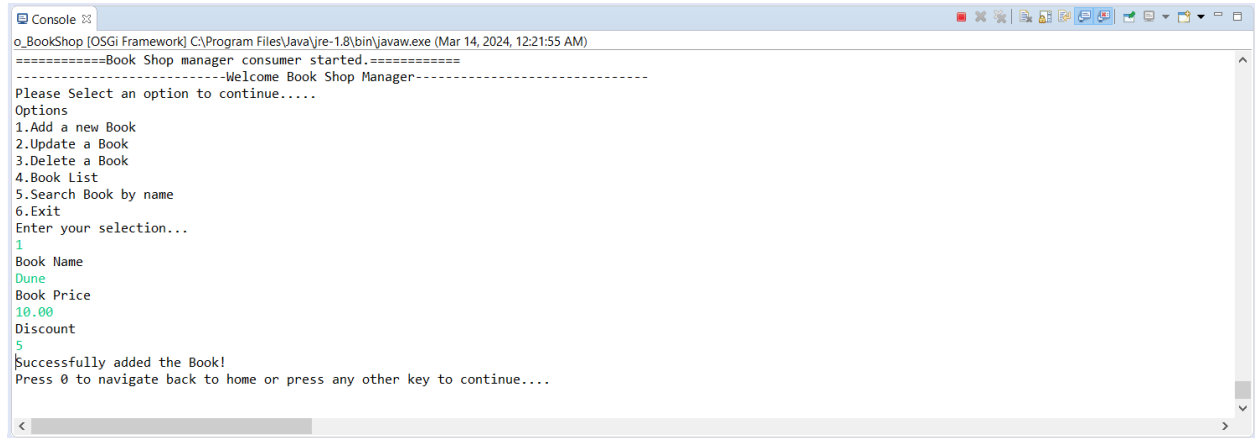
Book Shop Service Producer Start

```
Console ☒
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 13, 2024, 11:11:09 PM)
  989|Active     |    4|ASM Commons (5.2.0.v20170126-0011)
  990|Active     |    4|ASM Tree (5.2.0.v20170126-0011)
  991|Active     |    4|ASM Tree class visitor (5.0.1.v201404251740)
  992|Active     |    4|SAT4J Core (2.3.5.v201308161310)
  993|Active     |    4|SAT4J Pseudo (2.3.5.v201404071733)
  994|Active     |    4|SLF4J API (1.7.2.v20121108-1250)
  995|Resolved   |    1|SLF4J LOG4J-12 Binding (1.7.2.v20131105-2200)
  996|Active     |    4|m2e connector for the mavenarchiver and pom properties (0.17.2.201606141937-signed-20160830073346)
  997|Active     |    4|XZ for Java (1.5.0.v20170111-1717)
  998|Active     |    4|UDDI4J (2.0.5.v200805270300)
  999|Active     |    4|W3C CSS SAC (1.3.1.v200903091627)
 1000|Active     |    4|W3C DOM Level 3 Events (3.0.0.draft20060413_v201105210656)
 1001|Active     |    4|W3C SMIL DOM (1.0.1.v200903091627)
 1002|Active     |    4|W3C SVG DOM (1.1.0.v201011041433)
osgi> start 4
============Book Shop service started.============
osgi>
```

Book Shop Service Producer Stop

o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 13, 2024, 11:11:09 PM)

```
 991|Active    |     4|ASM Tree class visitor (5.0.1.v201404251740)
 992|Active    |     4|SAT4J Core (2.3.5.v201308161310)
 993|Active    |     4|SAT4J Pseudo (2.3.5.v201404071733)
 994|Active    |     4|SLF4J API (1.7.2.v20121108-1250)
 995|Resolved  |     1|SLF4J LOG4J-12 Binding (1.7.2.v20131105-2200)
 996|Active    |     4|m2e connector for the mavenarchiver and pom properties (0.17.2.201606141937-signed-20160830073346)
 997|Active    |     4|XZ for Java (1.5.0.v20170111-1717)
 998|Active    |     4|UDDI4J (2.0.5.v200805270300)
 999|Active    |     4|W3C CSS SAC (1.3.1.v200903091627)
1000|Active    |     4|W3C DOM Level 3 Events (3.0.0.draft20060413_v201105210656)
1001|Active    |     4|W3C SMIL DOM (1.0.1.v200903091627)
1002|Active    |     4|W3C SVG DOM (1.1.0.v201011041433)
osgi> start 4
============Book Shop service started.============
osgi> stop 4
==============Book Shop service stoped.==============
osgi>
```

