



SE3030 – Software Architecture
Assignment 01: Micro-kernel Architecture

Producer & Consumer Projects - Report

Group: CSSE_WE_54

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SUPERMARKET SERVICE

INTRODUCTION

The primary goal of "The Corner Mart" is to offer goods to customers, and we carried out this task in accordance with the OSGI framework. We make use of the OSGi system and its structural foundation. In the OSGi Framework, there are also ways for registering services and lifecycle implementation.

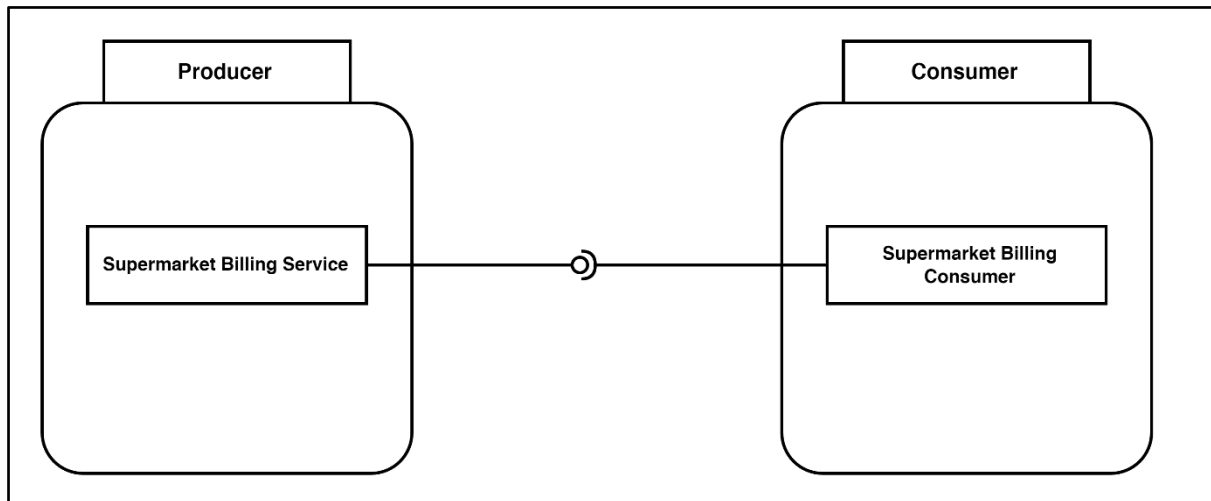
There are 5 consumers, and 4 producers in this senario.

Those are,

- 1) Supermarket billing service is the producer/publisher, and the consumer/subscriber is Manager.
- 2) Delivery service is the producer/publisher, and the consumer/subscriber is Delivery Manager.
- 3) Employee management service is the producer/publisher, and the consumer/subscriber is Manager.
- 4) Store management service is the producer/publisher, and the consumer/subscriber is Store Manager.

1) **SUPERMARKET BILLING SERVICE IS THE PRODUCER / PUBLISHER AND THE CONSUMER / SUBSCRIBER IS THE MANAGER - IT20601256**

SYSTEM DIAGRAM



MANIFEST IMPLEMENTATION

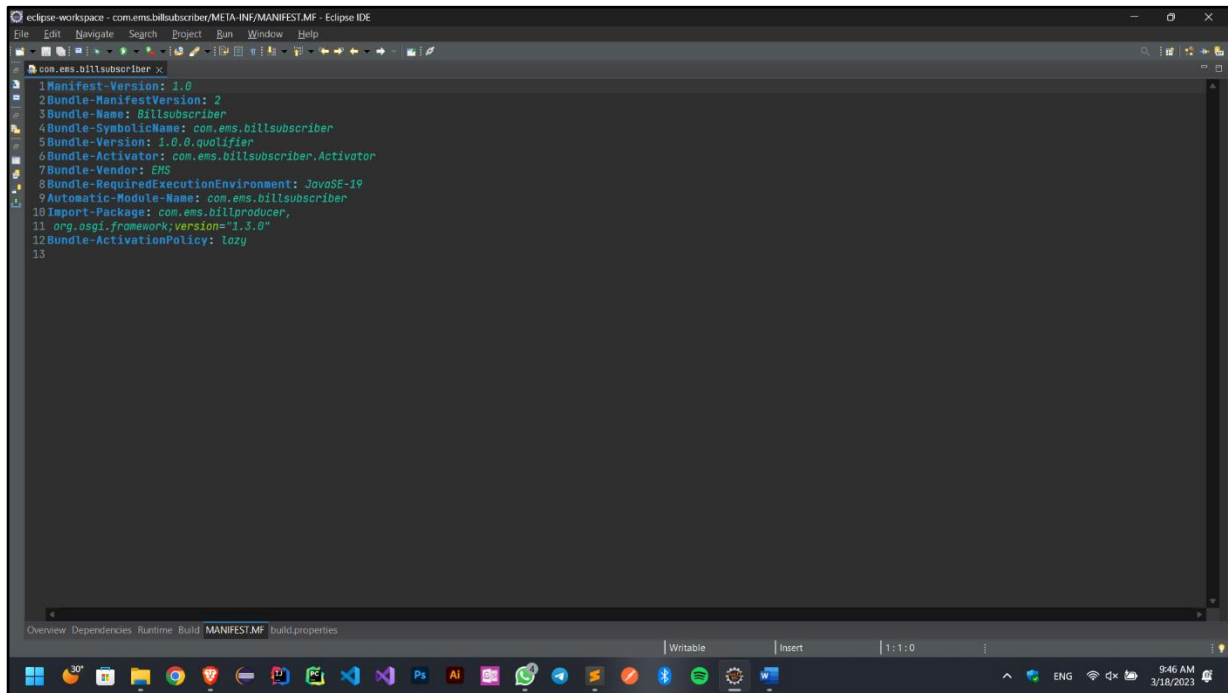
Supermarket Billing Service

(Producer/Publisher)

```
1Manifest-Version: 1.0
2Bundle-ManifestVersion: 2
3Bundle-Name: Billproducer
4Bundle-SymbolicName: com.ens.billproducer
5Bundle-Version: 1.0.0.qualifier
6Bundle-Activator: com.ens.billproducer.Activator
7Bundle-Vendor: EMS
8Bundle-RequiredExecutionEnvironment: JavaSE-19
9Automatic-Module-Name: com.ens.billproducer
10Import-Package: org.osgi.framework;version="1.3.0"
11Bundle-ActivationPolicy: lazy
12Export-Package: com.ens.billproducer
13
```

