TECHNOLOGY

Post Graduate Program in DevOps

Orbit Bank

Objectives

To deploy a banking application on a Kubernetes cluster from Docker Hub.

Problem Statement and Motivation

Orbit Bank is one of the leading banking and financial service providers and is facing challenges in managing their monolithic applications and experiencing downtime during deployment. The company needs to develop an online banking application that provides private banks with a global accounting foundation, offering electronic banking services to all private banks, and enable private bank clients to carry out their daily transactions.

To address these issues, the company has decided to transition to a microservices architecture and implement a DevOps pipeline workflow using Jenkins, Ansible playbook, and Kubernetes cluster to deploy container on Docker Hub.

Industry Relevance

Skills used in the project and their usage in the industry are as below:

- **Jenkins:** It is an open-source automation server that can be used for continuous integration and continuous delivery (CI/CD). In this project, Jenkins can be used to automate the entire software delivery process.

- **GitHub:** It is a web-based hosting service that provides a Git repository management system. In this project, GitHub can play a crucial role in managing the source code of the microservices and facilitating the development process.

- **Docker Hub:** It is a cloud-based repository for storing, managing, and sharing Docker container images. It helps developers to store and share the container images, making it easier to deploy the microservices to different environments.

Industry Relevance

Skills used in the project and their usage in the industry are as below:

- **Ansible:** It is a popular open-source automation tool that allows IT administrators to automate repetitive tasks and streamline the application deployment process. In this project, Ansible will help to define the tasks required to set up the environment, configure the container, and start the container on the Docker host.

- **Kubernetes cluster:** It is a group of virtual machines that are connected and orchestrated by Kubernetes, which is an open-source container orchestration platform. In this project, Kubernetes cluster will help to deploy Docker image as Kubernetes Pod.

Task (Activities)

1. Create the Dockerfile, Jenkinsfile, Ansible playbook, and the source file of the static website and upload it on the GitHub repository

2. Create Jenkins pipeline to perform continuous integration and deployment for a Docker container

3. Set up Docker Hub

4. Set up Kubernetes cluster and configure deployment stage in the pipeline

5. Configure Ansible playbook to deploy container on Docker Host

6. Execute Jenkins build

7. Access deployed application on a Docker container

Project Reference

- **Task 1:** Course 1, Version Control System, Lesson-end project

- **Task 2:** Course 1, CI/CD with Jenkins, Lesson-end project

- **Task 3:** Course 3, Docker Certified Associate (DCA) Training, Assisted Practices

- **Task 4:** Course 4, Container Orchestration Using Kubernetes, Assisted Practices

- **Task 5:** Course 2, Writing Ansible Playbooks

- **Task 6:** Course 1, CI/CD with Jenkins, Lesson-end project

- **Task 7:** Course 4, Docker Certified Associate (DCA) Training, Assisted Practices

Output Screenshot

Main page:
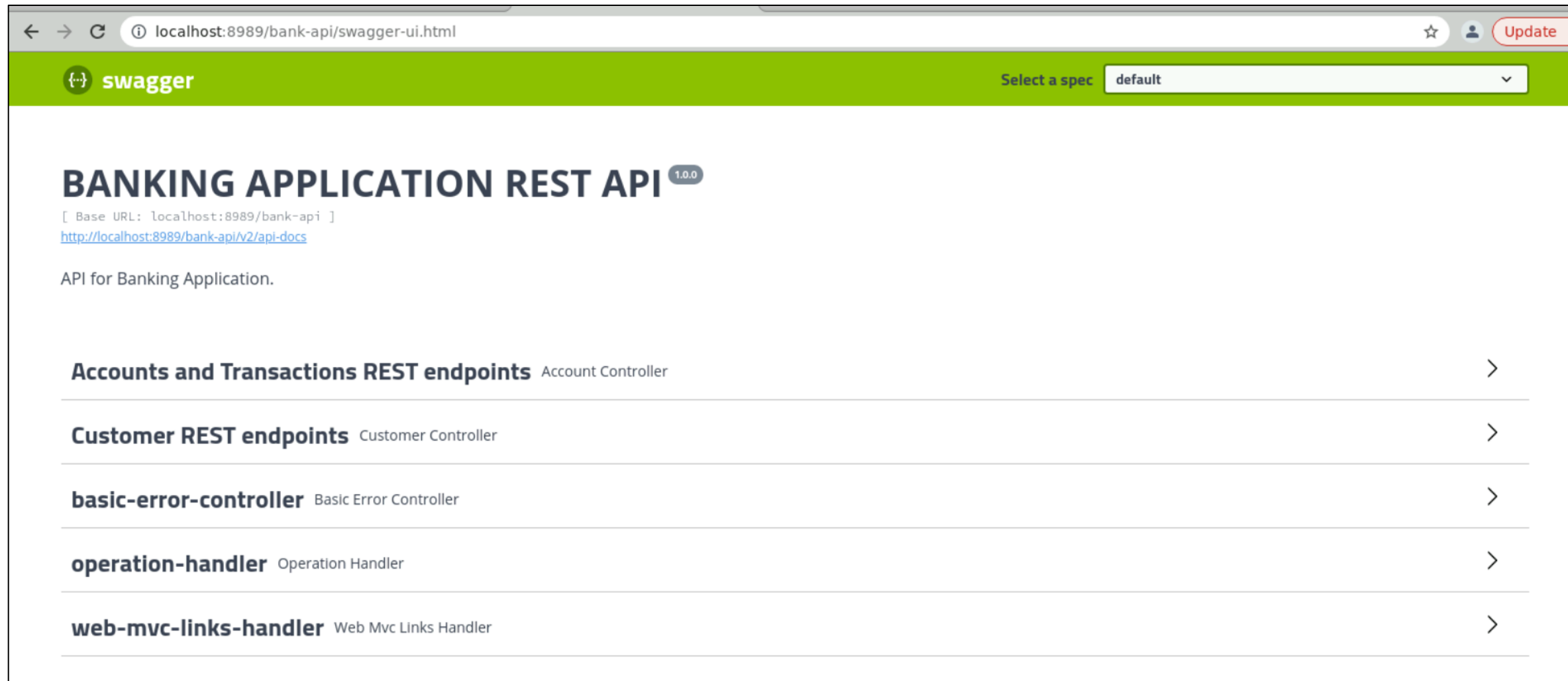
Output Screenshot

Accounts and Transactions REST endpoints tab:

Thank You