1) Add Book

```
Console ⊠
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 14, 2024, 12:21:55 AM)
============Book Shop manager consumer started.============
----------------------------Welcome Book Shop Manager-----------------------------
Please Select an option to continue.....
Options
1.Add a new Book
2.Update a Book
3.Delete a Book
4.Book List
5.Search Book by name
6.Exit
Enter your selection...
1
Book Name
Dune
Book Price
10.00
Discount
5
Successfully added the Book!
Press 0 to navigate back to home or press any other key to continue....
```
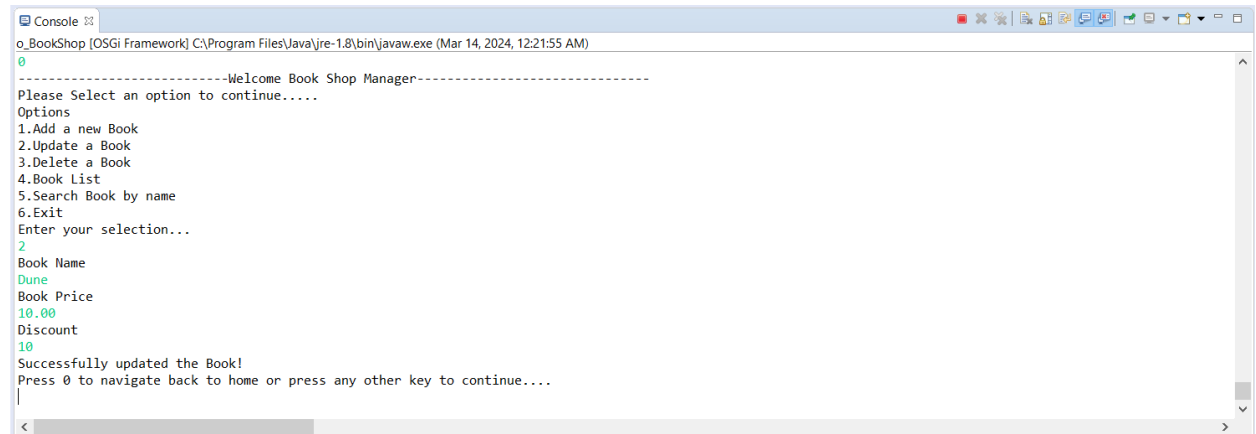
Book shop manager added a book to the book list. When adding a book, he can specify the price and a discount. Then an id is given to the book by the system.

2) Update Book Details

```
Console ⊠
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 14, 2024, 12:21:55 AM)
0
----------------------------Welcome Book Shop Manager-----------------------------
Please Select an option to continue.....
Options
1.Add a new Book
2.Update a Book
3.Delete a Book
4.Book List
5.Search Book by name
6.Exit
Enter your selection...
2
Book Name
Dune
Book Price
10.00
Discount
10
Successfully updated the Book!
Press 0 to navigate back to home or press any other key to continue....
```

Book shop manager can update the name, price and discount of the books in the book list. In this example the manager has changed the discount amount.

3) Delete Books

```
Console ⊠
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 13, 2024, 11:11:09 PM)
0
-------------------------Welcome Book Shop Manager-----------------------------
Please Select an option to continue.....
Options
1.Add a new Book
2.Update a Book
3.Delete a Book
4.Book List
5.Search Book by name
6.Exit
Enter your selection...
3
Enter the Book name:
Dune
Successfully Removed the item!
Press 0 to navigate back to home or press any other key to continue....
```

The book shop manager can delete books in the book list. He has to enter the name of the book and delete it from the list.

4) View Book List

```
Console ⊠
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 14, 2024, 1:38:59 PM)
Enter your selection...
4
|-------------------------------Book list-------------------------------------------
Book ID:        Book Name:      Book Price:     Discount Percentage:    Book Final Price:
1               Harry Potter and the Sorcerer's Stone          9.8              5.0                        9.31

2               Harry Potter and the Prisoner of Azkaban              8.44         2.0                  8.271199999999999

3               The Lives of Saints         15.99        2.0                      15.6702

4               Dune        8.99        2.0                8.8102

-----------------------------------------------------------------------------------
Press 0 to navigate back to home or press any other key to continue....
```

Both the book shop manager and cashier can view the book list. The book id, book name, price, discount and the price after discount is displayed on the book list.

5) Generate Bills


```
Console ☒
o_BookShop [OSGi Framework] C:\Program Files\Java\jre-1.8\bin\javaw.exe (Mar 14, 2024, 1:38:59 PM)
0
----------------------------Welcome to Billing-----------------------------
Please Select an option to continue.....
Options
1.View Book List
2.Generate customer bills
3.Exit
Enter your selection...
2
--------------------Generate Bills --------------------

Enter the book id
1
Enter quantity
1
Press y to calclate the totoal bill or any other key to continue the billing....
y
|-----------------------------------------Receipt----------------------------------------
Book ID:          Book Name:          Price:          Total:
1                 Harry Potter and the Sorcerer's Stone1                     9.31
                                                      ----------
Subtotal:                                             9.31
                                                      ----------
                                                      ----------
------------------------------------------------------------------------------------------
Press 0 to navigate back to home or press any other key to continue....
```

Updates Available   x
Updates are available for your software.
Click to review and install updates.
Set up Reminder options

The cashier can generate bills by giving the book id and quantity. He can calculate the total amount and gives the sub total in the end. In this example only one book has been purchased but the cashier can enter multiple books.