Capstone Project: Food Delivery System App

Author: Rogelio Lotho

Goal: To Host the Application on AWS EC2 Instance, Automate the build and deployment using Jenkins on AWS EC2 and Containerize the application using Docker on AWS EC2

Objective: To build a dynamic and responsive food delivery app to display food items, filter based on user preferences, manage orders, user details.

Tech Stack: Angular, Java, SpringBoot, MySQL, Jenkins, Docker, AWS, Git and GitHub

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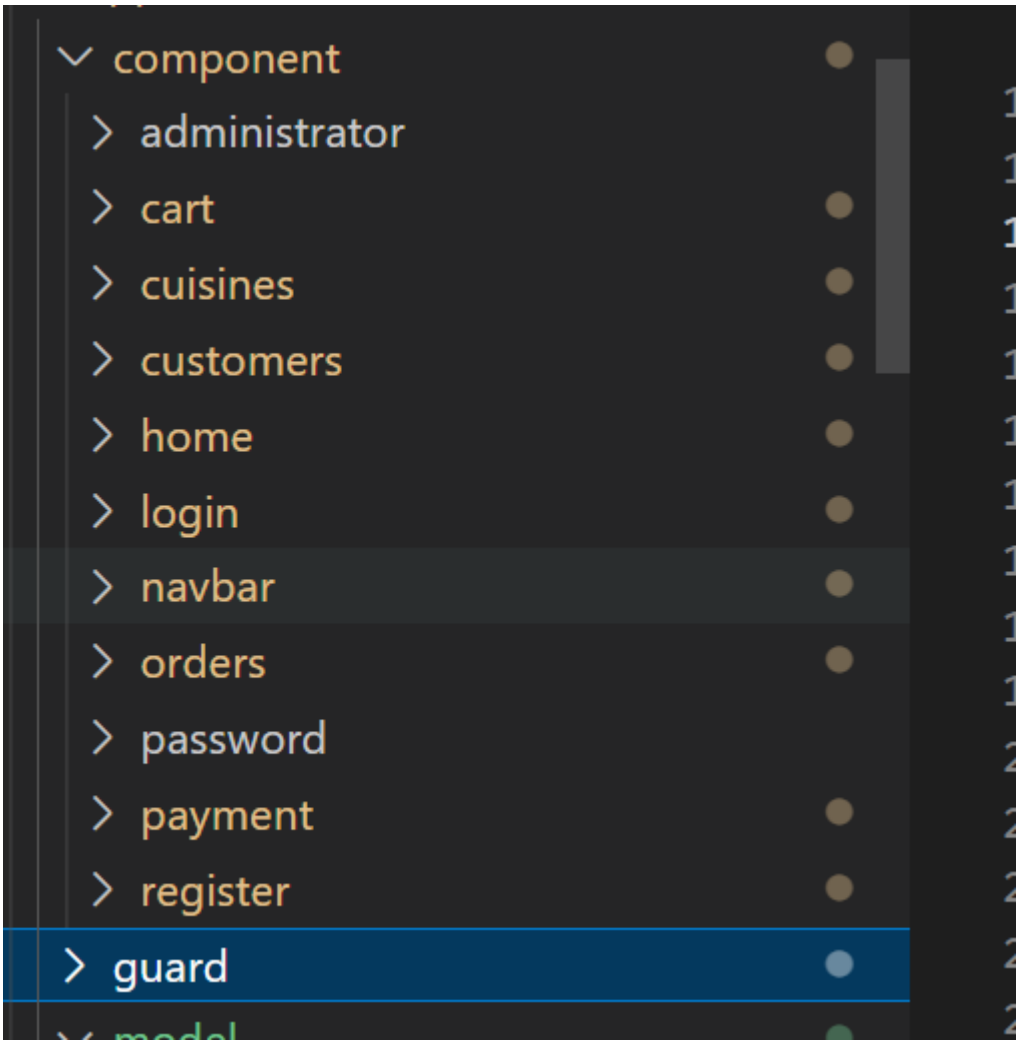
1. Task 1. Angular Compoments, Routing, Services and AuthGuard, Forms

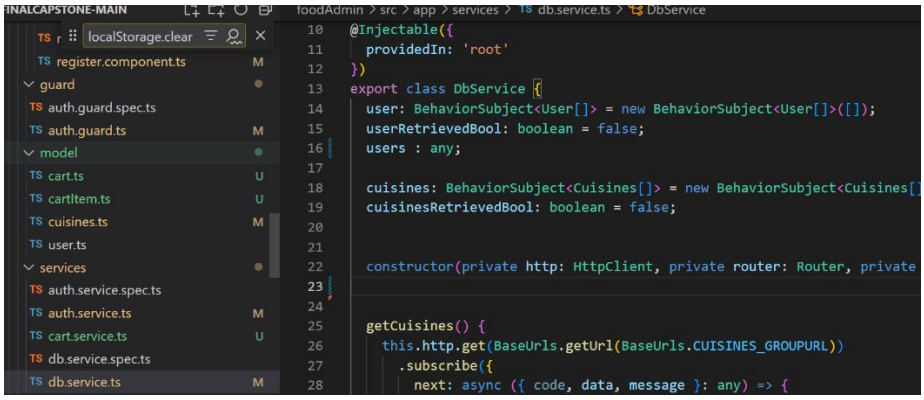
1.1 Components: Cart, Administrator, Cuisines, Customers, Home, Login, Navbar, Orders, Password, Payment, Register