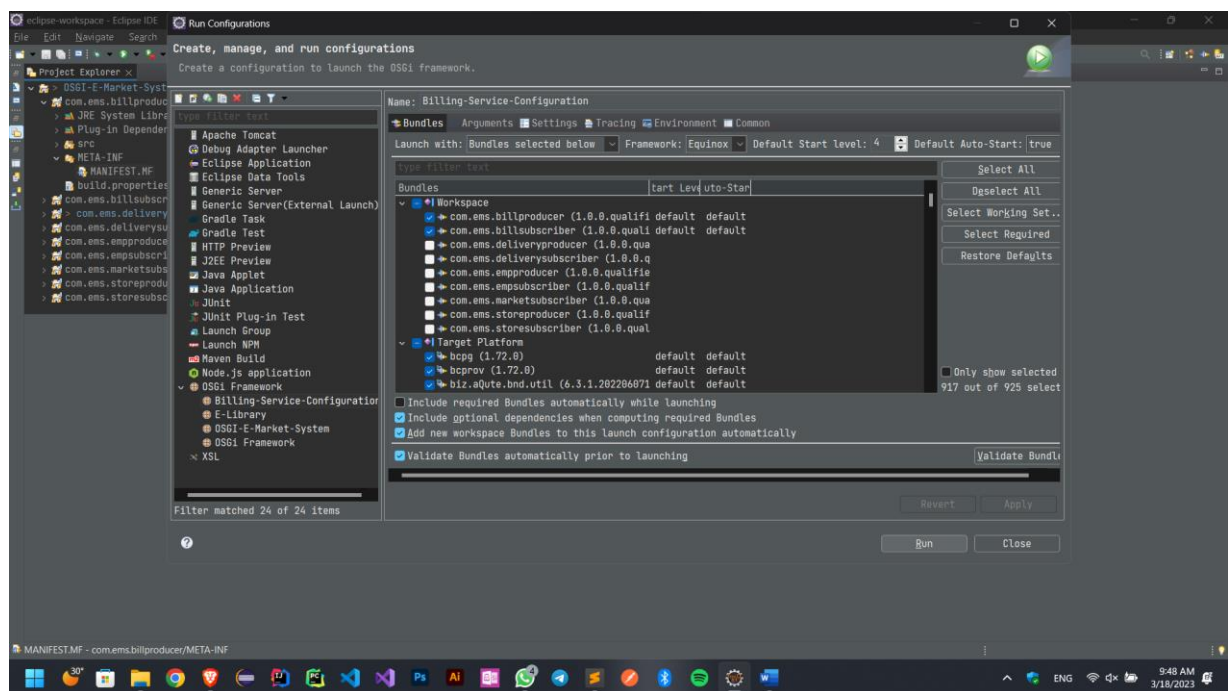
The screenshot shows the Eclipse IDE with the MANIFEST.MF file open. The file content is as follows:

Manager (Consumer/Subscriber)

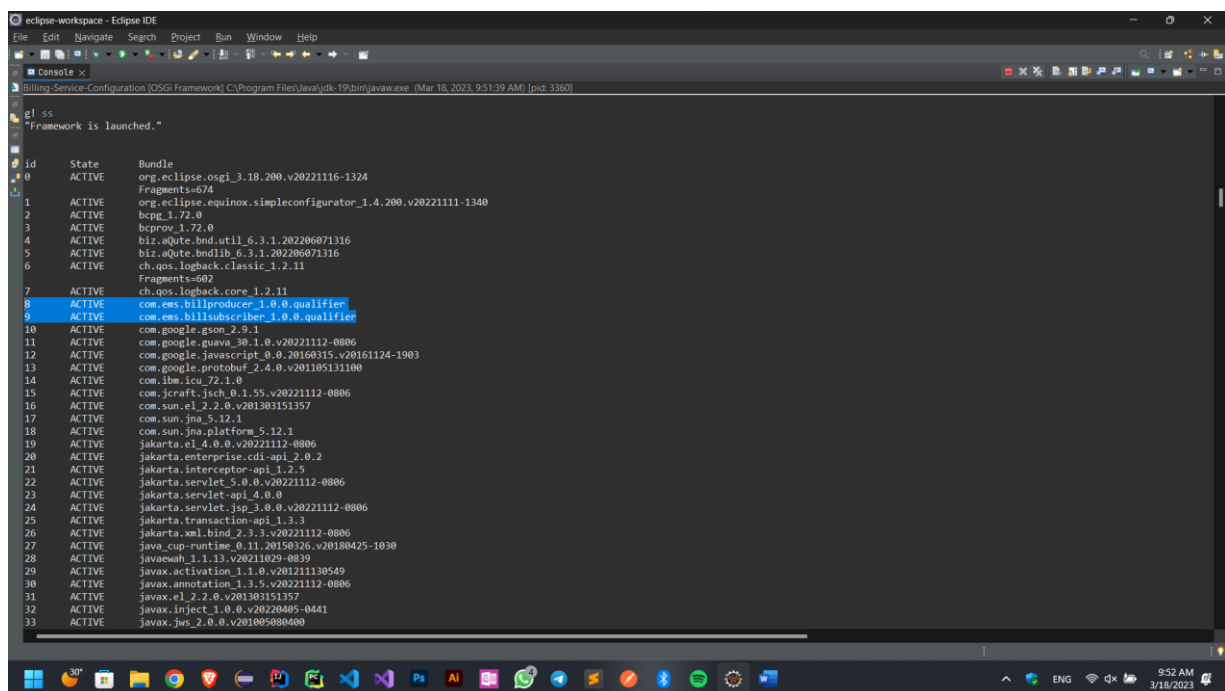
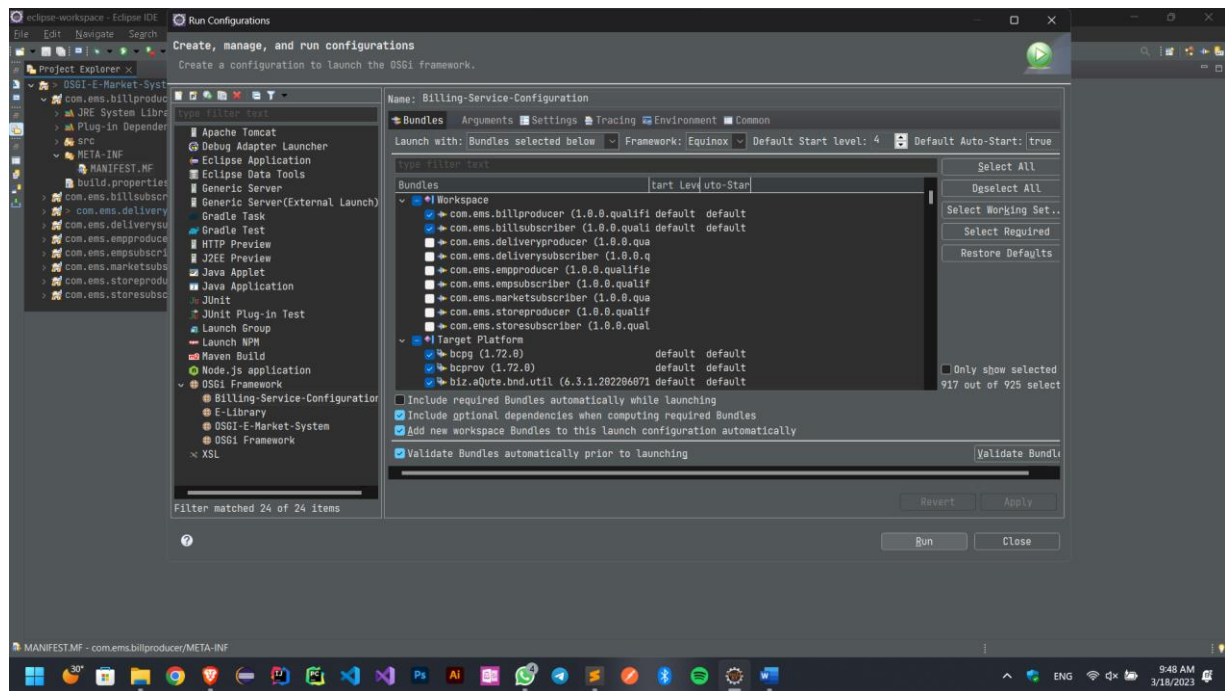


BUNDLES

Supermarket Billing Service (Producer/Publisher)



Manager (Consumer/Subscriber)



