



SE3030 Software Architecture - 2022

Assignment 01 : Micro-Kernel Architecture

Objective :

The objective of this assignment is to check students' knowledge regarding OSGi framework and its underlying architecture. As well service intercommunication in OSGi Framework, registering services and lifecycle implementation of OSGi bundles.

Percentage of overall : 20%

Software Architecture - Assignment 01

Guidelines: -

- A. Assignment is an open-ended assignment. **Creativity is up to you to decide.**
- B. This is similar to the **practical example given in Apache Felix Lab practical.** You have to develop your own publisher-subscriber scenario.
- C. You can use **Apache Felix OSGi framework** or any OSGi framework for the deployment.
- D. Marks will be allocated for given **deliverables**, and **marking scheme** is given below.
- E. You will be given **deadline on 20th March 2022 (Late submissions are not accepted 50%** marks will be decreased from overall marks any delay or the failure to conduct Viva)
- F. **The group** should represent maximum of **4 members**.
- G. If the code has been **directly copied** from the **internet or from a peer at any level**, it will be considered as **a plagiarism act and dealt with accordingly**. (Please note that we will be using software to check for any plagiarism)

Question:

You should implement the **Producer – Consumer scenario** using **OSGi framework**. You have to implement separate service bundle (or bundles) as producer (or producers) and to consume that service (or services), there should be a consumer bundle (or bundles). You should establish service communication among producer and consumer.

In your scenario you can implement 1 or more producers and 1 or more consumers to consume service/services.

[In this assignment one producer and one consumer is also enough. If you implemented more than one you will get additional marks for creativity]

Deliverables:

Source codes of producer implementation & consumer implementation.

Producer & Consumer bundles (jars)

Report: (You should provide a report that include below details)

- a) Explain the Scenario using a diagram.
- b) Manifest implementation (Exported services/ imported services)
- c) All commands of bundle install and run in OSGi framework. (Step wise mention producer installation and consumer installation & running services)
- d) Sample screenshots of its behavior & outputs.

[Important: - During the evaluation time if application didn't run successfully, by looking at **screen shots** in the **report**, marks would be given]

Marking Scheme

Feature	Marks
Producer / Consumer Manifest implementation	04
Producer Implementation Implementation of lifecycle methods Service implementation Producer bundle runs successfully	04
Consumer Implementation Implementation of lifecycle methods Service implementation Consumer bundle runs successfully	04
Report	04
Creativity of the scenario	04
Total Marks	20