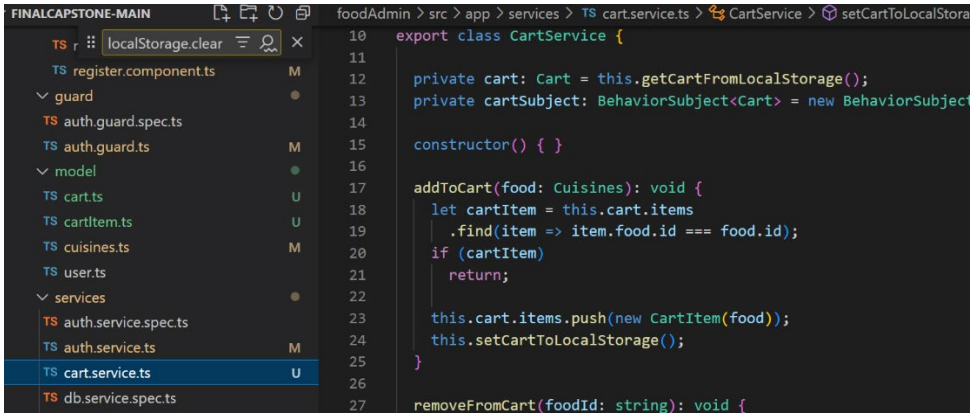
1.2 Routing

1.3 Services

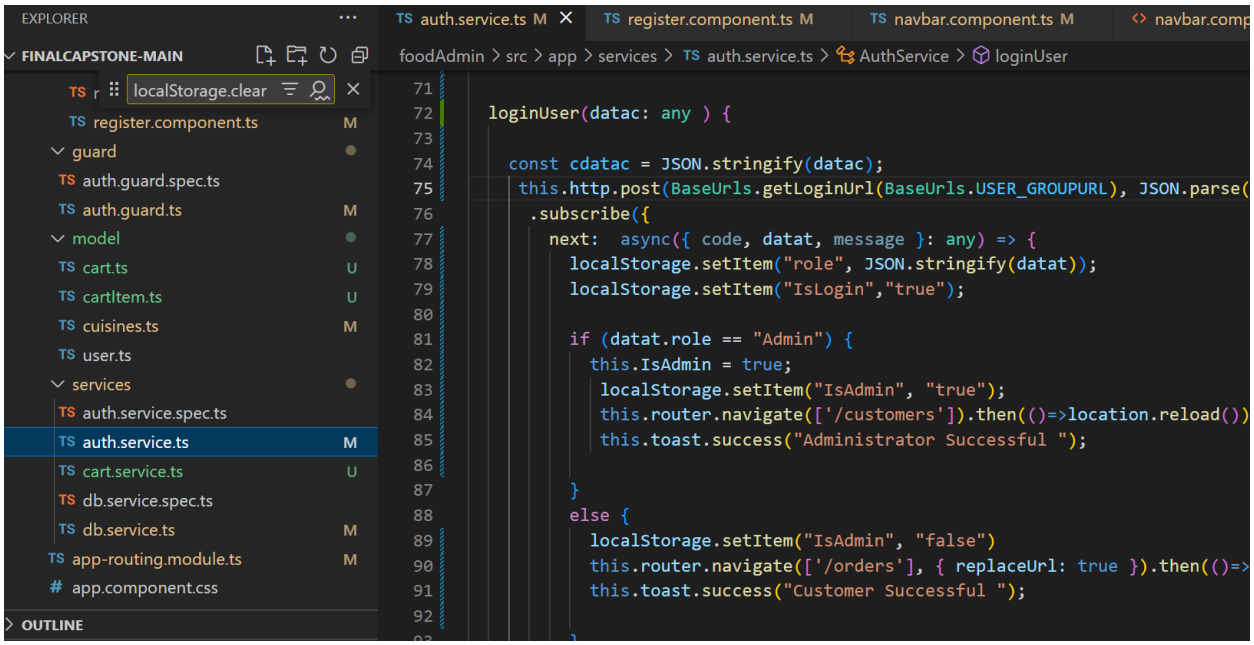
1.3.1 dbService



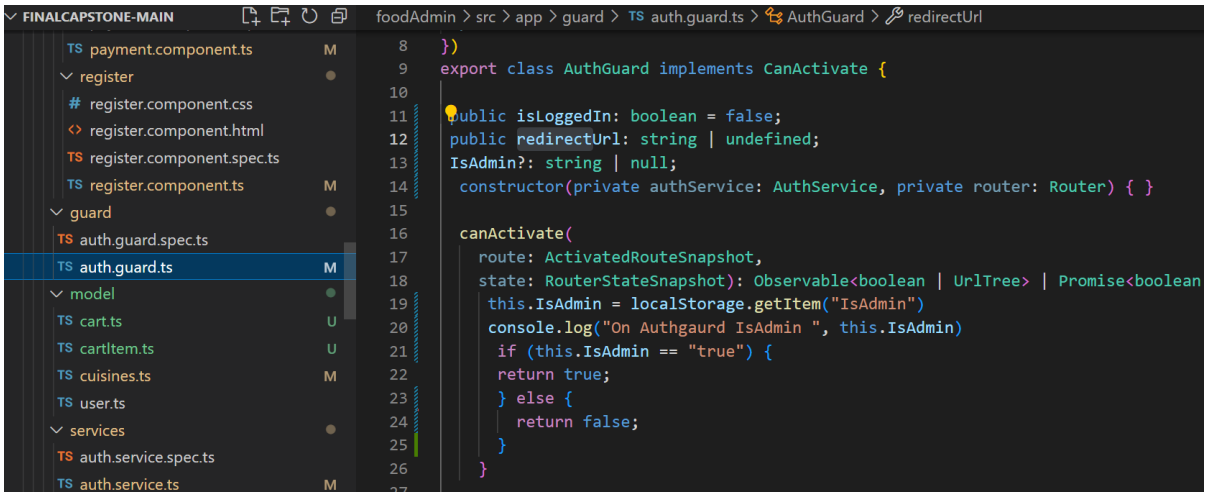
1.3.2 Cart Service



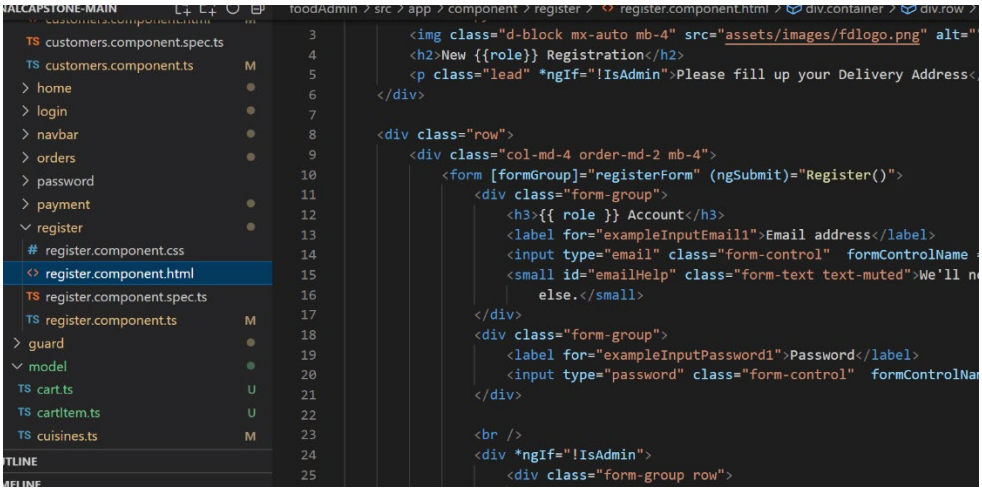
1.3.3 Auth Service



1.4 AuthGuard

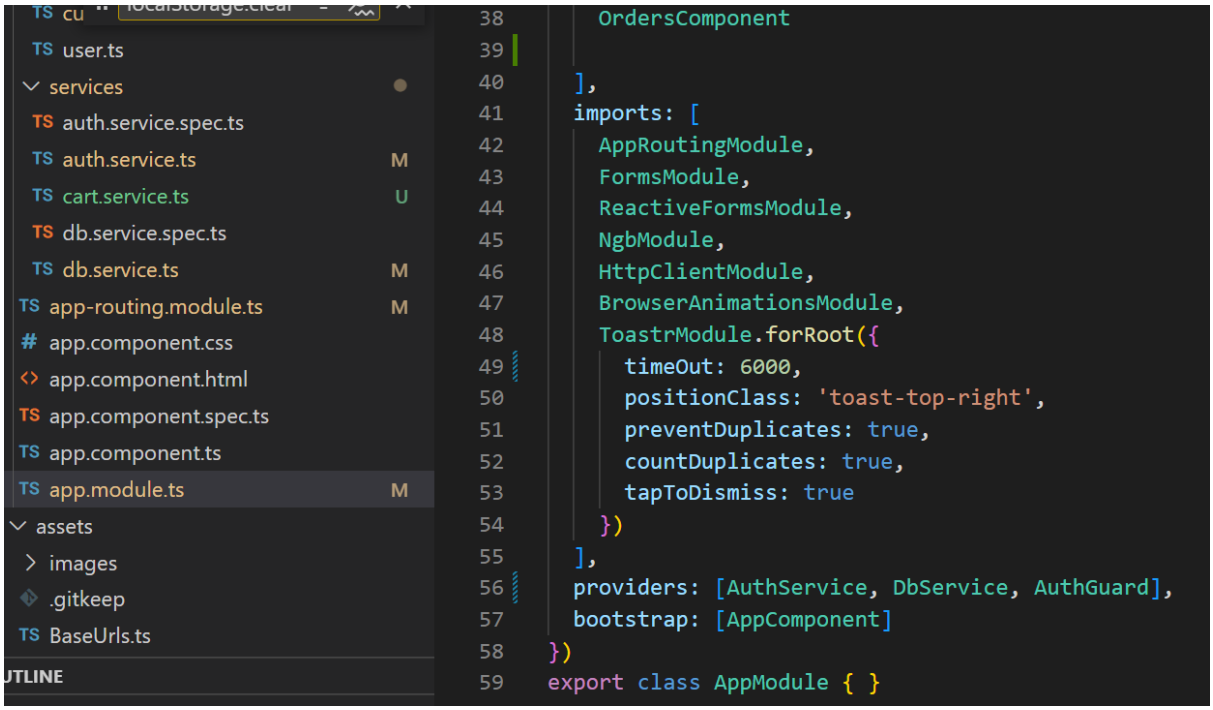


1.4.1 Form

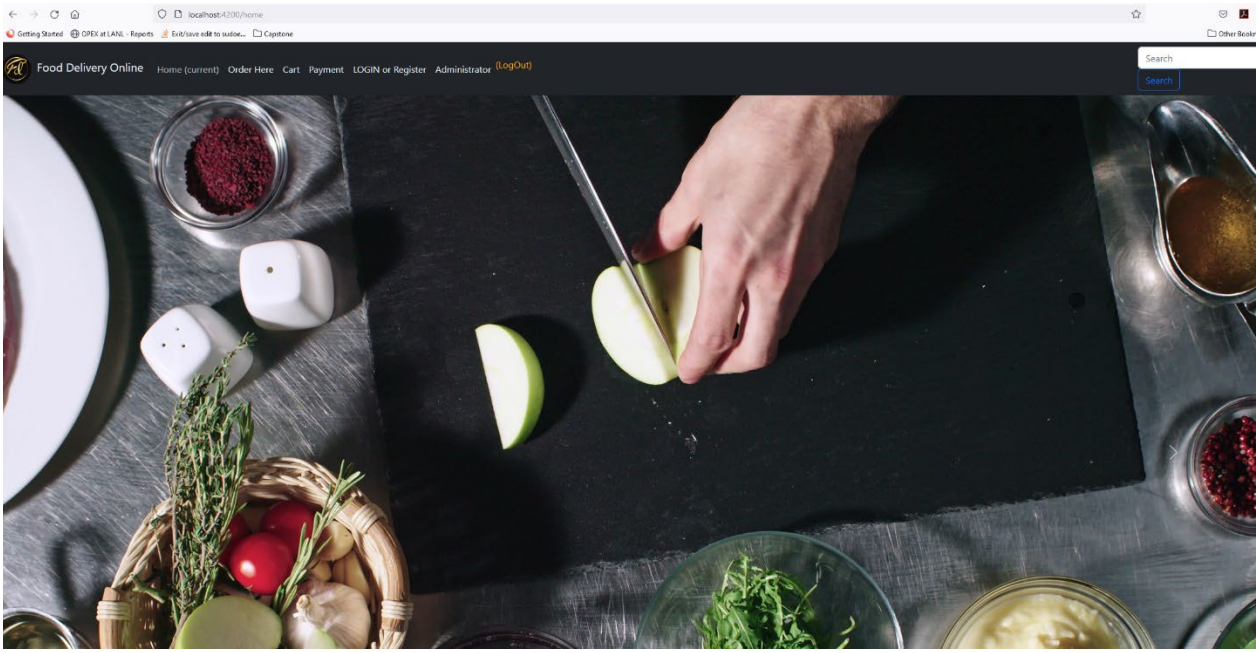


1.4 Task 2 Angular Components, Routing, Services, and Auth Guard, Forms

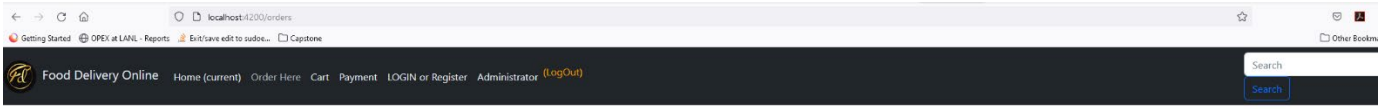
2.1 App Routing Module

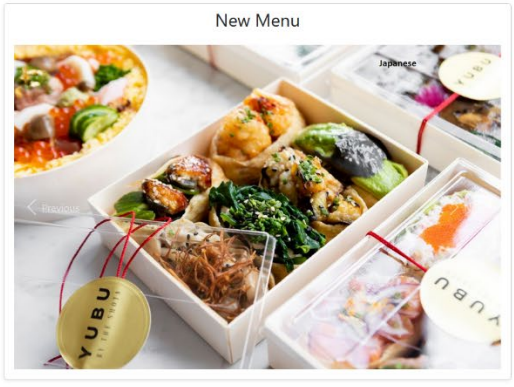


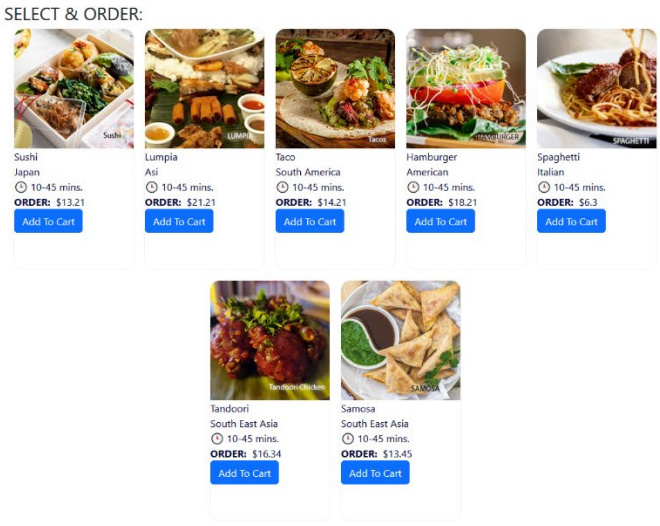
2.2. Home Component



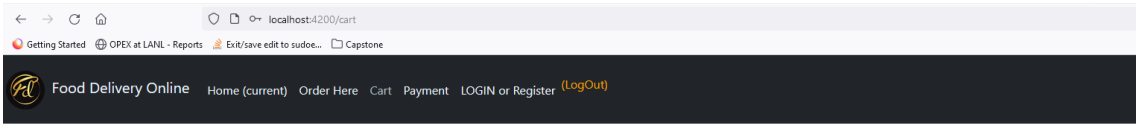
2.3 Order Component

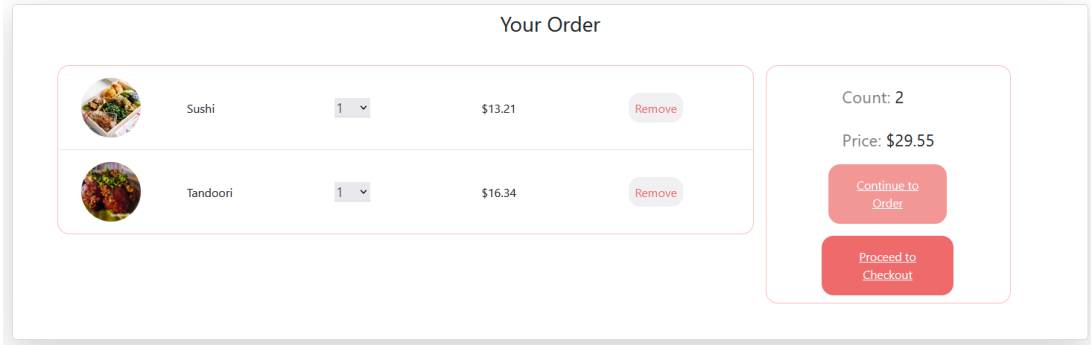




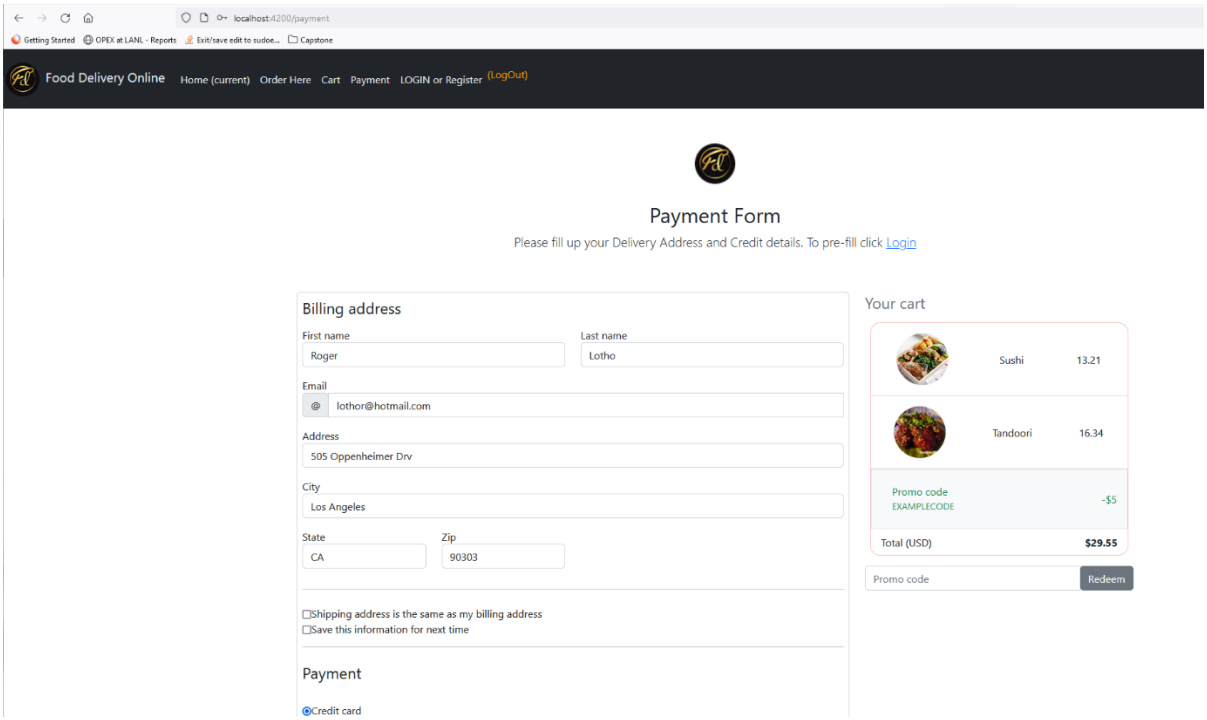


2.4. Cart Component

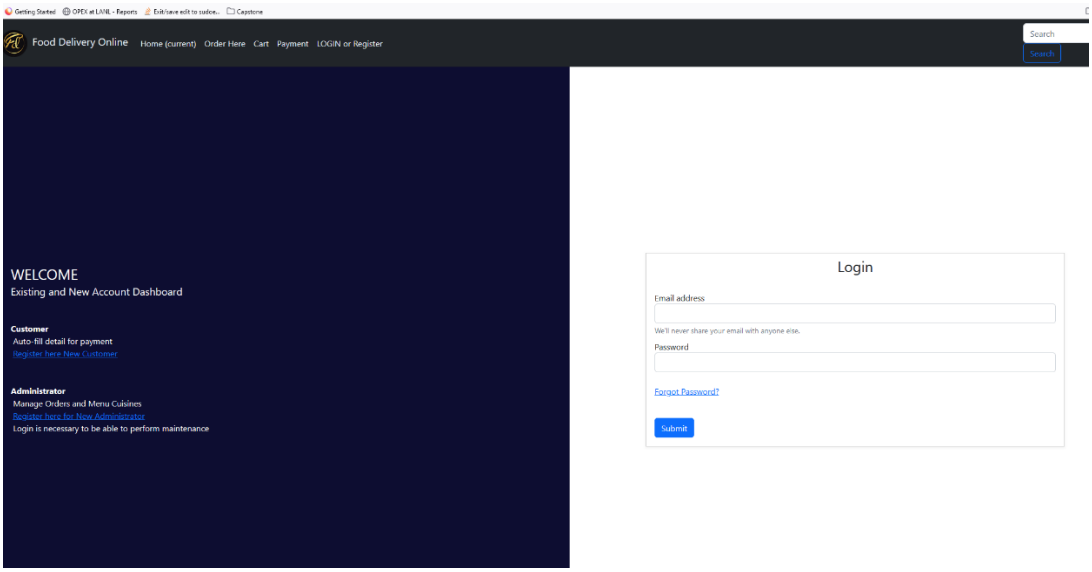




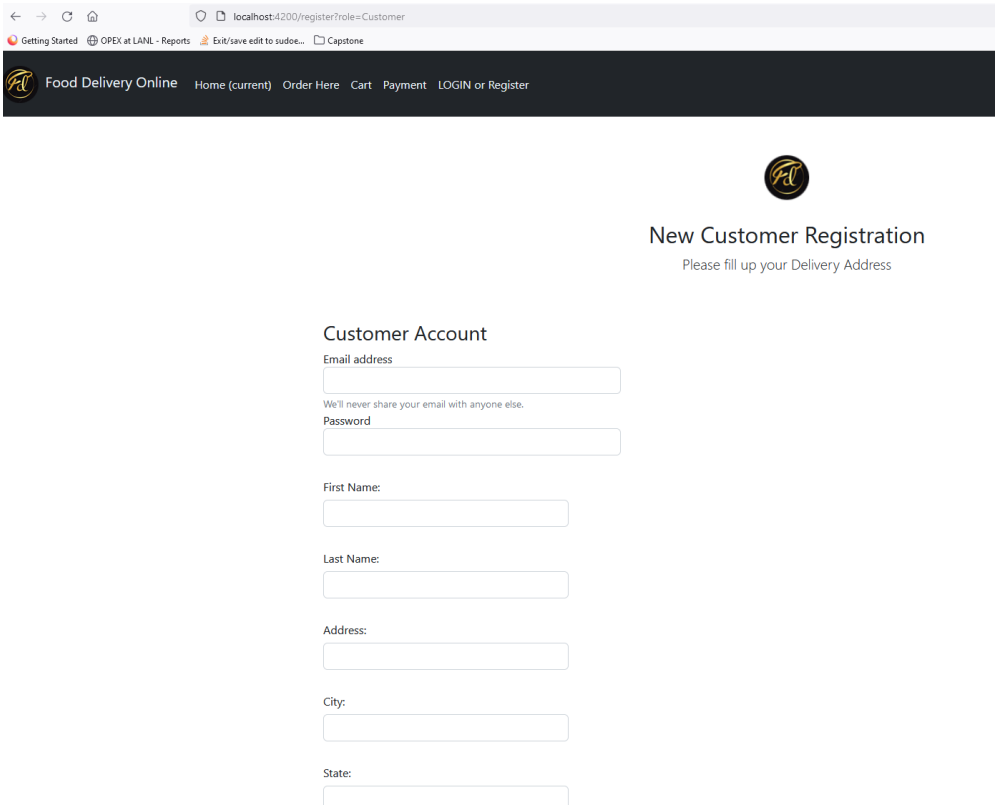