BEHAVIOUR & OUTPUTS

```
g! start 8
|
Bill Producer Started !
```

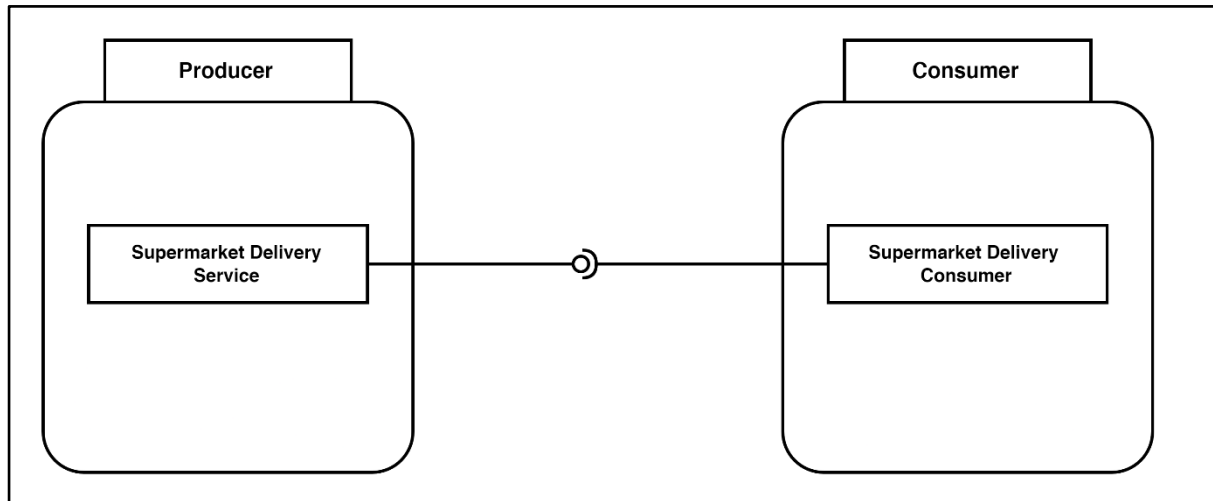
```
g! start 9
Bill Subscriber Started !
```

```
<<< EBill List >>>
```

ID	Customer Name	Telephone	Total Bill
1	Janaka Jayasinghe	0758263120	1500.0
2	Nirmala Madagedara	0718531204	500.0
3	Nawoda Thathsarani	0702431896	3500.0

2) **DELIVERY SERVICE IS THE PRODUCER/PUBLISHER, AND
THE CONSUMER/SUBSCRIBER IS DELIVERY MANAGER -**
IT20256050

SYSTEM DIAGRAM

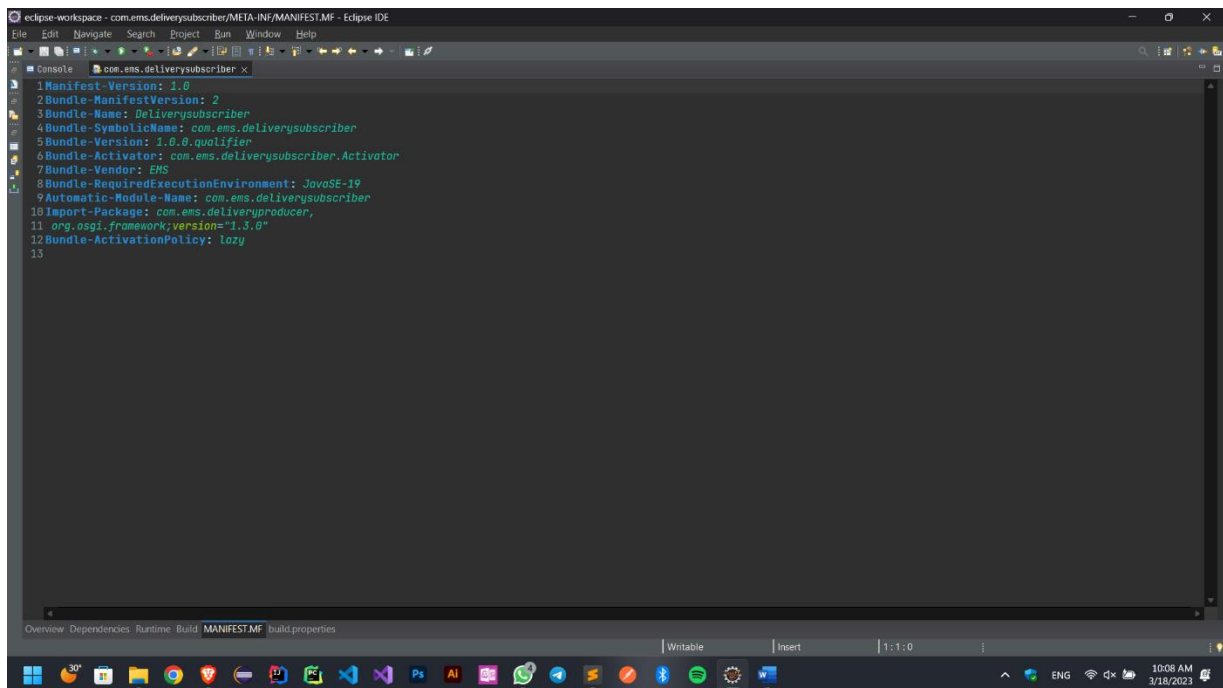


MANIFEST IMPLEMENTATION

Delivery Service (Producer/Publisher)

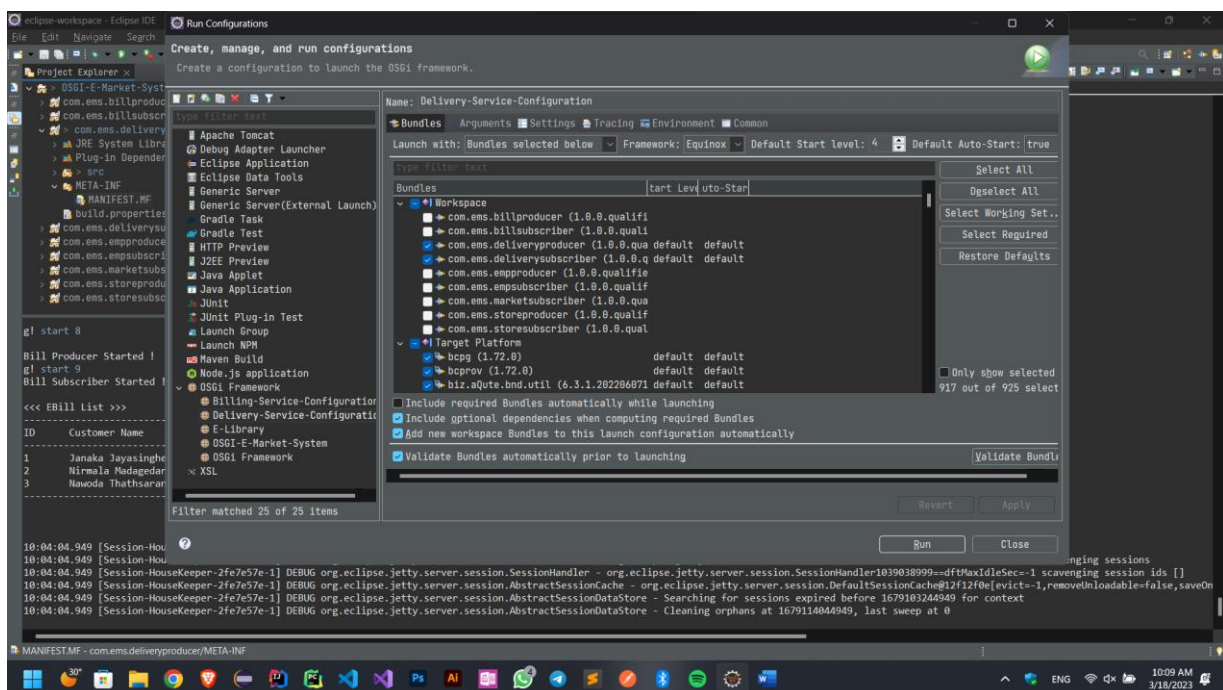
```
1Manifest-Version: 1.0
2Bundle-ManifestVersion: 2
3Bundle-Name: Deliveryproducer
4Bundle-SymbolicName: com.ens.deliveryproducer
5Bundle-Version: 1.0.0.qualifier
6Bundle-Activator: com.ens.deliveryproducer.Activator
7Bundle-Vendor: EMS
8Bundle-RequiredExecutionEnvironment: JavaSE-19
9Automatic-Module-Name: com.ens.deliveryproducer
10Import-Package: org.osgi.framework;version="1.3.0"
11Bundle-ActivationPolicy: lazy
12Export-Package: com.ens.deliveryproducer
13
```

