

- Docker + Kubernetes Project

// pulled mysql image from docker hub

```
PROBLEMS (19) OUTPUT DEBUG CONSOLE TERMINAL
PS E:\INFOBELL\Training\Docker\Practice\trialproject\demo> docker pull mysql
Using default tag: latest
[2023-04-24T04:26:17.519245100Z][docker-credential-desktop][W] Windows version might not be up-to-date: The system cannot find the file specified.
latest: Pulling from library/mysql
328ba678bf27: Pull complete
3f5ff080d73: Pull complete
7054d6d0c7: Pull complete
5d4e8750e: Pull complete
a7b43bdd: Pull complete
f8959e0: Pull complete
21608f: Pull complete
539565d00e89: Pull complete
a11a06843fd5: Pull complete
92f6d4aa041d: Pull complete
Digest: sha256:a43f6e7e7f3a5e5b90f857fbed4e3103ece771b19f0f75880f767cf66bbb6577
```

```
PROBLEMS (19) OUTPUT DEBUG CONSOLE TERMINAL
a11a06843fd5: Pull complete
92f6d4aa041d: Pull complete
Digest: sha256:a43f6e7e7f3a5e5b90f857fbed4e3103ece771b19f0f75880f767cf66bbb6577
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest
PS E:\INFOBELL\Training\Docker\Practice\trialproject\demo>
PS E:\INFOBELL\Training\Docker\Practice\trialproject\demo> docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
mysql latest 8189e588b0e8 6 days ago 564MB
ubuntu latest 08d22c0ceb15 6 weeks ago 77.8MB
hello-world latest feb5d9fea6a5 19 months ago 13.3kB
PS E:\INFOBELL\Training\Docker\Practice\trialproject\demo>
```

// created a container based on mysql image

```
Command Prompt
C:\Users\lalit> docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
b23d8cdda514 mysql:latest "docker-entrypoint.s..." 21 hours ago Up 7 hours 3306/tcp, 33060/tcp mysqldb
C:\Users\lalit>
```

// created network to communication between application and mysql

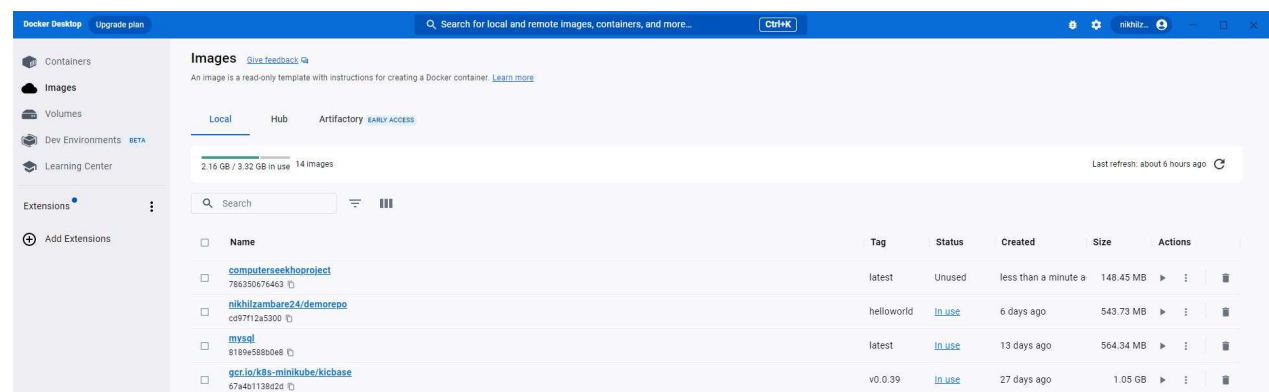
```
Select Command Prompt
C:\Users\lalit> docker network create computerseekho-mysql-net
Error response from daemon: network with name computerseekho-mysql-net already exists
C:\Users\lalit>
C:\Users\lalit> docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
b23d8cdda514 mysql:latest "docker-entrypoint.s..." 21 hours ago Up 7 hours 3306/tcp, 33060/tcp mysqldb
C:\Users\lalit>
C:\Users\lalit> docker network ls
NETWORK ID NAME DRIVER SCOPE
5276f5aeca6b bridge bridge local
947bd709c221 computerseekho-mysql-net bridge local
0a74b2b1020a host host local
2a69f55b1433 minikube bridge local
a7715a8386bd none null local
C:\Users\lalit>
```

```
// Built an image based on springboot application
```

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18363.1556]
(c) 2019 Microsoft Corporation. All rights reserved.