2.5 Payment Component



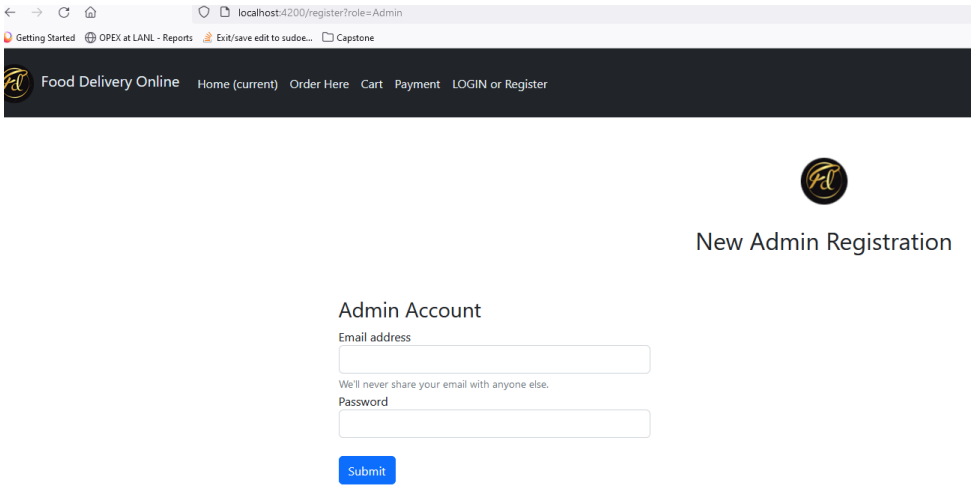
2.6. Login Component



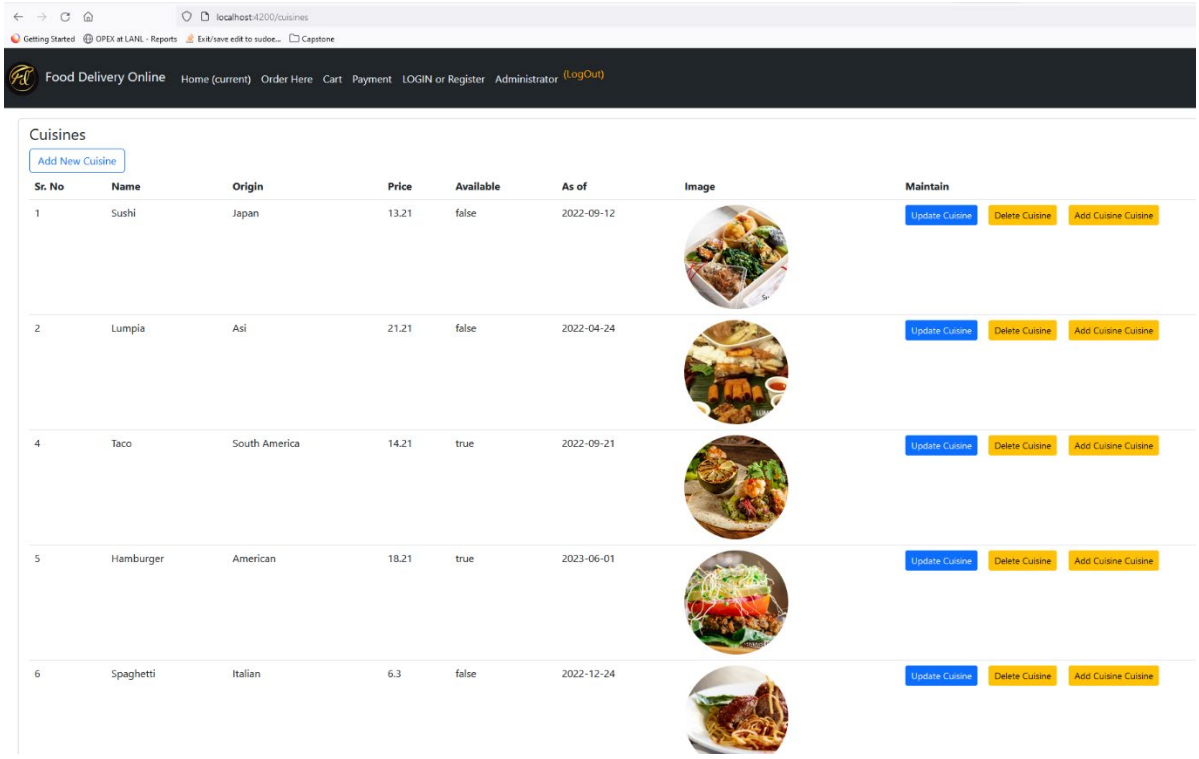
2.7. Register Customer



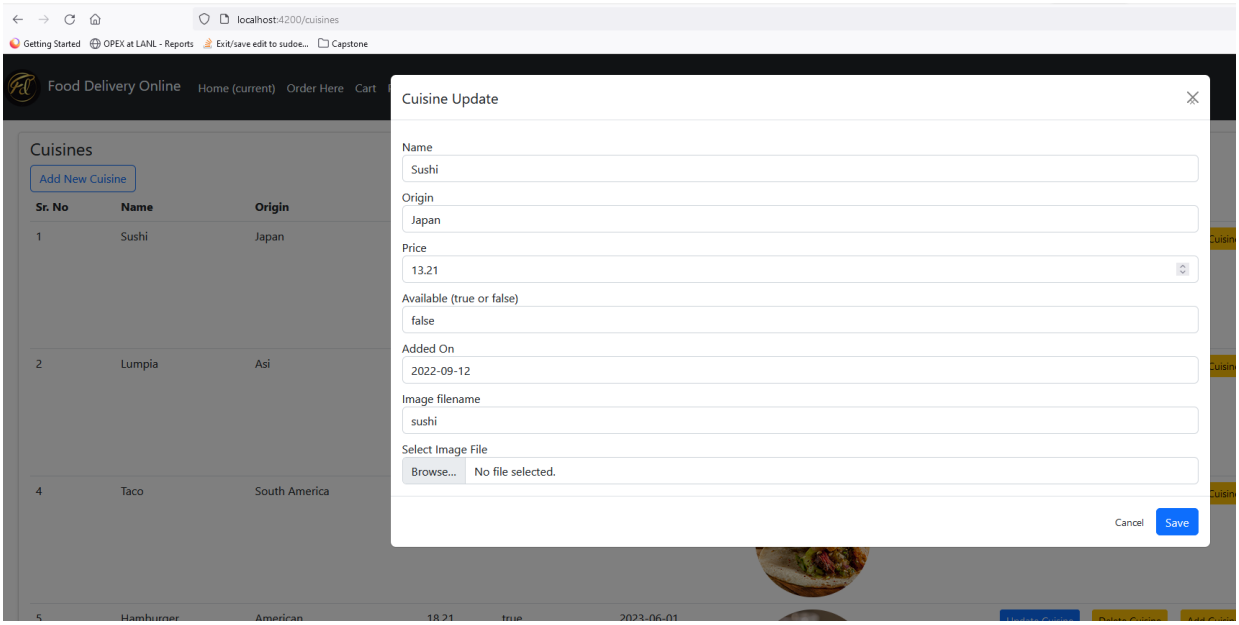
2.8 Register Admin



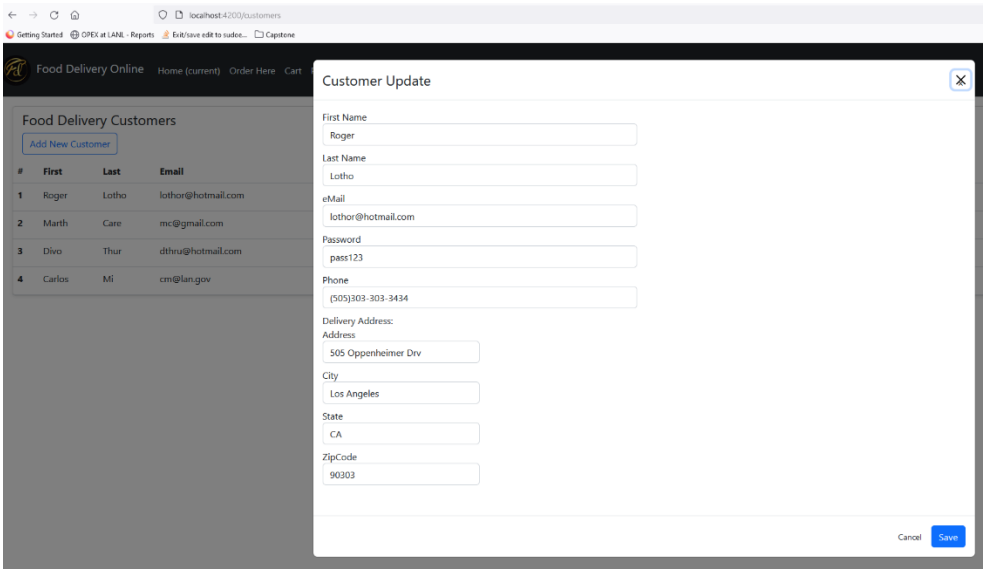
2.9. Admin Cuisine Maintenance



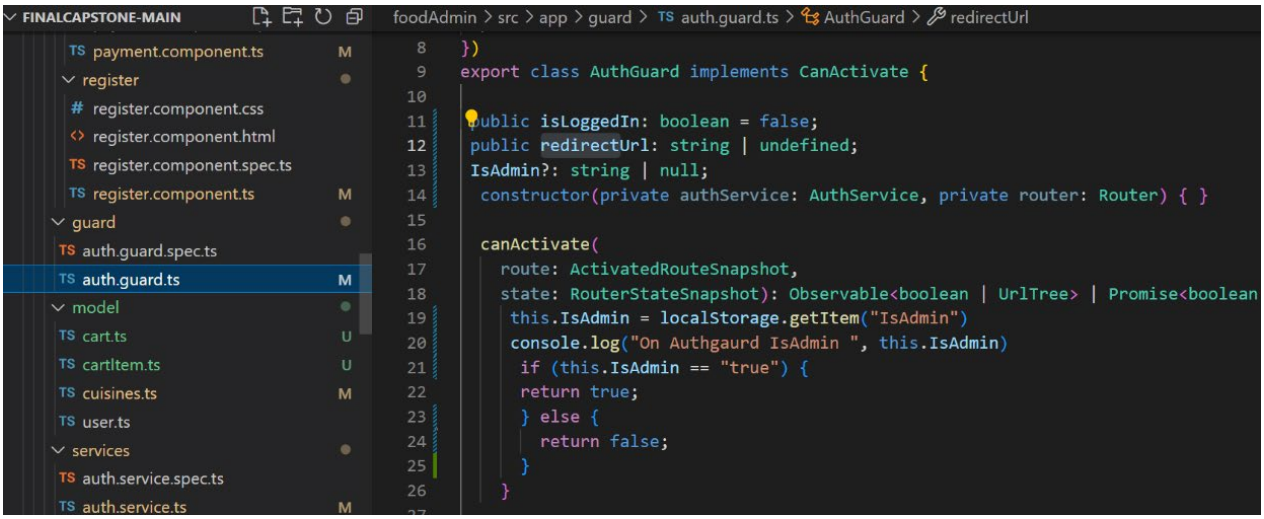
2.10 Admin Update Cuisine

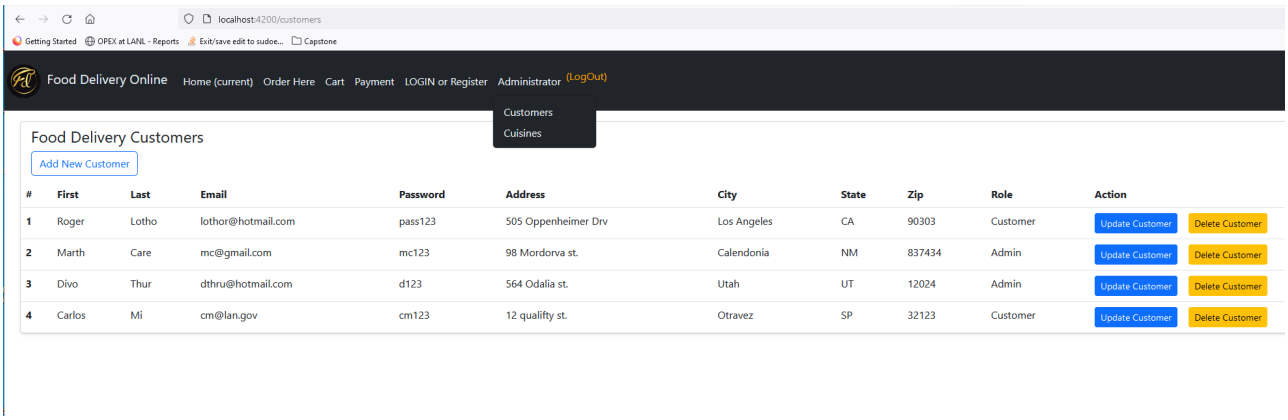


2.11. Admin Update Account Customer/Admin

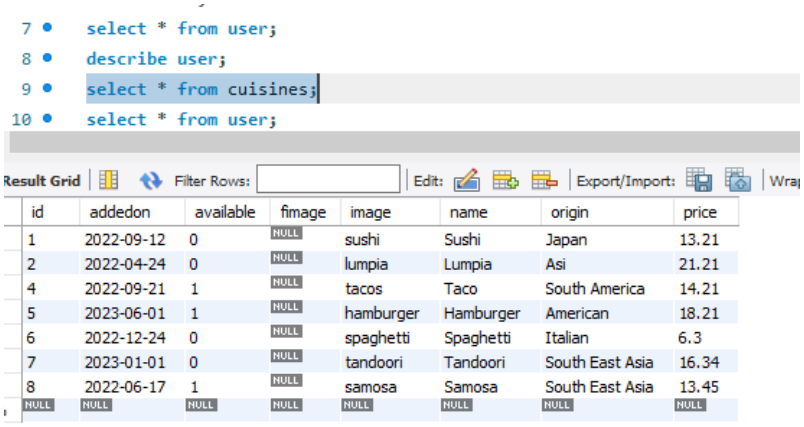


2.12. AuthGuard





3. Task 3: SQL CRUD Commands, Primary and Foreign Key Relationship



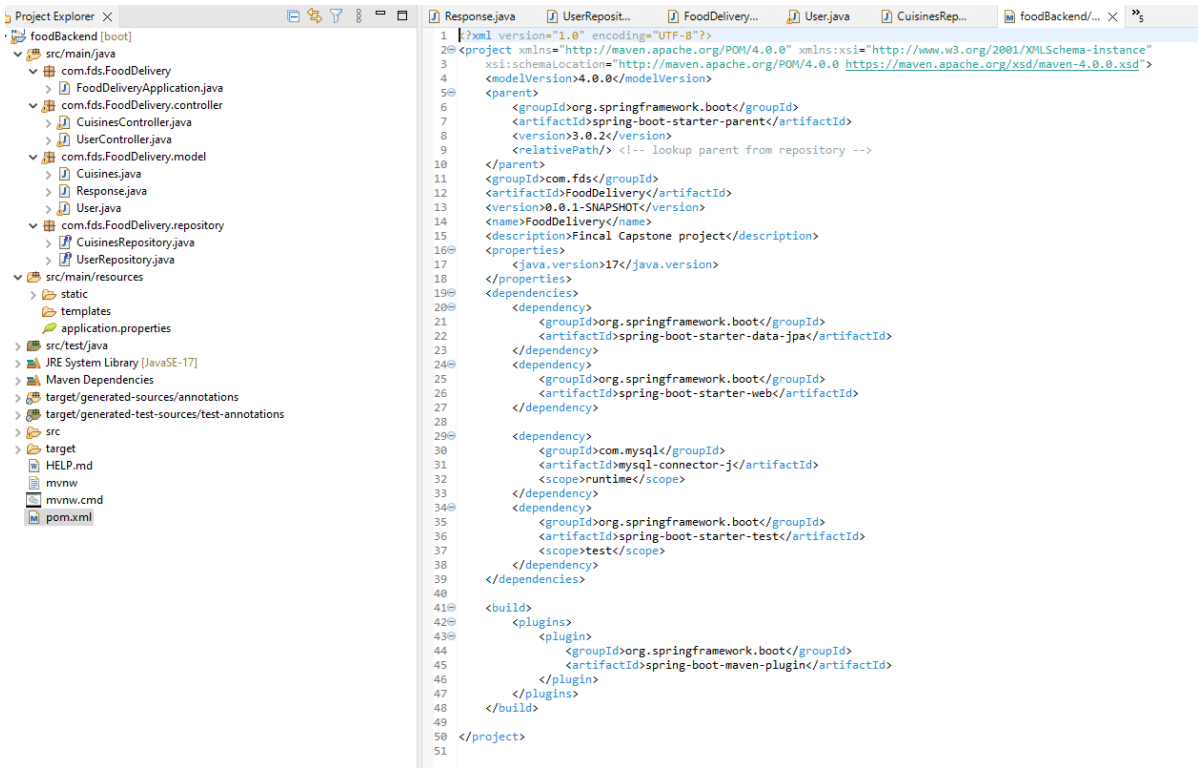
```
10 • select * from user;
11
12 • describe cuisine;
13
14
15
16
17
18
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

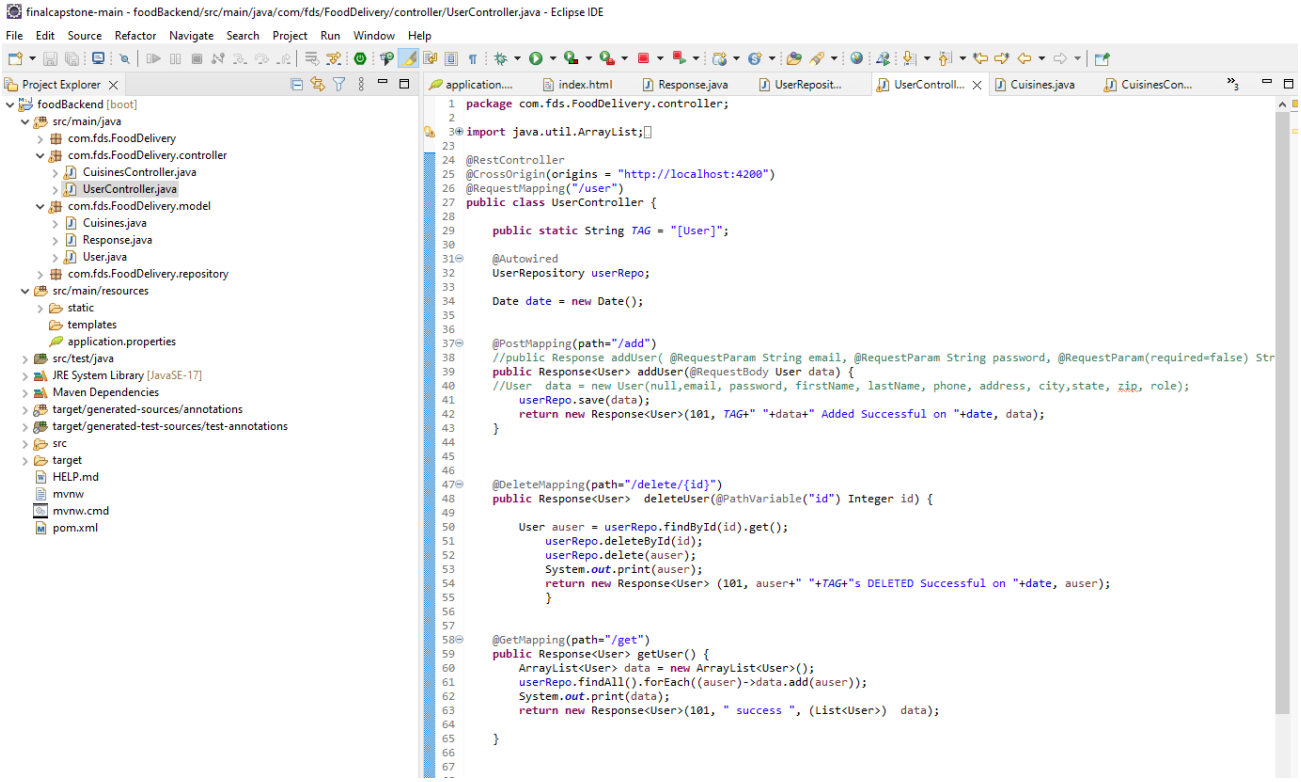
id	address	city	email	firstname	lastname	password	phone	role	state	zip