Delivery Manager (Consumer/Subscriber)

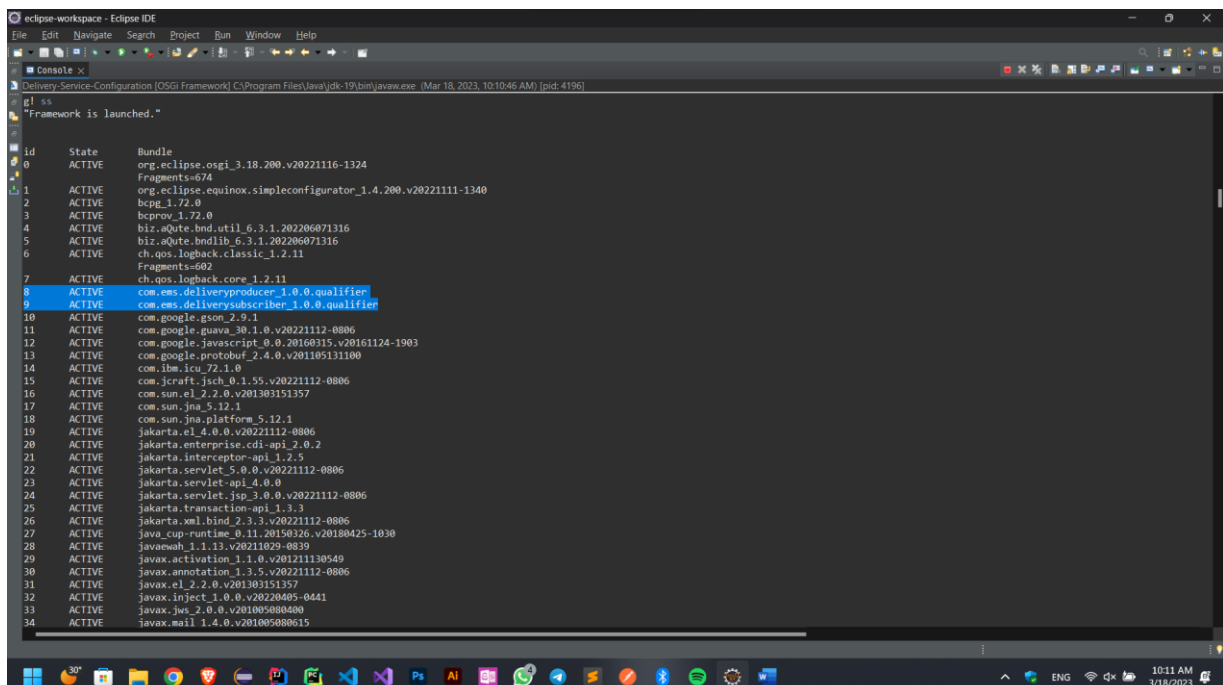
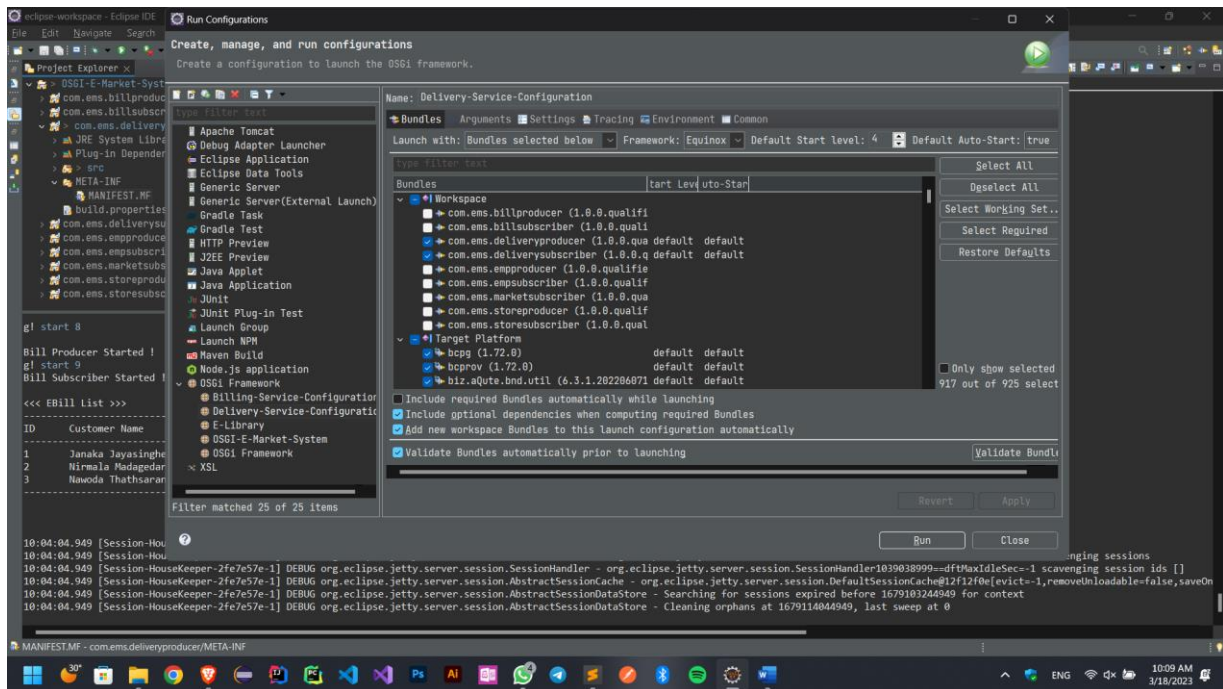


BUNDLES

Delivery Service (Producer/Publisher)



Delivery Manager (Consumer/Subscriber)



