Files Included

JenkinsFile, rancher.yaml, Survey, Dockerfile, and jar file

Team Members

AKASH PONNAM - G01378189 ANUSHA JAGADISH - G01394233 AKSHITA SRIKANTH - G01393896 SHISHWAN GANDE - G01383809

Tools Used

Spring Boot, RESTful Web Services, JPA/Hibernate, Amazon Relational Database Service, (Amazon RDS)/MySQL, Docker, Rancher, Jenkins, Postman

Installation and Setup Instructions

(Detailed in the documentation)

Development Process

Implemented Logic: Developed the required functionalities for the application.

Database Management: Used Amazon RDS to provision and operate a MySQL database for the project.

Docker :Containerized the application using Docker technology.

Jenkins: Established a CI/CD pipeline that includes a Git source code repository at GitHub, and Jenkins for automated build and for the automated deployment of the application on Kubernetes.

Rancher: Deployed the containerized application on the open source container orchestration platform Kubernetes to enable scalability and resiliency of the application. The baseline configuration includes at least three pods running all the time. Used Rancher (https://rancher.com/docs) to setup Kubernetes cluster.

Testing: Used Postman to test the functioning of containerized microservice's.

URLS

SPRINGBOOT : https://gmuedu-my.sharepoint.com/:v:/g/personal/ajagadis_gmu_edu/ET_DhiB2wppHnY51pIT9p_gBrdWDJrh5bbqC1IdNhIxBgQ?e=9oaKGv

Amazon RDS: https://gmuedu-my.sharepoint.com/:v:/g/personal/ajagadis_gmu_edu/Ed-3wws93GpKu6xZbO97SFUBjs69pDjIaDDL1YdJAbSPXA?e=JoKmxN&nav=eyJyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBcHAiOiJTdHJlYW1XZWJBcHAiLCJyZWZlcnJhbFZpZXciOiJTaGFyZURpYWxvZy1MaW5rIiwicmVmZXJyYWxBcHBQbGF0Zm9ybSI6IldlYiIsInJlZmVycmFsTW9kZSI6InZpZXcifX0%3D

Docker : https://gmuedu-my.sharepoint.com/:v:/g/personal/ajagadis_gmu_edu/EcQaZQcxLBpAkb6GMmyPG2EBG0ZZUfSz1m1my2fiEpHZaw?e=O3bliX&nav=eyJyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBcHAiOiJTdHJlYW1XZWJBcHAiLCJyZWZlcnJhbFZpZXciOiJTaGFyZURpYWxvZy1MaW5rIiwicmVmZXJyYWxBcHBQbGF0Zm9ybSI6IldlYiIsInJlZmVycmFsTW9kZSI6InZpZXcifX0%3D

Rancher And Jenkins : https://gmuedu-
my.sharepoint.com/:v:/g/personal/ajagadis_gmu_edu/EVaxXEMv1_FLnBfpZQoJUGABJrtEdzT
uaGO7azm6r1WPhQ?e=6wu5kQ&nav=eyJyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBcHAi
OiJTdHJlYW1XZWJBcHAiLCJyZWZlcnJhbFZpZXciOiJTaGFyZURpYWxvZy1MaW5rIiwic
mVmZXJyYWxBcHBQbGF0Zm9ybSI6IldlYiIsInJlZmVycmFsTW9kZSI6InZpZXcifX0%3D

JenkinsURL : http://34.202.28.71:8080/

GithubURL : https://github.com/shishwan/swe645_hw3

Docker URL : https://hub.docker.com/repository/docker/ajagadis/645/general

RancherURL : https://ec2-3-215-61-95.compute-1.amazonaws.com/dashboard/home

Amazon MYSQL endpoint URL: survey.cquygbzzx1tg.us-east-1.rds.amazonaws.com

Contribution:

Akash Ponnam Role : He was responsible for project initialization and basic setup. He successfully started the project with Spring Initializr, set up the Maven project structure, imported the project into Eclipse EE IDE, and ensured the initial setup of Spring Boot for the application. This foundational work laid the groundwork for the entire project.

Anusha Jagadish Role: took charge of the database and CRUD operations. She skillfully set up Amazon RDS, configured the MySQL database, and implemented JPA/Hibernate entities for student survey data. Additionally, she developed the crucial CRUD operations for managing the survey data in the database, ensuring robust data management capabilities.

Akshita Srikanth Role: She expertly handled the development of RESTful services and the business logic. They developed RESTful services using Spring Boot, implemented the business logic for survey feedback processing, and ensured proper data validation for all required fields. Their contribution was key in ensuring the backend services of the application functioned seamlessly and met all business requirements.

Sai Shishwan Gande Role: He led the containerization and deployment of our application. He adeptly containerized the application using Docker, set up and managed the Kubernetes deployment, established and maintained the CI/CD pipeline, and conducted thorough testing using Postman. His efforts were instrumental in deploying a scalable, robust, and maintainable application.