1	505 Oppenheimer Drv	Los Angeles	lothor@hotmail.com	Roger	Lotho	pass123	(505)303-303-3434	Customer	CA	90303
2	98 Mordorva st.	Calendonia	mc@gmail.com	Marth	Care	mc123	(310) 550-3434	Admin	NM	837434
3	564 Odalia st.	Utah	dthru@hotmail.com	Divo	Thur	d123	(210) 534-3434	Admin	UT	12024
4	12 qualifty st.	Otravez	cm@lan.gov	Carlos	Mi	cm123	(250) 443-34343	Customer	SP	32123
7	NULL	NULL	a	NULL	NULL	a	NULL	Admin	NULL	NULL

4. Task 4: SpringBoot Web Dependency, RestController, RequestMapping, Post and Get request

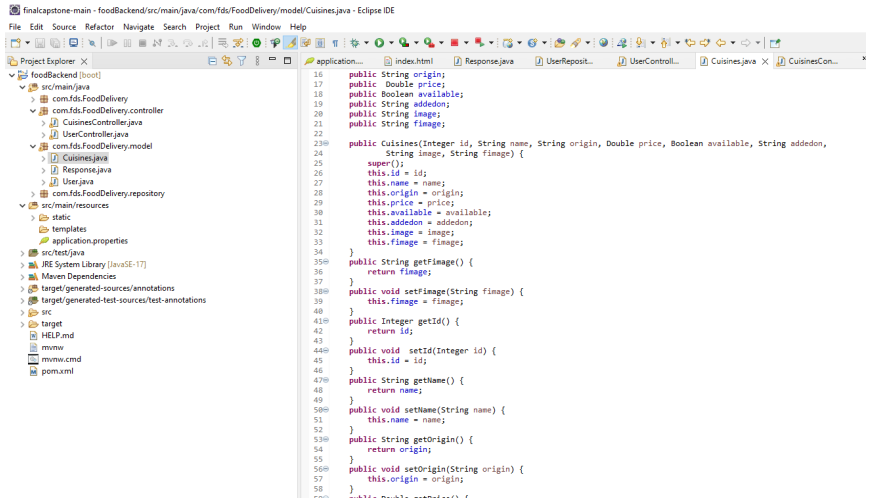
4.1 SpringBoot Web Dependency



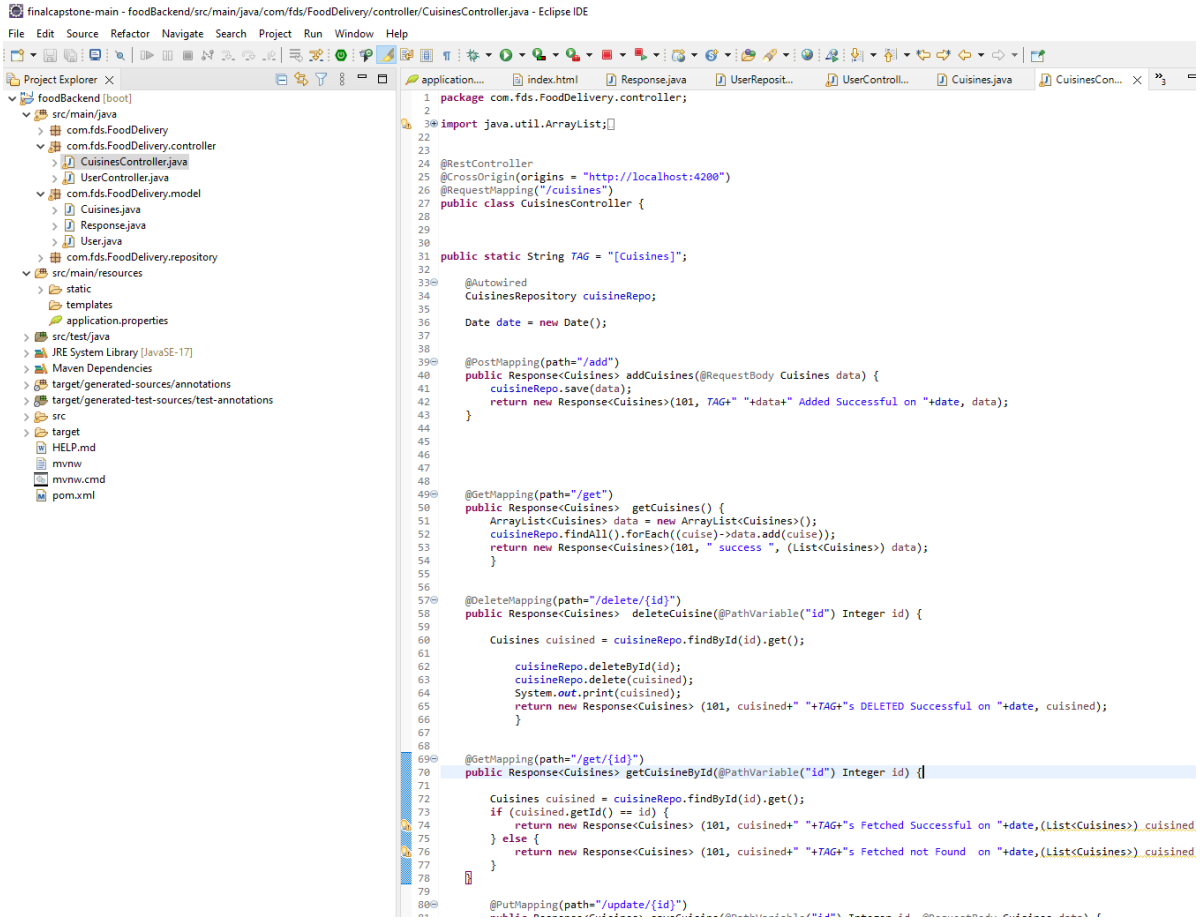
4.2 Rest Controller



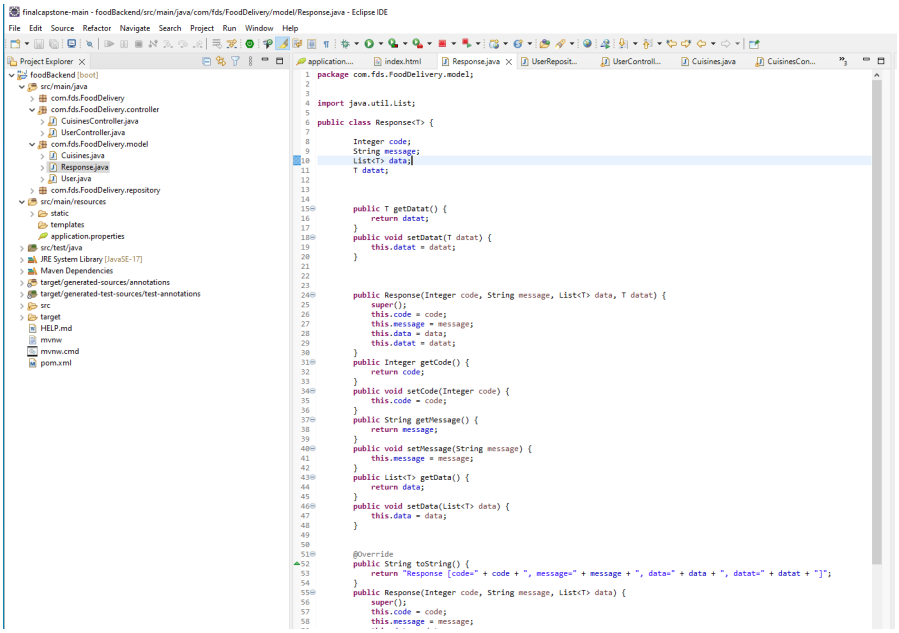
4.3 Request Mapping



4.4. Post and Get Request



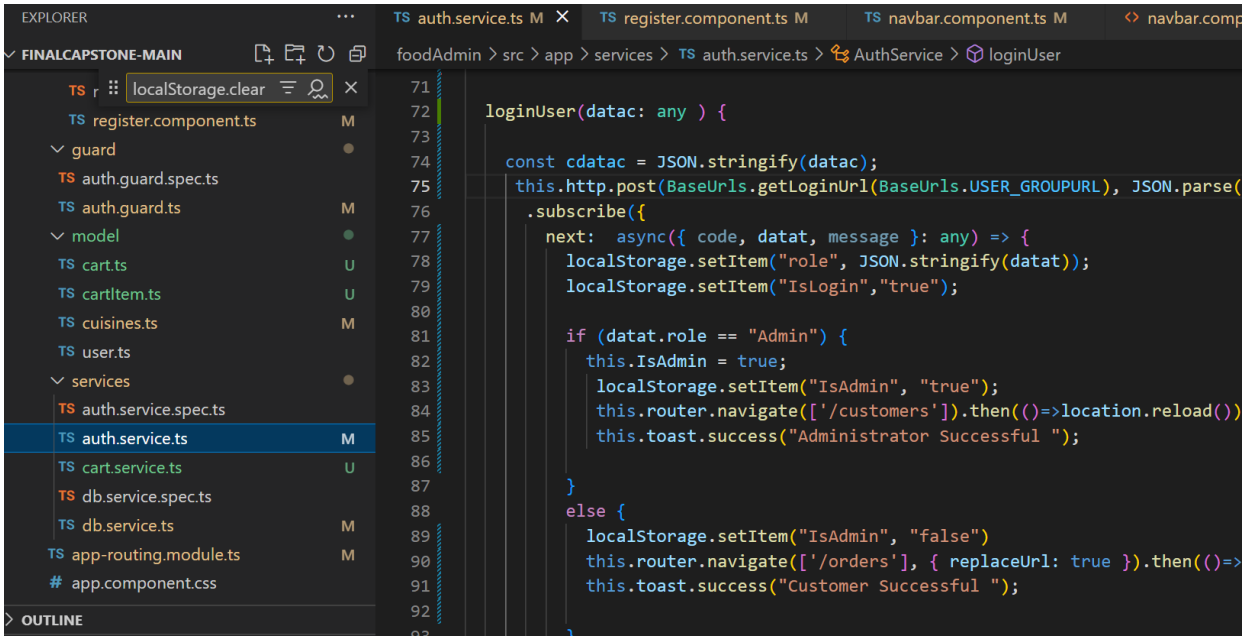
4.5 Response model



5. Task 5: Angular HTTP Client Library, HTTP Request Response, JSON

5.1. Base URL Cross Origin

5.1 HTTP Request Response



5.2. JSON

```
loginUser(datac: any ) {

  const cdatac = JSON.stringify(datac);
   this.http.post(BaseUrls.getLoginUrl(BaseUrls.USER_GROUPURL), JSON.parse(c
    .subscribe({
      next:  async({ code, datat, message }: any) => {
        localStorage.setItem("role", JSON.stringify(datat));
        localStorage.setItem("IsLogin","true");

        if (datat.role == "Admin") {
          this.IsAdmin = true;
           localStorage.setItem("IsAdmin", "true");
           this.router.navigate(['/customers']).then(()=>location.reload())
           this.toast.success("Administrator Successful ");

        }
        else {
          localStorage.setItem("IsAdmin", "false")
          this.router.navigate(['/orders'], { replaceUrl: true }).then(()=>w
          this.toast.success("Customer Successful ");