E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend> docker build -t computerseekhoproject .

[+] Building 14.8s (2/3)
[+] Building 15.1s (2/3)
[+] Building 175.1s (9/9) FINISHED
# [INFO] #1 [internal] load build definition from Dockerfile
# [INFO] #1 FROM docker://python:3.8-slim AS base
# [INFO] #1 WORKDIR /app
# [INFO] #1 COPY requirements.txt ./
# [INFO] #1 RUN pip install --no-cache-dir -r requirements.txt
# [INFO] #1 COPY . .
# [INFO] #1 EXPOSE 80
# [INFO] #1 CMD ["python app.py"]
```



```
// Run docker exec command on mysqldb to connect to mysql
```

```

C:\Users\ljalit>docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                    NAMES
b23d8cdda514   mysql:latest "docker-entrypoint.s..." 20 hours ago   Up 6 hours    3306/tcp, 33060/tcp      mysqldb

C:\Users\ljalit>docker exec -it mysqldb mysql -uroot -p

Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.33 MySQL Community Server - GPL

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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 |
+-----+
| infobell |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.34 sec)

mysql> use infobell;
Database changed
mysql> show tables;
Empty set (0.03 sec)

```

The screenshot displays the IntelliJ IDEA IDE with the 'Edit Configuration' dialog open for a Maven build. The configuration is for a project named 'ComputerseehkoBackend (3)'. The 'Base directory' is set to 'C:\Users\jallit\m2\settings.xml'. The 'Goals' field contains 'clean install -Dmaven.test.skip=true'. The 'Maven Runtime' is 'EMBEDDED (3.3.9/7.0.20160603-1931)'. The 'Console' tab shows the build output, including 'BUILD SUCCESS' and a warning that the profile 'pom.xml' could not be activated because it does not exist.

**Edit Configuration Dialog:**

- Name: ComputerseehkoBackend (3)
- Main: ☒ JRE ☒ Refresh ☒ Source ☒ Environment ☒ Common
- Base directory: C:\Users\jallit\m2\settings.xml
- Goals: clean install -Dmaven.test.skip=true
- Profiles: pom.xml
- User settings: C:\Users\jallit\m2\settings.xml
- Options:
  - ☐ Offline ☐ Update Snapshots
  - ☐ Debug Output ☐ Skip Tests ☐ Non-recursive
  - ☐ Resolve Workspace artifacts
  - Threads: 1
- Maven Runtime: EMBEDDED (3.3.9/7.0.20160603-1931)

**Console Output:**

