SE3030 – Software Architecture

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 Equinox Lab practical**. You have to develop your own publisher-subscriber scenario.

C. You can use **Apache Equinox OSGi framework or** any OSGi framework for the deployment. (Use **Eclipse IDE** for the implementation)

D. Marks will be allocated for given **deliverables,** and **marking scheme** is given below.

E. You will be given **deadline on 20th of 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 pier 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)

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.

Each member should implement **at least 01 producer and 01 consumer**. If a member can implement more than that and consider more complex scenario in creative manner more marks will be offered under the complexity category of the scenario.

Deliverables:

Source codes of producer implementation & consumer implementation.

Producer & Consumer Projects

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
Complexity of the scenario	04
Total Marks	**20**