        }
```

6. Task 6: Jenkinsfile stages and step declarations

6.1 Jenkins Stages

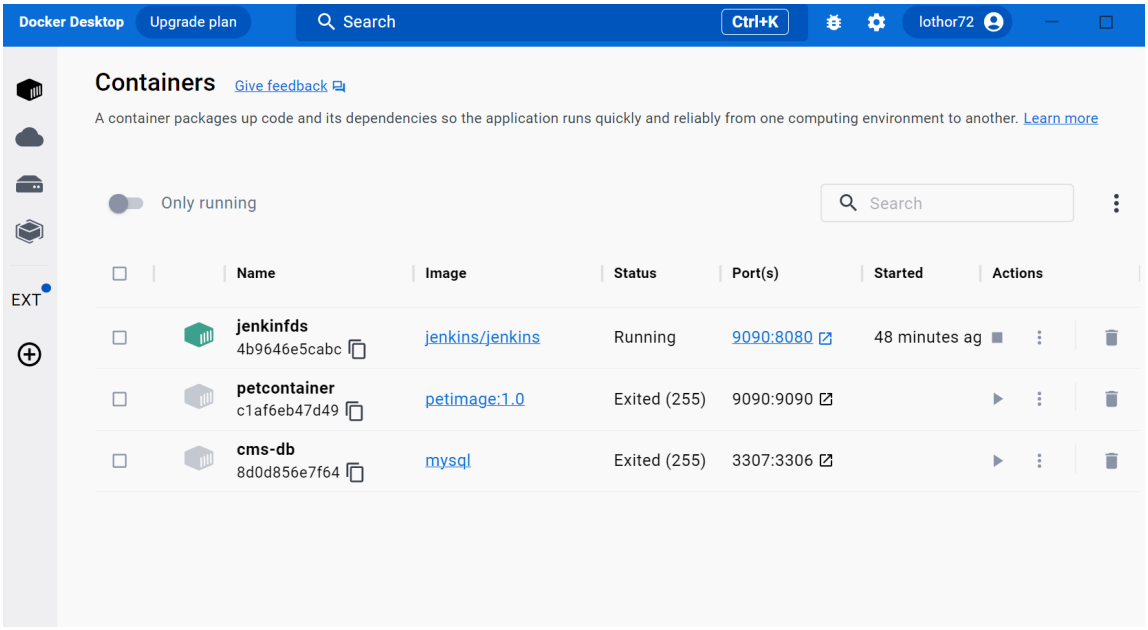
```
pipeline {

    agent any

    stages {
        stage('Build') {
            steps {
            //Get code from GitHub repository
            git (branch: 'main', url: 'https://github.com/lothoroger/capstone2023fdsfood.git')

            //Run maven wrapper
            bat  "mvn compile"

            echo 'Building the Food Delivery Project with Maven compiler'
                   }
                       }

        stage('Test') {
            steps {
            bat 'mvn test'
            echo 'Testing the Food Delivery project with Maven test'
              }
                   }

        stage('Deploy') {
            steps {
            bat 'mvn package'
            echo 'Deploy the Food Delivery project with Maven package'
                   }
                       }

    }
}
```

6.2 Build Success

```
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ FoodDelivery ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] skip non existing resourceDirectory C:\ProgramData\Jenkins\.jenkins\workspace\Capstone2023FoodDelivery\src\main\resources
[INFO] skip non existing resourceDirectory C:\ProgramData\Jenkins\.jenkins\workspace\Capstone2023FoodDelivery\src\main\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.10.1:compile (default-compile) @ FoodDelivery ---
[INFO] No sources to compile
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:testResources (default-testResources) @ FoodDelivery ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] skip non existing resourceDirectory C:\ProgramData\Jenkins\.jenkins\workspace\Capstone2023FoodDelivery\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.10.1:testCompile (default-testCompile) @ FoodDelivery ---
[INFO] No sources to compile
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @ FoodDelivery ---
[INFO] No tests to run.
[INFO]
[INFO] --- maven-jar-plugin:3.2.2:jar (default-jar) @ FoodDelivery ---
[WARNING] JAR will be empty - no content was marked for inclusion!
[INFO] Building jar: C:\ProgramData\Jenkins\.jenkins\workspace\Capstone2023FoodDelivery\target\FoodDelivery-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:2.7.5:repackage (repackage) @ FoodDelivery ---
[INFO] Replacing main artifact with repackaged archive
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  3.318 s
[INFO] Finished at: 2023-02-20T10:08:42-07:00
[INFO] ------------------------------------------------------------------------
[Pipeline] echo
Deploy the Food Delivery project with Maven package
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

7. Task 7: Dockerfile and commands to assemble an image

7.1 Docker Jenkins 9090:8080



7.2 Docker image

```
336536@pn2036725 MINGW64 ~/Desktop/caltech/finalcapstone-main (main)
$ docker images
REPOSITORY          TAG       IMAGE ID       CREATED         SIZE
jenkins/jenkins     latest    f16216f97fcb   12 days ago     467MB
336536@pn2036725 MINGW64 ~/Desktop/caltech/finalcapstone-main (main)
$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS
 PORTS                                      NAMES
f321da42909d   74f22659b4b6   "/usr/bin/tini -- /u…"   4 months ago   Up 22 minutes
 50000/tcp, 0.0.0.0:9090->8080/tcp   jenkins

336536@pn2036725 MINGW64 ~/Desktop/caltech/finalcapstone-main (main)
$ docker run --name=jenkinfds -d -p 9090:8080 jenkins/jenkins
4b9646e5cabc6eff1d1df6af1451fa144efa67f7fba70a243440adf37e306355
docker: Error response from daemon: driver failed programming external connectiv
n endpoint jenkinfds (1f5829cf5561ae82b538c996c4efc778683da2e723cf687c84a996b1e4
4): Bind for 0.0.0.0:9090 failed: port is already allocated.
```

Docker file script

Configure the project with Docker File

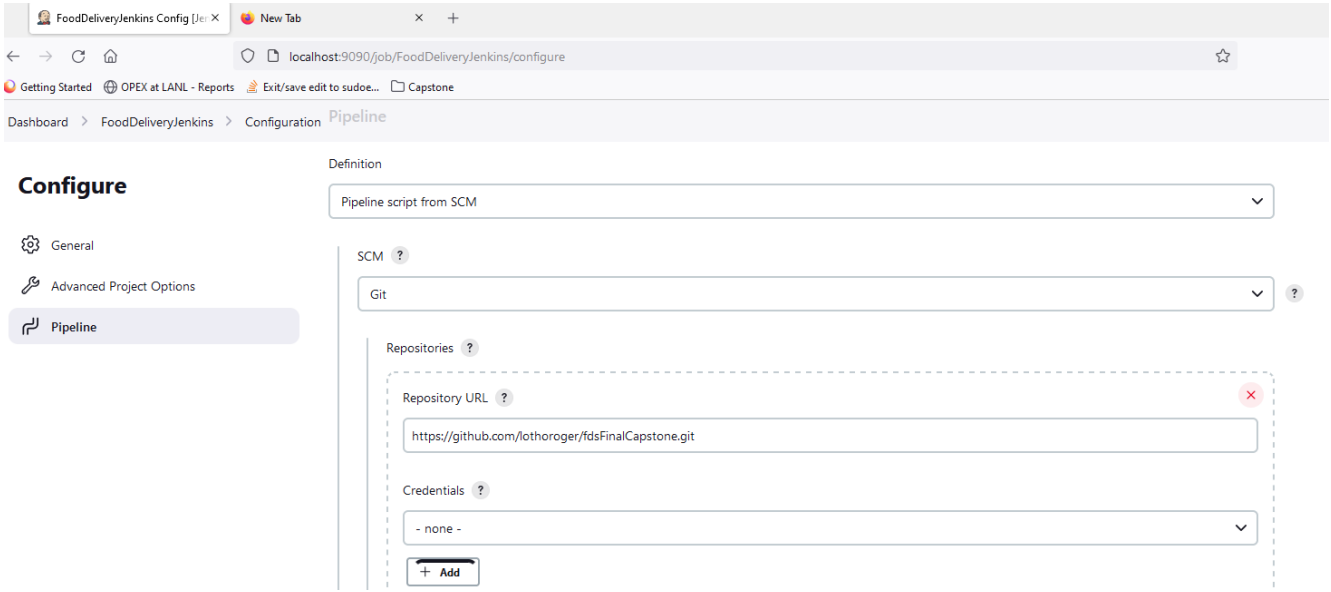
```
FROM openjdk:11
RUN mkdir /app
COPY target/ /app
WORKDIR  /app
CMD java -jar FoodDelivery-0.0.1-SNAPSHOT.jar
--spring.config.name=application.properties
```

8. Task 8: Jenkins PipeLine Project Creating with git SCM

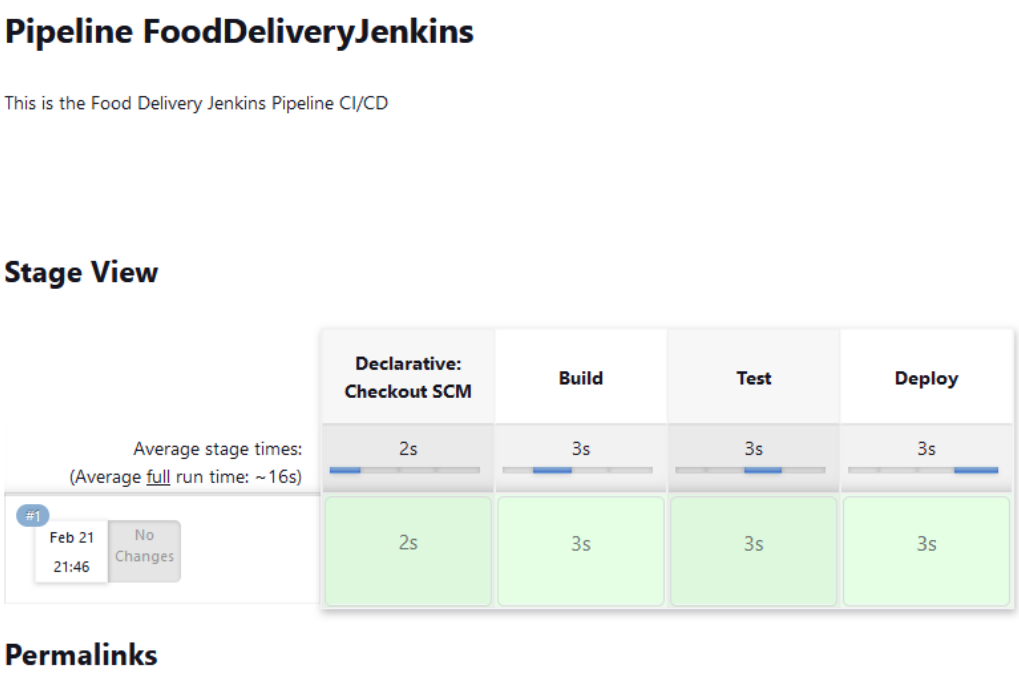
8.1 Jenkins pipeline script

```
pipeline {
        agent any
        stages {
                stage('Build') {
                        steps {
                        sh 'chmod +x ./mvnw'
                        sh  './mvnw compile'
                        echo 'Building the Food Delivery Project with Maven compiler'
                             }
                       }

                stage('Test') {
                        steps {
                        sh  './mvnw test'
                        echo 'Testing the Food Delivery project with Maven test'
                 }
                    }

                stage('Deploy') {
                        steps {
                        sh  './mvnw package'
                        echo 'Deploy the Food Delivery project with Maven package'
                 } }   }  }
```

8.2 Docker Jenkins 9090:8080 Git SCM



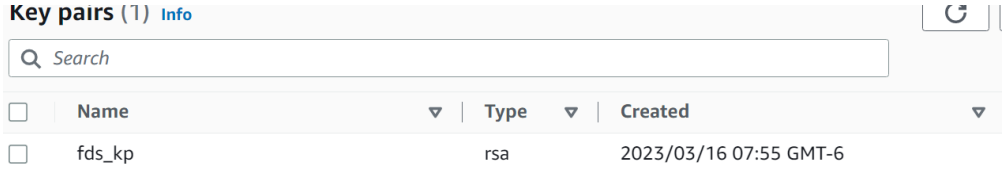
8.3 Build Stage



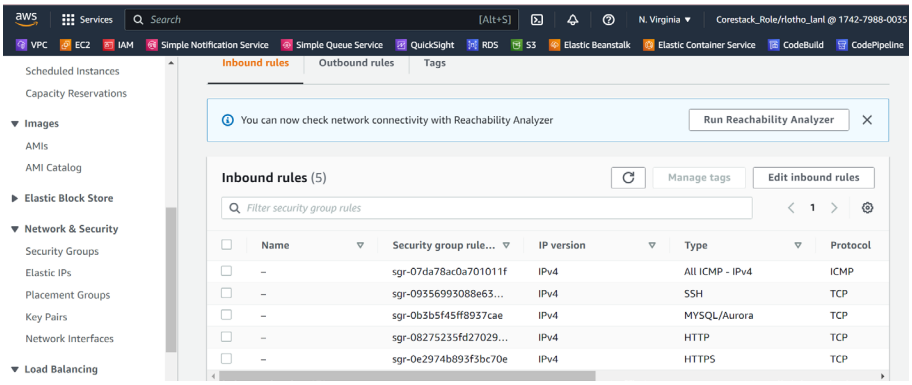
9. Task 9: AWS, EC2, SSH/Cloud Shell Connection, Tool Configuration