BEHAVIOUR & OUTPUTS

```
g! start 8
```

```
Delivery Producer Started !
```

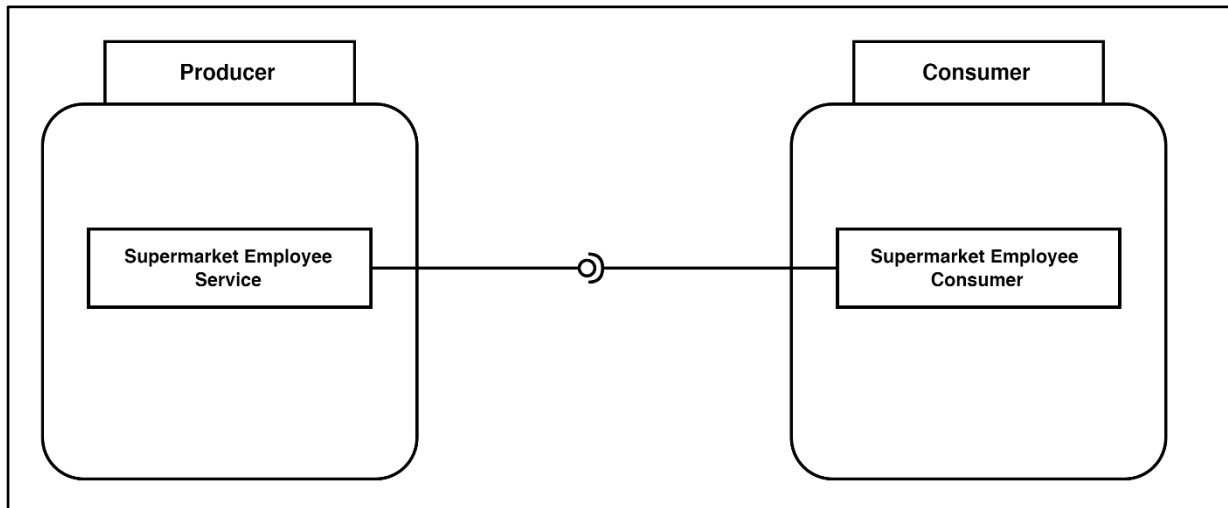
```
g! start 9  
Delivery Subscriber Started !
```

```
<<< Delivery List >>>
```

ID	Customer Name	Good Name	Quantity	Telephone	Location	Date	Delivery Person
1	Nawoda Thatasarani	Yogurts	50.0	0765231504	Piliyandala	2022.03.15	Rathnayaka
2	Udul Dulsara	Ice-Cream	10.0	0715234027	Moratuwa	2022.03.15	Kamal
3	Dinuja Minsara	Peanut	500.0	0789635124	Bandaragama	2022.03.15	Saman

3) EMPLOYEE MANAGEMENT SERVICE IS THE PRODUCER/PUBLISHER, AND THE CONSUMER/SUBSCRIBER IS MANAGER - IT20621360

SYSTEM DIAGRAM



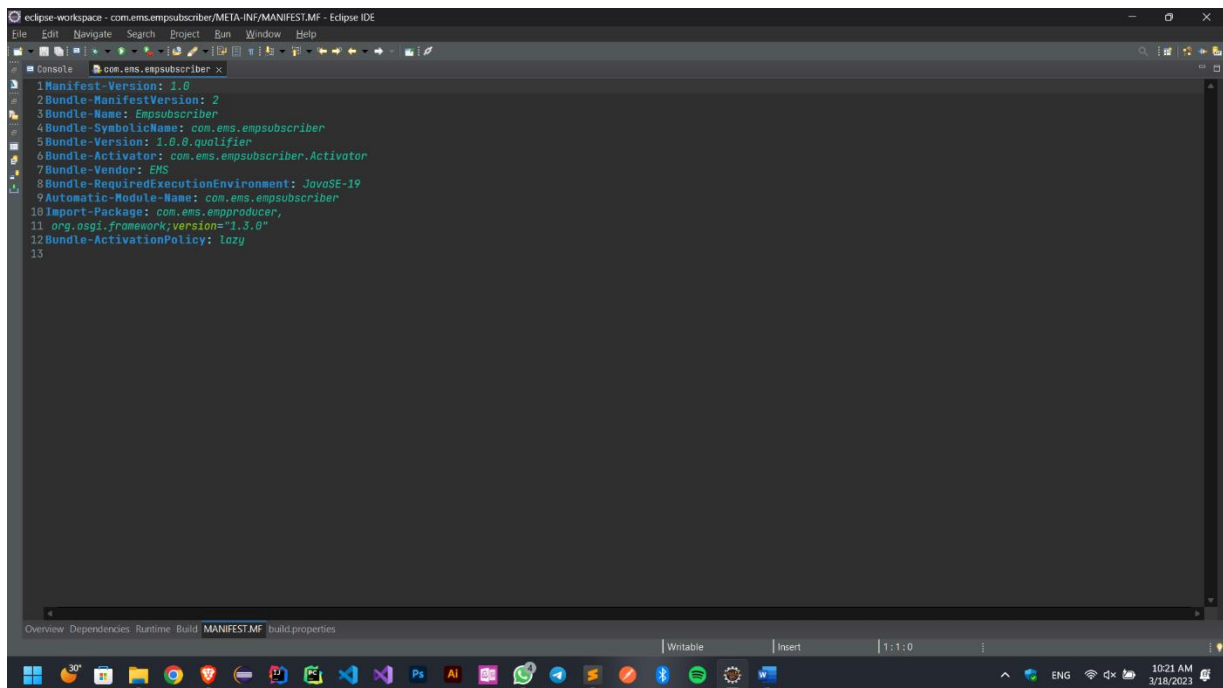
MANIFEST IMPLEMENTATION

Inventory Employee Management Service
(Producer/Publisher)

```
1Manifest-Version: 1.0
2Bundle-ManifestVersion: 2
3Bundle-Name: Empproducer
4Bundle-SymbolicName: com.ens.empproducer
5Bundle-Version: 1.0.0.qualifier
6Bundle-Activator: com.ens.empproducer.Activator
7Bundle-Vendor: EMS
8Bundle-RequiredExecutionEnvironment: JavaSE-19
9Automatic-Module-Name: com.ens.empproducer
10Import-Package: org.osgi.framework;version="1.3.0"
11Bundle-ActivationPolicy: lazy
12Export-Package: com.ens.empproducer
13
```

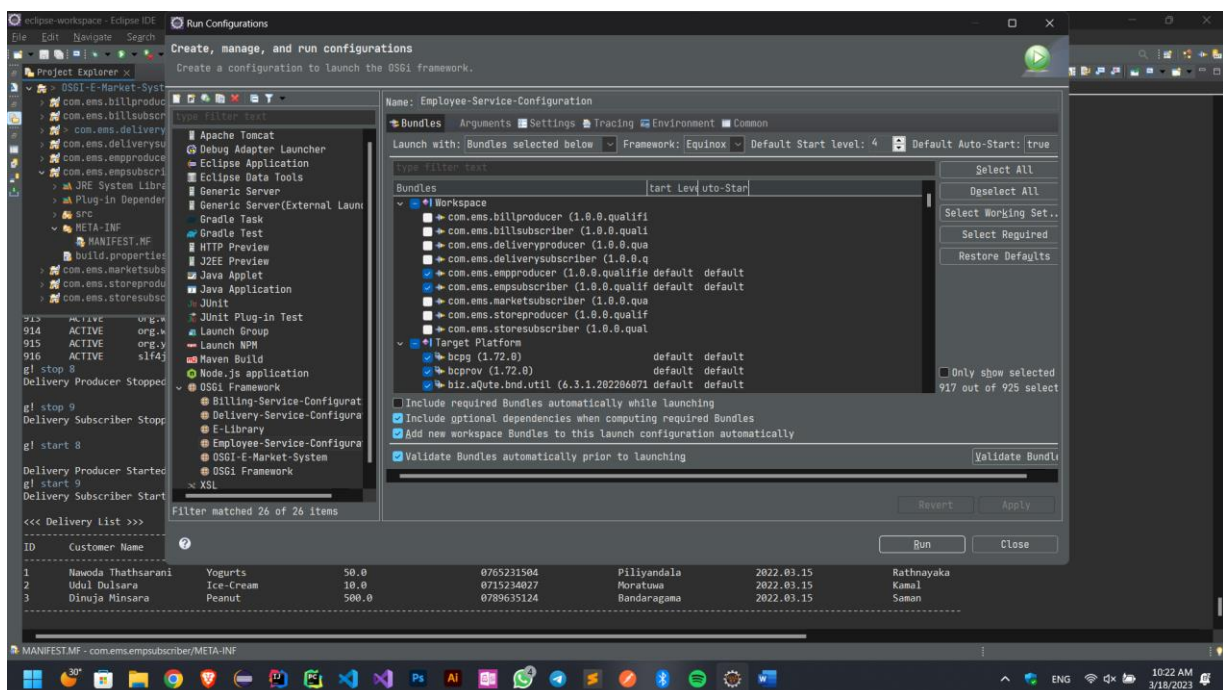
The screenshot shows the Eclipse IDE interface with the MANIFEST.MF file open in the editor. The file content is as follows:

Manager (Consumer/Subscriber)

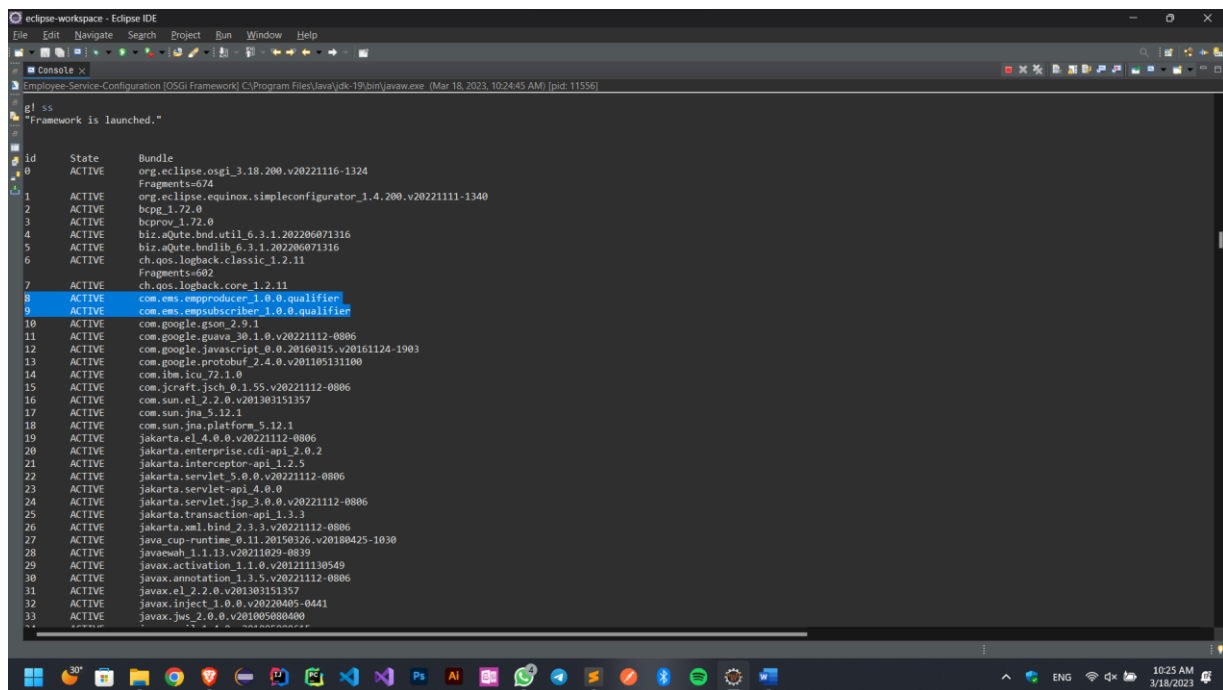
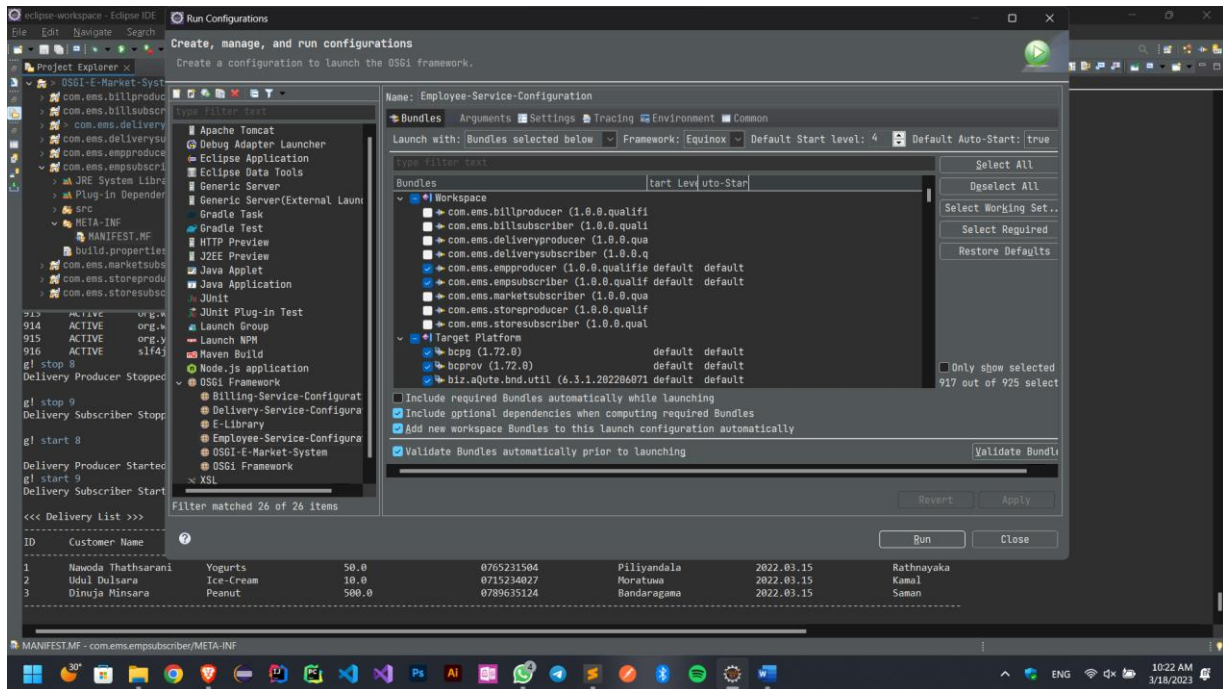


BUNDLES

Employee Management Service (Producer/Publisher)



Manager (Consumer/Subscriber)



BEHAVIOUR & OUTPUTS

```
g! start 8
```

```
Employee Producer Started !
```

```
g! start 9
```

