Assignment 7

- Title
  To develop microservices framework based distributed application.

- Theory
- Microservices: Traditional application design is often called "monolithic" because the whole thing is developed in one piece. Even if the logic of the application is modular it's deployed as one group, like a Java application as a JAR file for example.This monolith eventually becomes so difficult to manage the larger applications require longer and longer deployment timeframes.In contrast with the monolith type application.
- A team designing a microservices architecture for their application will split all of the major functions of an application into independent services. Each independent service is usually packaged as an APIso it can interact with the rest of the application elements.
- Microservices -also known as the microservice architecture -is an architectural style that structures an application as a collection of services that are
  - Highly maintainable and testable
  - Loosely coupled
  - Independently deployable
  - Organized around business capabilities

- The microservice architecture enables the continuous delivery/deployment of large, complex applications. It also enables an organization to evolve its technology stack.
- Web frameworks
  - They encapsulate what developers have learned over the past twenty years while programming sites and applications for the web. Frameworks make it easier to reuse code for common HTTP operations and to structure projects so other developers with knowledge of the framework can quickly build and maintain the application.
  - Common web framework functionality:Frameworks provide functionality in their code or through extensions to perform common operations required to run web applications. These common operations include
    - URL routing
    - Input form handling and validation
    - HTML, XML, JSON, and other output formats with a templating engine
    - Database connection configuration and persistent data manipulation through an object-relational mapper (ORM)
    - Web security against Cross-site request forgery (CSRF), SQL Injection, Cross-site Scripting (XSS) and other common malicious attacks
    - Session storage and retrieval.
  - Flask (source code) is a Python web framework built with a small core and easy-to-extend

philosophy.Flask is based on the Werkzeug WSGI toolkit and Jinja2 template engine.

- ○ WSGI:Web Server Gateway Interface (WSGI) has been adopted as a standard for Python web application development. WSGI is a specification for a universal interface between the web server and the web applications.
- ○ Werkzeug:It is a WSGI toolkit, which implements requests, response objects, and other utility functions. This enables building a web framework on top of it. The Flask framework uses Werkzeug as one of its bases.
- ○ Virtual Environment: In Python, by default, every project on the system will use the same directories to store and retrieve site packages(third party libraries). and system packages(packages that are part of the standard Python library). The main purpose of Python virtual environments is to create an isolated environment for Python projects.This means that each project can have its own dependencies, regardless of what dependencies every other project has.There are no limits to the number of environments you can have since they're just directories containing a few scripts. Plus, they're easily created using the virtualenv pyenv command line tools.

Conclusion

In this assignment we studied the publisher subscriber model which was implemented using JMS.