Create and Launch AWS EC2 Instance

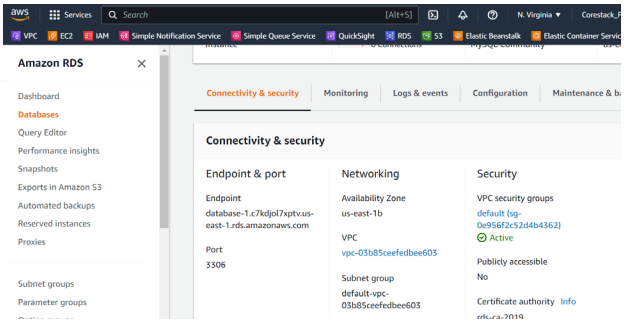
9.1.1 Create Key Pair -FDS keypair



9.1.2 Security Group – FDS_SG set inbound allow



9.1.3 RDS setup Database



9.1.3.1 Connect to AWS RDS from AWS cli, create DB

```
$ mysql -h database-1.c7kdjol7xptv.us-east-1.rds.amazonaws.com -P 3306 -u root -p
Enter password: ********
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 43
Server version: 8.0.28 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```
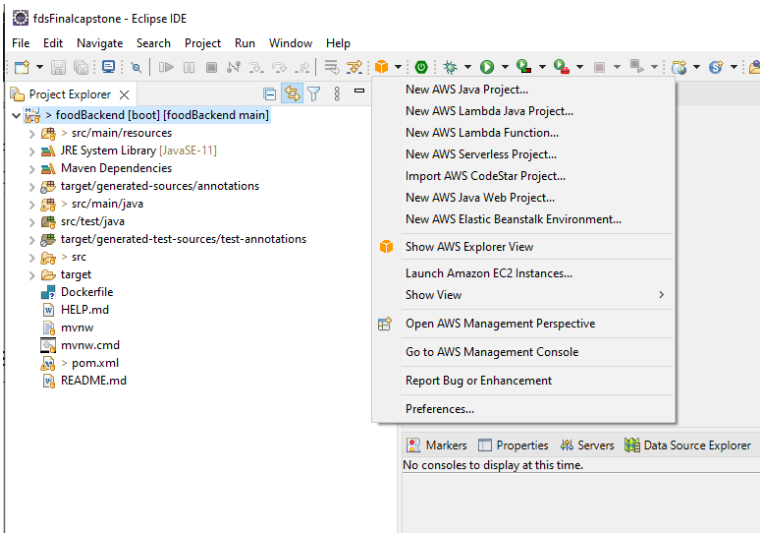
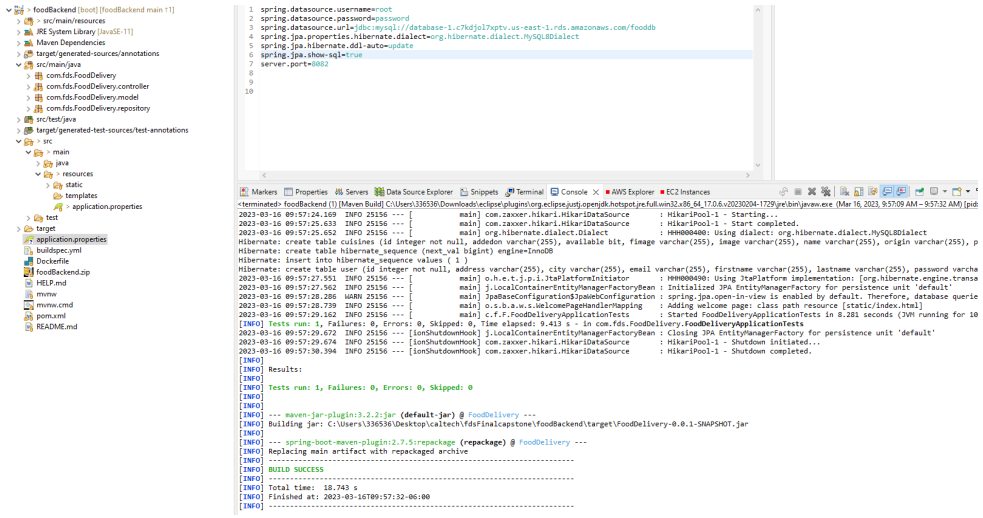

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| fooddb             |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.06 sec)
```

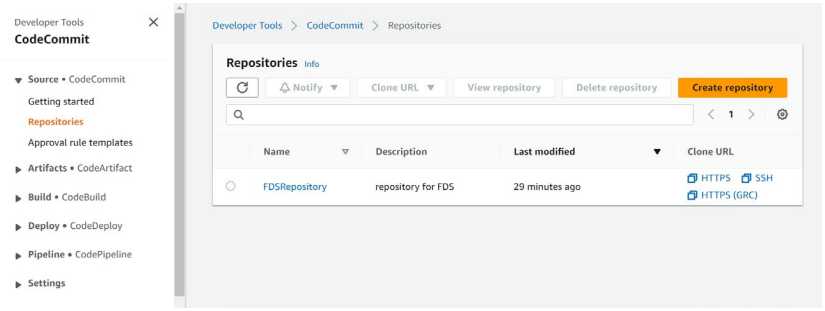
9.3.1.2 Connect project to AWS RDS and build Jar



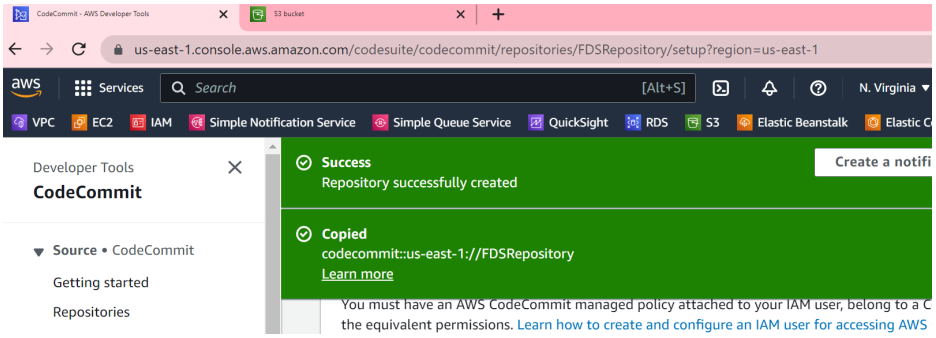
Springboot AWS RDS connection



AWS CodePipeline



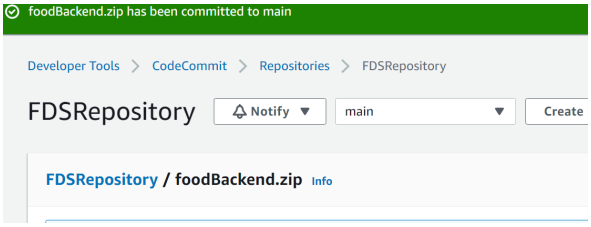
9.2 Create new Repository : AWS CodeCommit git-remote



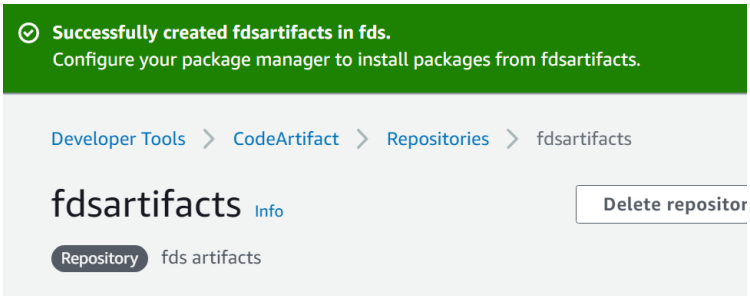
9.3.1 **git-remote-codecommit us-east-1://FDSRepository**