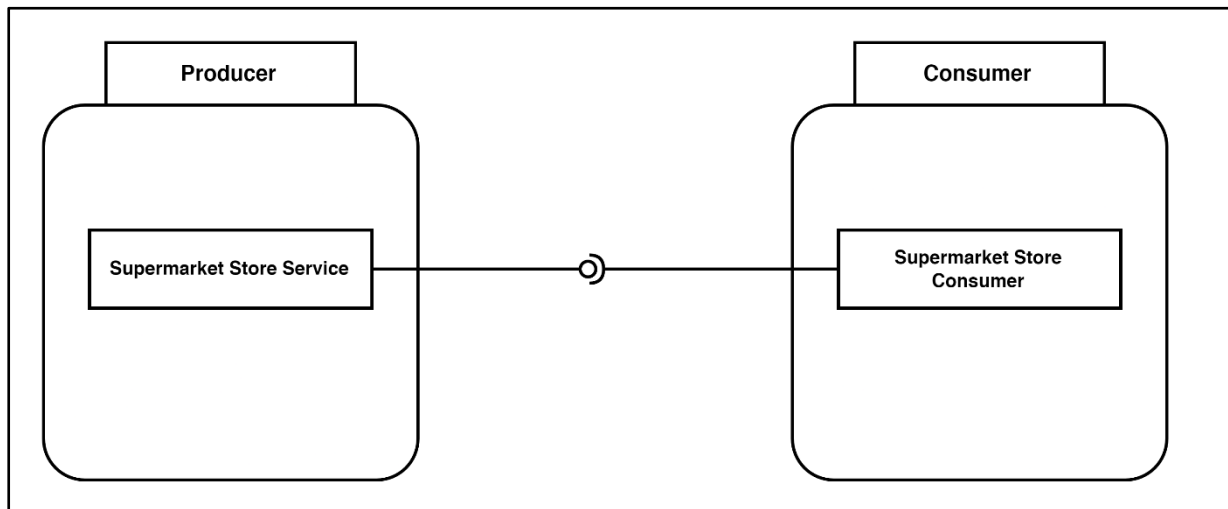
```
Employee Subscriber Started !
```

```
<<< Employee List >>>
```

EMPID	Employee Name	Telephone	Date of Join
CA001	Kasun Jeewaka	0718520360	2019.01.23
SK002	Janith Perera	0728563001	2018.05.07
CA003	Janaka Sandaruwan	0753621250	2021.03.30

4) STORE MANAGEMENT SERVICE IS THE PRODUCER/PUBLISHER, AND THE CONSUMER/SUBSCRIBER IS STORE MANAGER - IT20620820

SYSTEM DIAGRAM



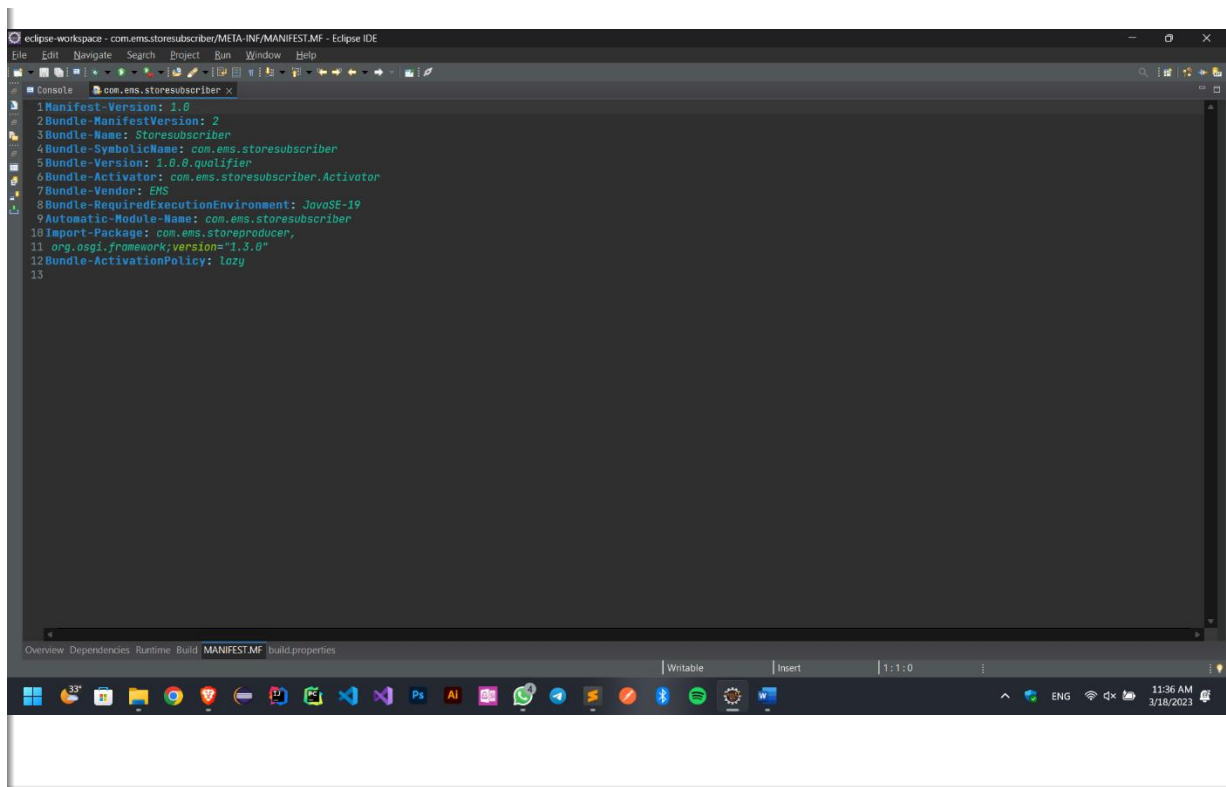
MANIFEST IMPLEMENTATION

Store Management Service (Producer/Publisher)

```
1Manifest-Version: 1.0
2Bundle-ManifestVersion: 2
3Bundle-Name: Storeproducer
4Bundle-SymbolicName: com.ems.storeproducer
5Bundle-Version: 1.0.0.qualifier
6Bundle-Activator: com.ems.storeproducer.Activator
7Bundle-Vendor: EMS
8Bundle-RequiredExecutionEnvironment: JavaSE-19
9Automatic-Module-Name: com.ems.storeproducer
10Import-Package: org.osgi.framework;version="1.3.0"
11Bundle-ActivationPolicy: lazy
12Export-Package: com.ems.storeproducer
13
```

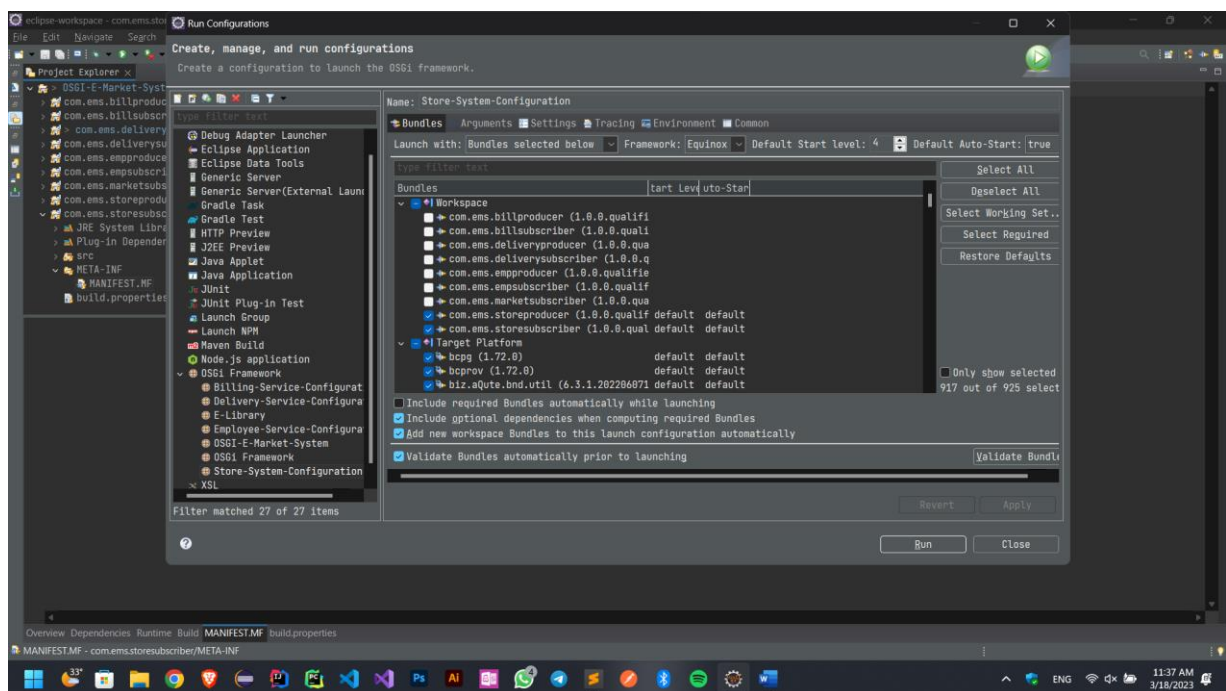
The screenshot shows the Eclipse IDE interface with the **MANIFEST.MF** file for the **com.ems.storeproducer** bundle. The manifest file contains the following content:

Store Manager (Consumer/Subscriber)

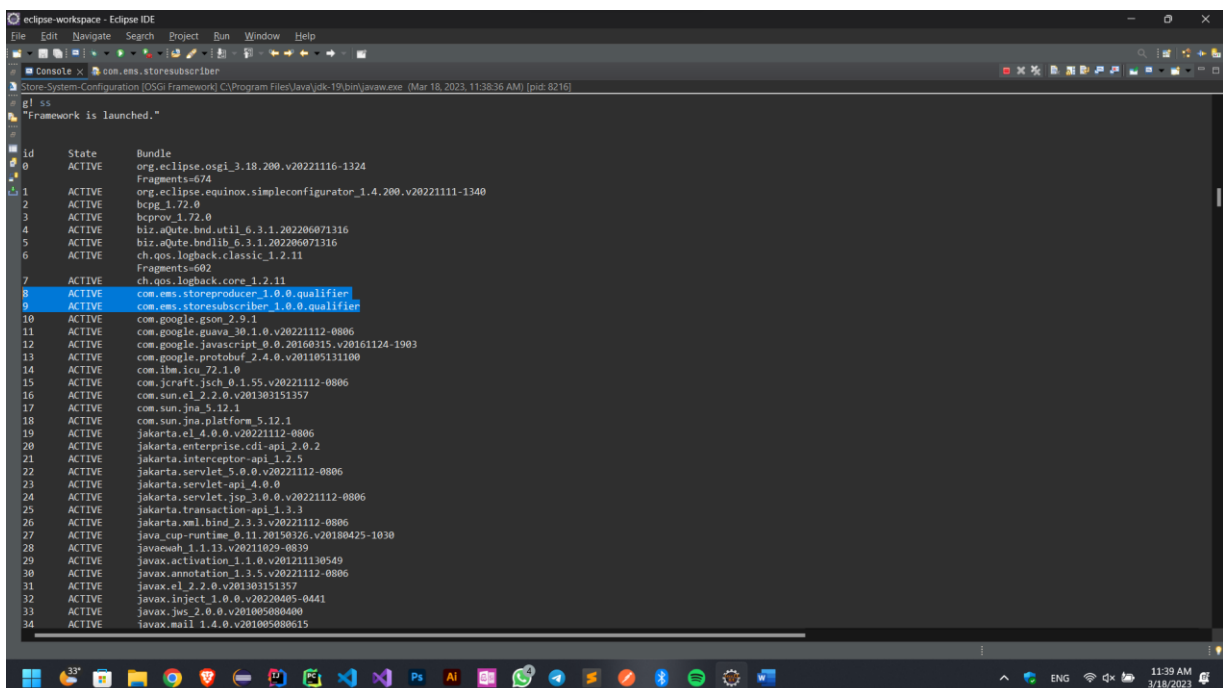
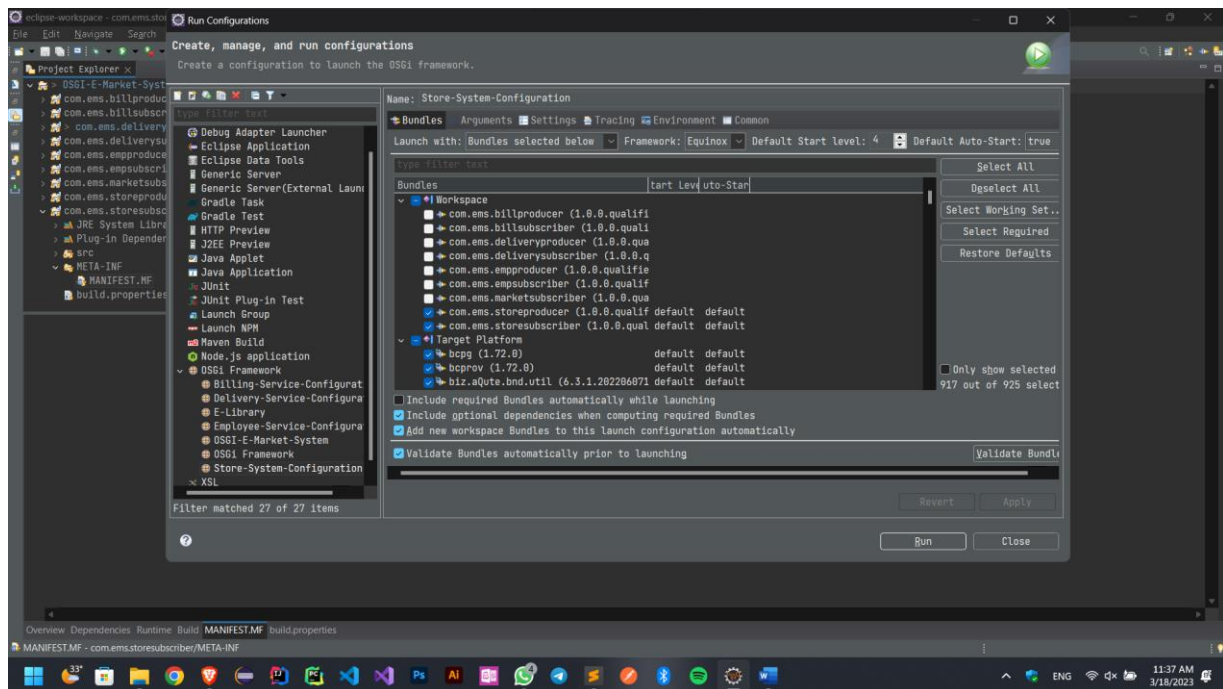


BUNDLES

Store Management Service (Producer/Publisher)



Store Manager (Consumer/Subscriber)



BEHAVIOUR & OUTPUTS

```
g! start 8
```

```
Store Producer Started !
```

```
g! start 9
```

```
Store Subscriber Started !
```

```
<<< EStore Item List >>>
```

ItemCode	Item Name	Quantity	StoreKeeper Code
ITEM1	Sunlight	1000.0	SK002
ITEM2	Yogurt	10000.0	SK002
ITEM3	Cream Cracker	5000.0	SK002

GitHub Link: <https://github.com/PoornaSankalana/OSGI-E-Market-System>