```
[*terminated*] ComputerseehkoBackend (3) [Maven Build]
[INFO] Installing E:\INFOBELL\Training\Kubernetes\practice\ComputerSeehkoApp\ComputerseehkoBackend\target\computerseehko-backend-1.0.0-SNAPSHOT.jar to C:\Users\jallit\m2\repository
[INFO] Installing E:\INFOBELL\Training\Kubernetes\practice\ComputerSeehkoApp\ComputerseehkoBackend\pom.xml to C:\Users\jallit\m2\repository
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 8.642 s
[INFO] Finished at: 2023-04-30T19:20:40+05:30
[INFO] Final Memory: 35M/285M
[INFO] -----
[WARNING] The requested profile "pom.xml" could not be activated because it does not exist.
```

The screenshot displays the Eclipse IDE interface for a Spring Boot project named 'Computerseekho'. The 'pom.xml' file is open in the editor, showing the following dependencies:

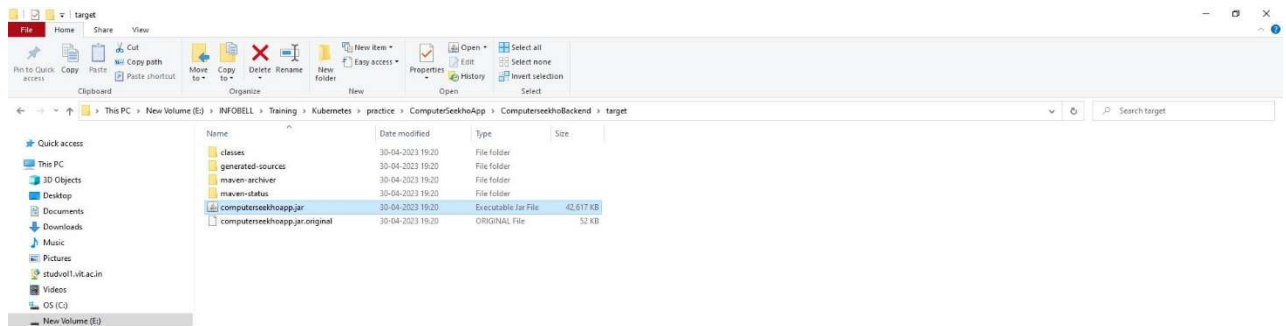
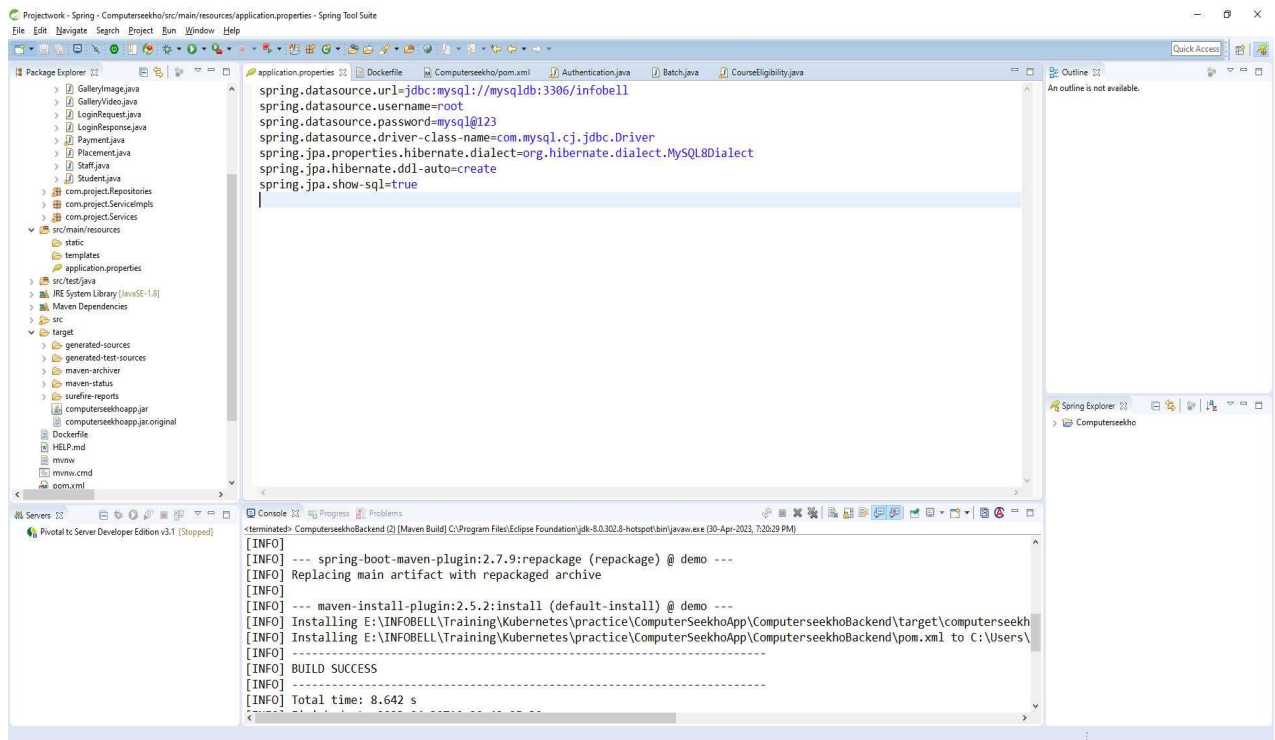
```