9.3.2 Clone URL GRC

AWS cli, git status, git commit, git push

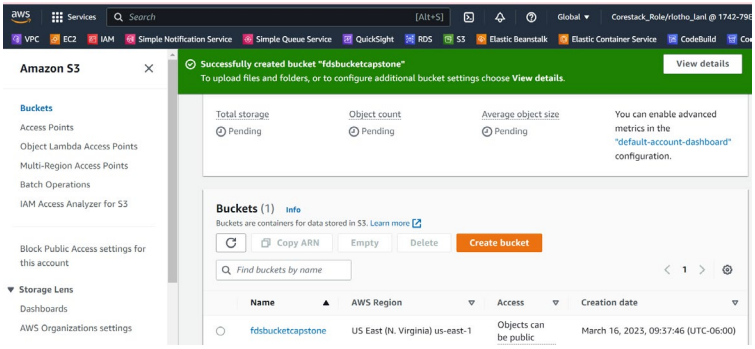


9.4 Artifacts: AWS Code Artifacts



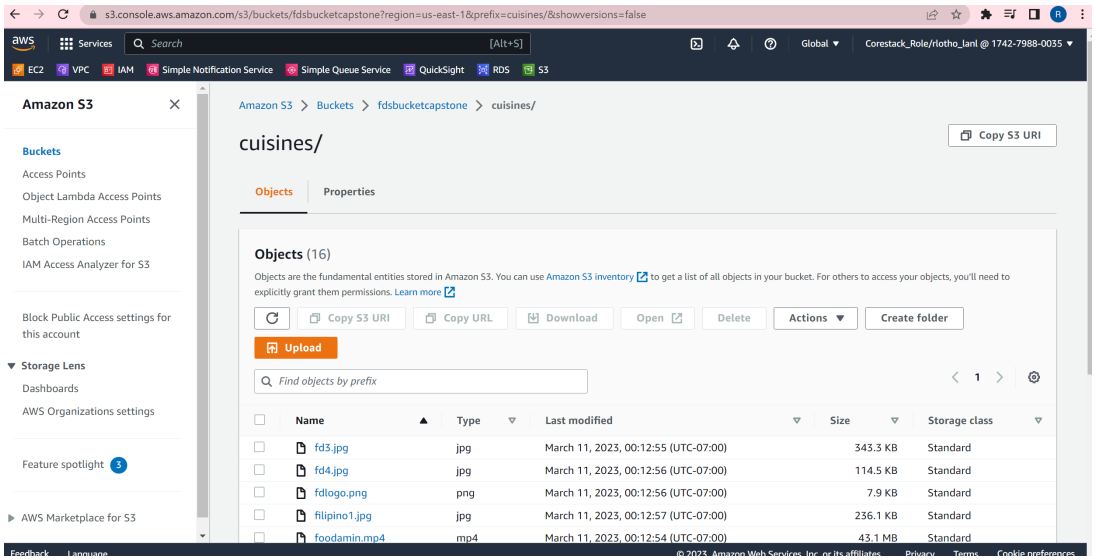
9.5 CodeBuild: AWS CodeBuild

9.5.1. AWS S3 service: Bucket

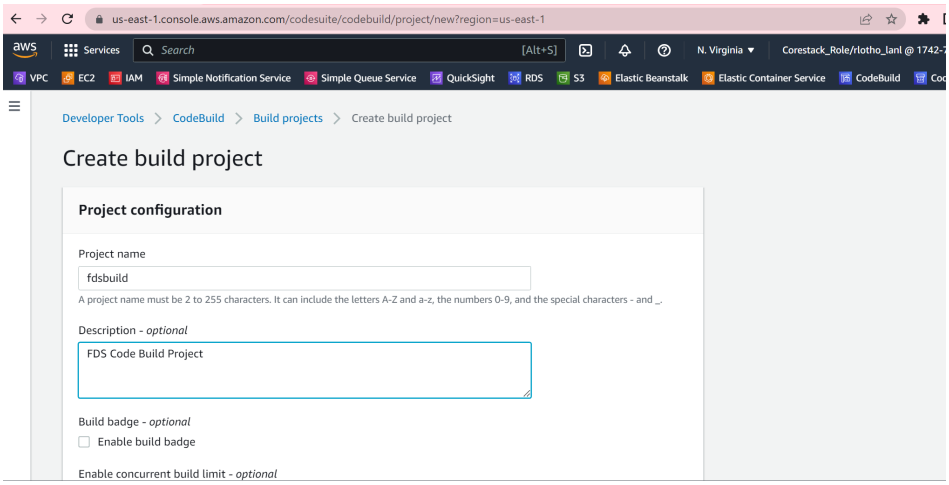


9.5.2. Set AWS CodeCommit, BuildSpec, Artifacts, S3 Bucket

9.5.2.1 S3 bucket

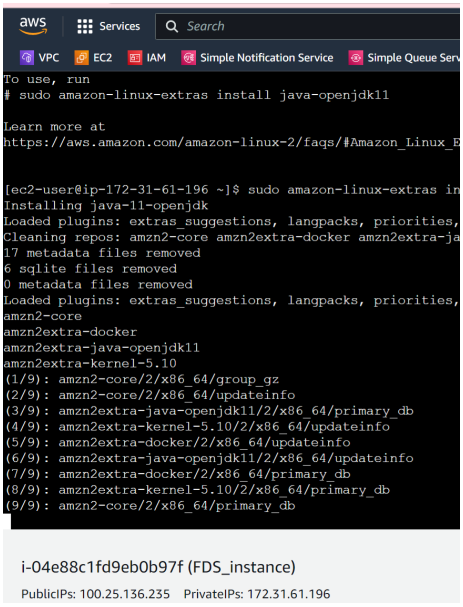


9.5.2.2 Setup Build Project

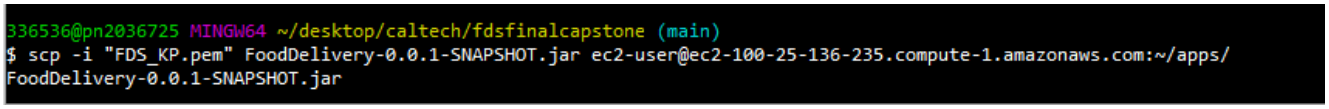


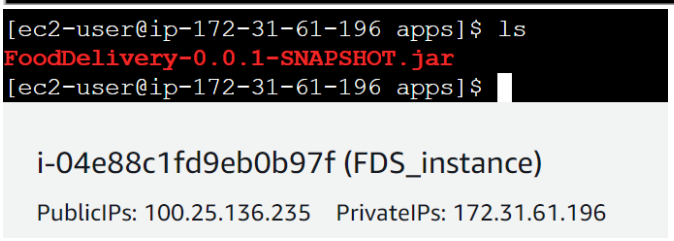
9.6. AWS ElasticBeanstalk

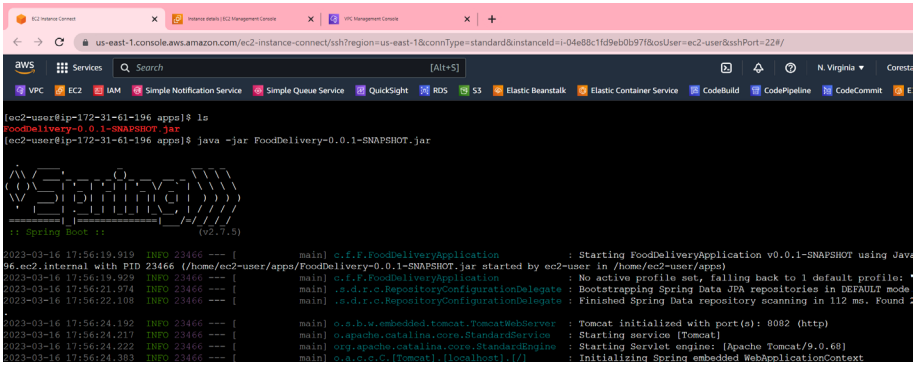
9.6.1. Install openjdk



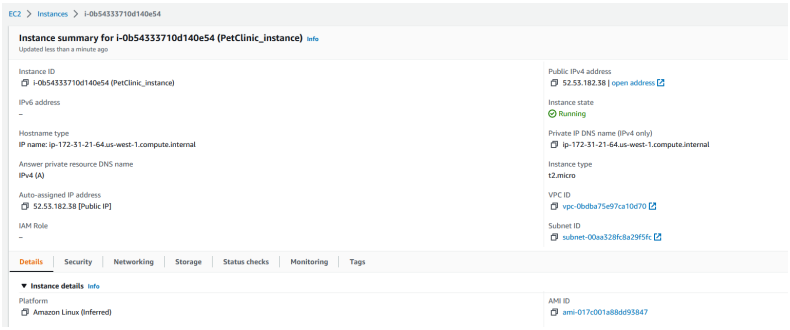
9.6.2 Secure copy JAR to AWS instance image



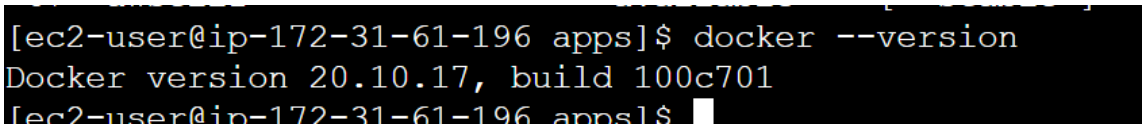




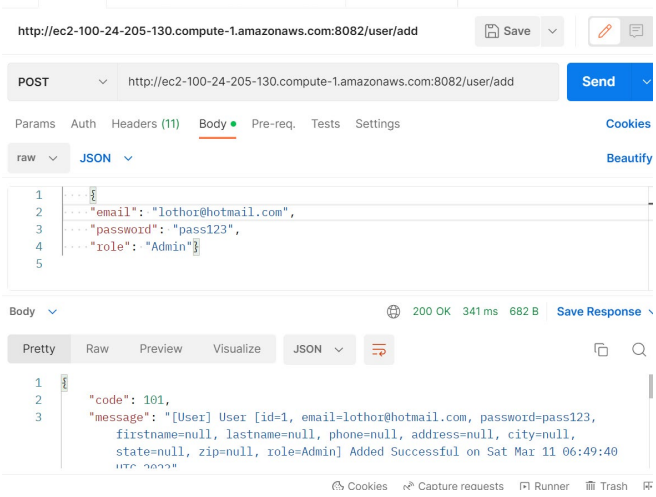
9.6.3 EC2 Instance – FDS_Instance



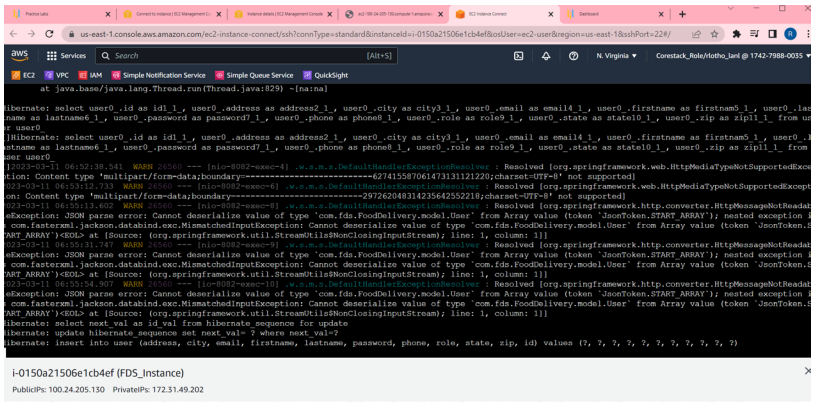
9.6.4 Configure EC2 Instance with Docker



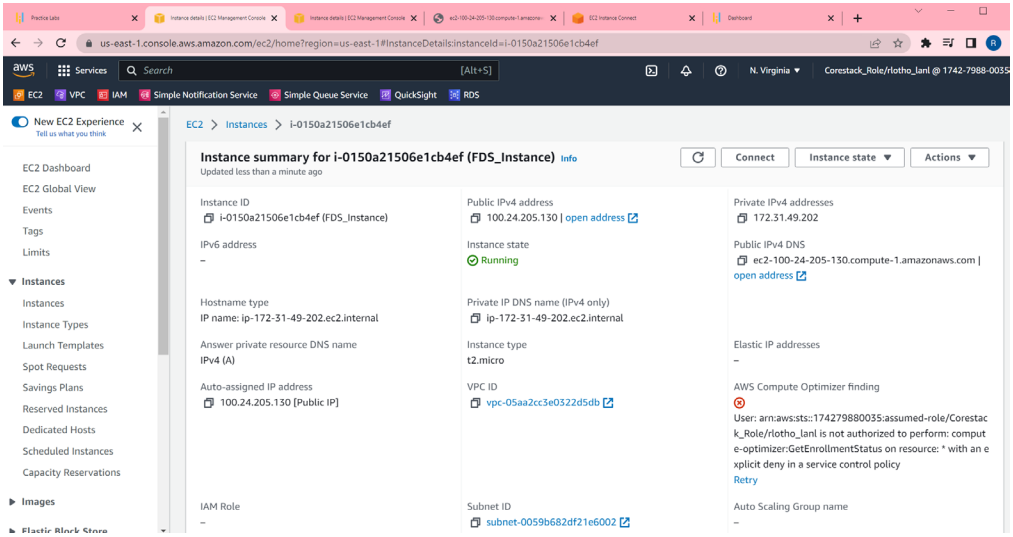
9.6.5 PostMan Add/Display records from AWS EC2



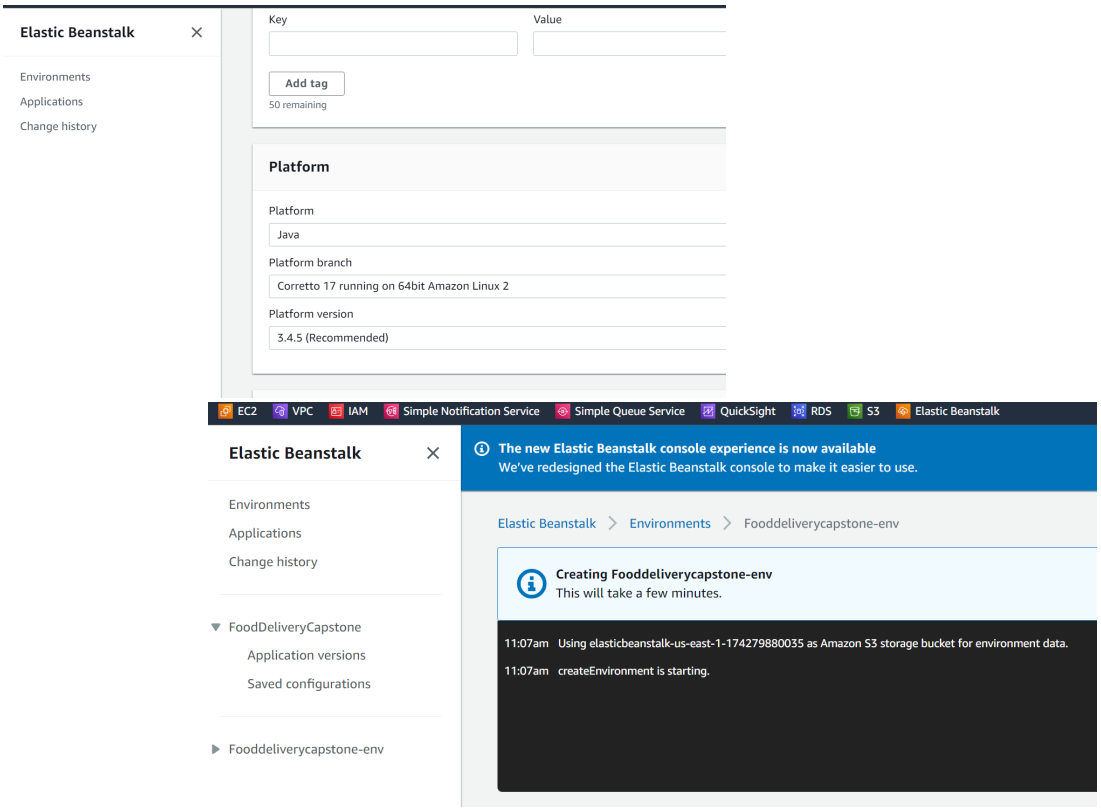
9.6.6 AWS EC2 console



9.6.7 AWS EC2 Instance



9.6.8 AWS Elastic Beanstalk

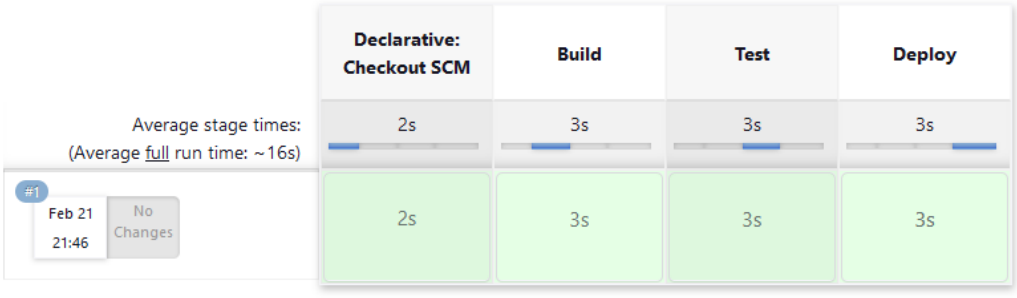


10. Task 10 Jenkins Pipeline Build

Pipeline FoodDeliveryJenkins

This is the Food Delivery Jenkins Pipeline CI/CD

Stage View



Permalinks