<dependencies>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter</artifactId>
    </dependency>
    <dependency>
        <groupId>com.mysql</groupId>
        <artifactId>mysql-connector-java</artifactId>
        <version>8.0.29</version>
    </dependency>
    <dependency>
        <groupId>org.hibernate</groupId>
        <artifactId>hibernate-core</artifactId>
    </dependency>
</dependencies>
<build>
    <plugins>
        <plugin>
            <groupId>org.springframework.boot</groupId>
            <artifactId>spring-boot-maven-plugin</artifactId>
        </plugin>
        <plugin>
            <groupId>org.apache.maven.plugins</groupId>
            <artifactId>maven-surefire-plugin</artifactId>
            <version>3.0.8-M5</version>
        </plugin>
    </plugins>
    <finalName>computerseekhoapp</finalName>
</build>
</project>

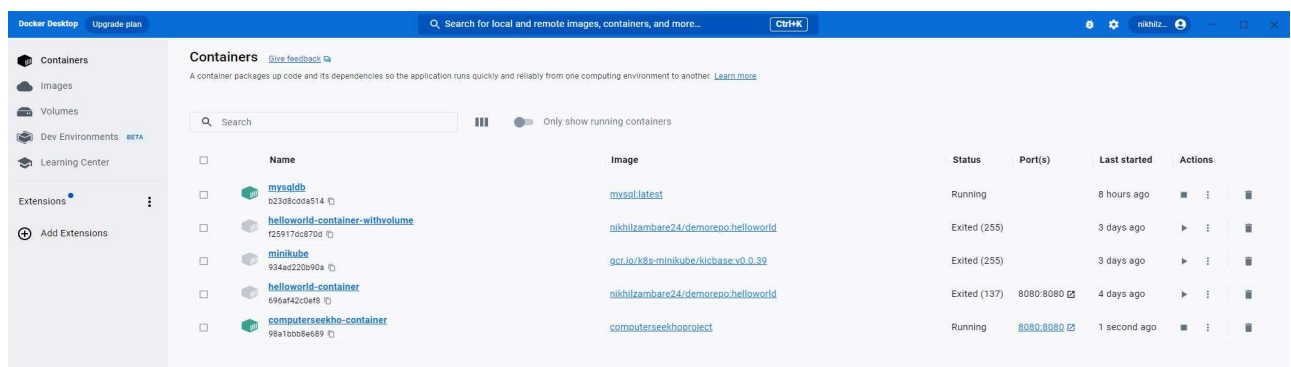
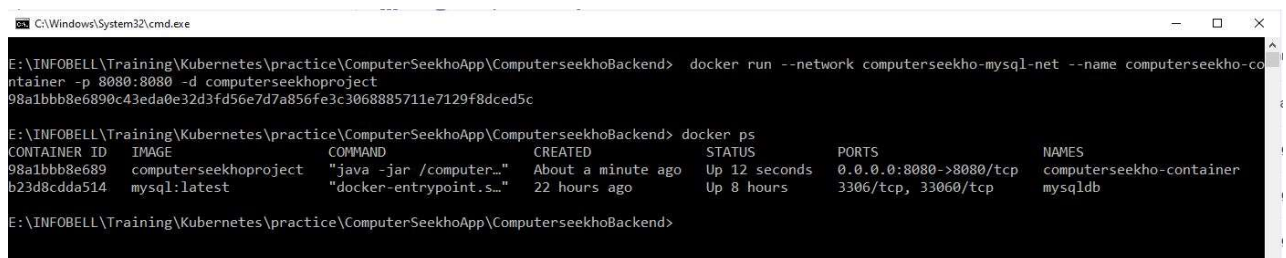
```

The 'Package Explorer' on the left shows the project structure, including 'src/main/resources' and 'application.properties'. The 'Console' at the bottom shows the output of a Maven build, indicating successful compilation and packaging of the 'computerseekhoapp.jar'.

// Generated computerseekhoapp.jar file in target folder & created application.properties

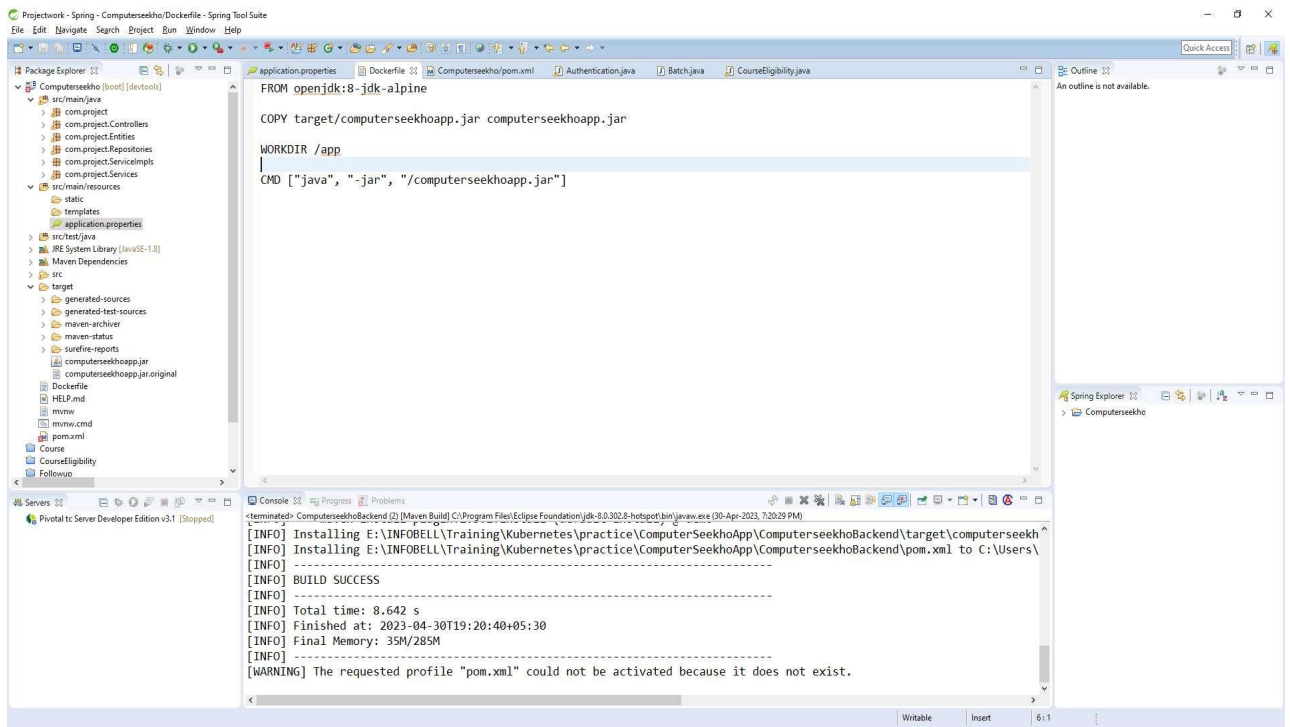


// Created computerseekho-container using computerseekho-mysql-net network

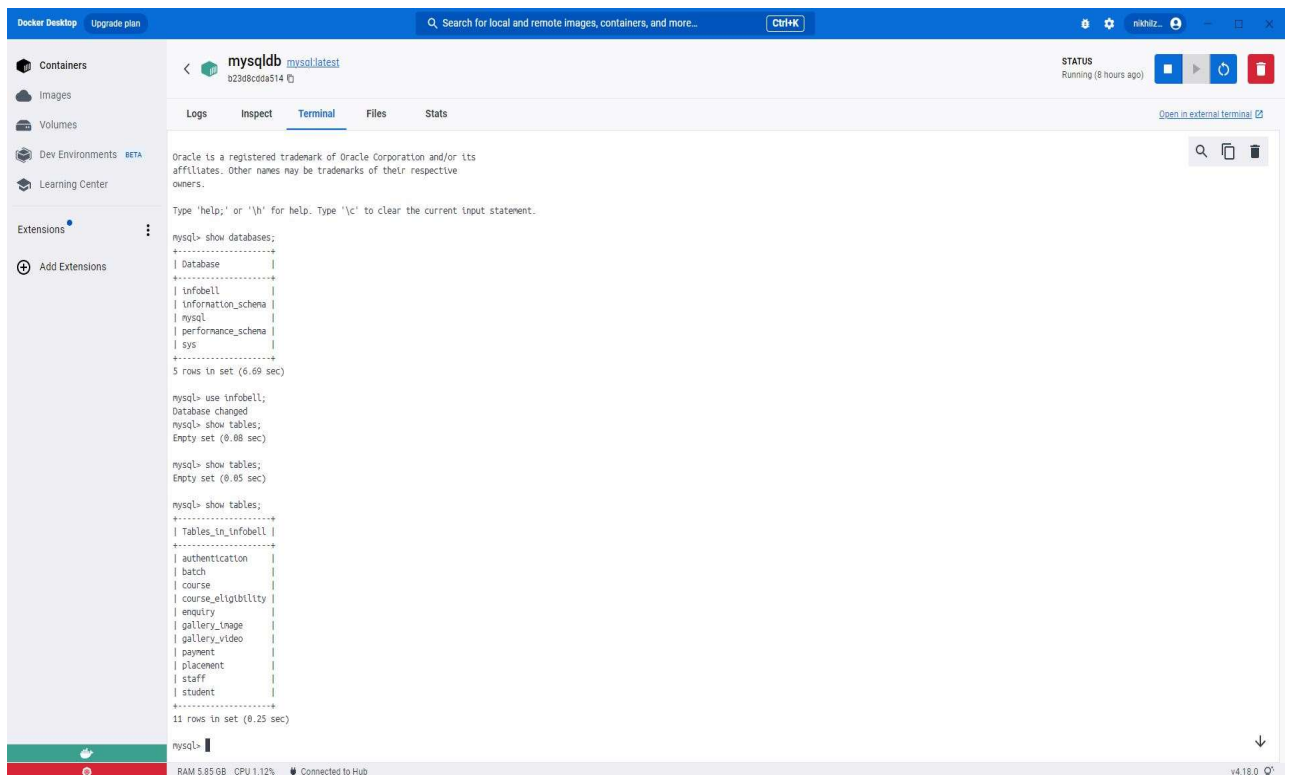




## // Dockerfile



## // Run mysql commands on mysql db container terminal, Tables generated



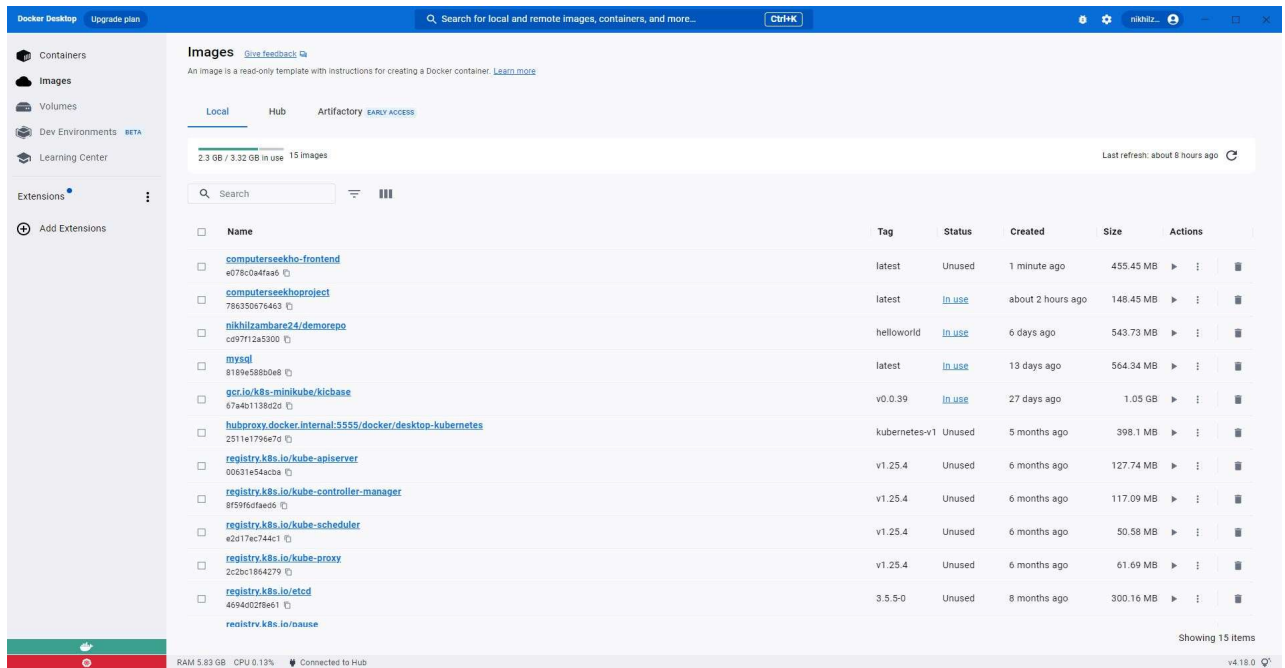
// Created a computerseekho-frontend-container using computerseekho-frontend image

```
C:\Windows\System32\cmd.exe

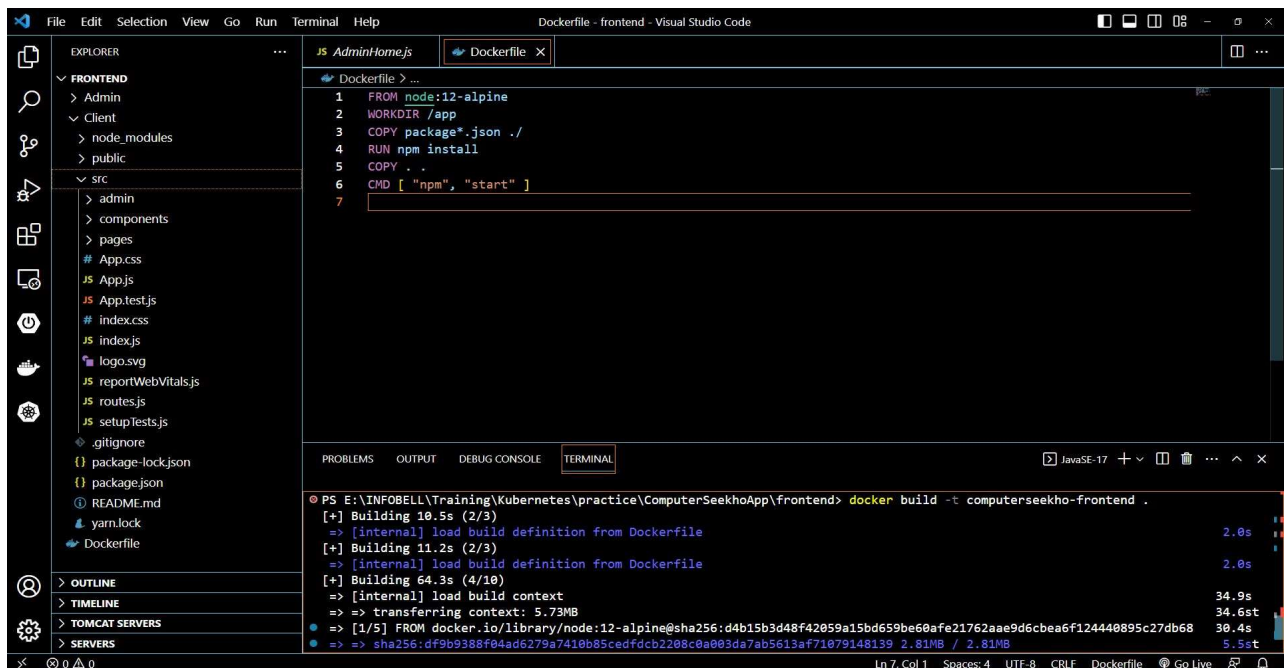
E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend>
E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend> docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS                               NAMES
98a1bbb8e689   computerseekhoproject              "java -jar /computer..." 2 hours ago    Up 2 hours    0.0.0.0:8080->8080/tcp             computerseekho-container
b23d8cdda514   mysql:latest                       "docker-entrypoint.s..." 24 hours ago   Up 9 hours    3306/tcp, 33060/tcp               mysqlldb

E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend> docker run -d -p 3000:3000 --name computerseekho-frontend-container comp
uterseekho-frontend:latest
040f77688c101404a9cf88d1ea2899e25d7a59e89d7713d0c436a0a4d3774ca1

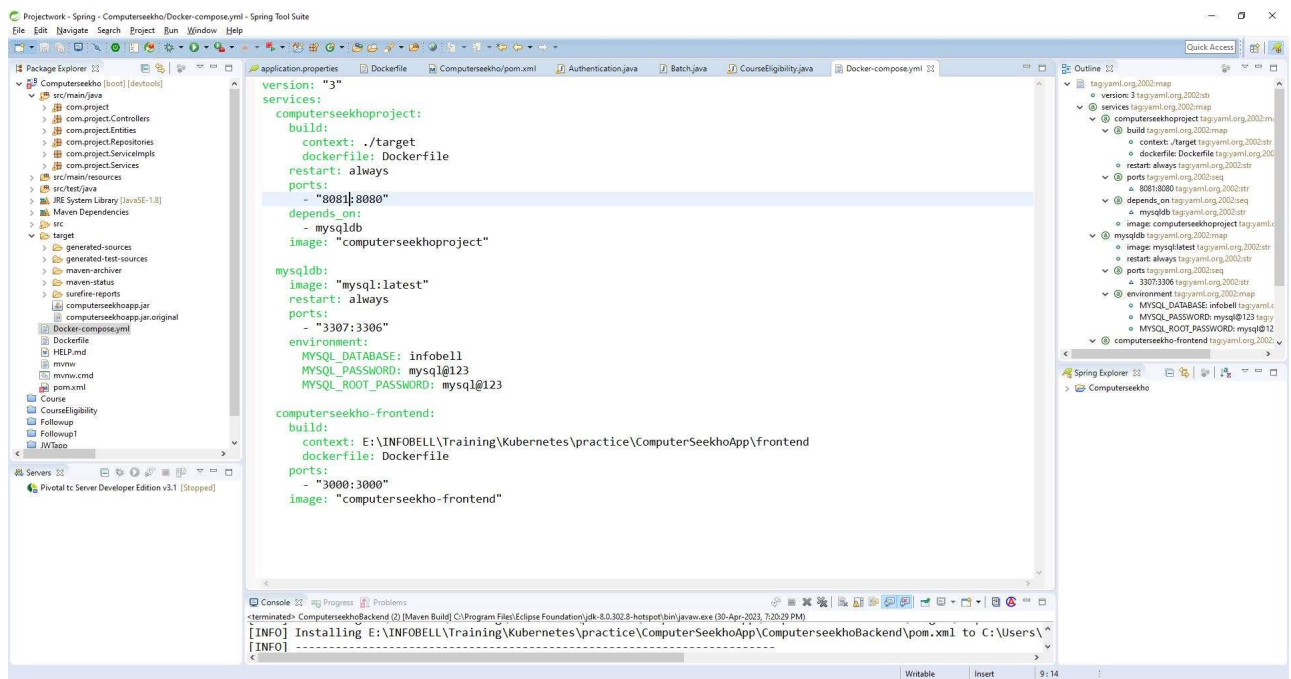
E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend>
E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend>
```



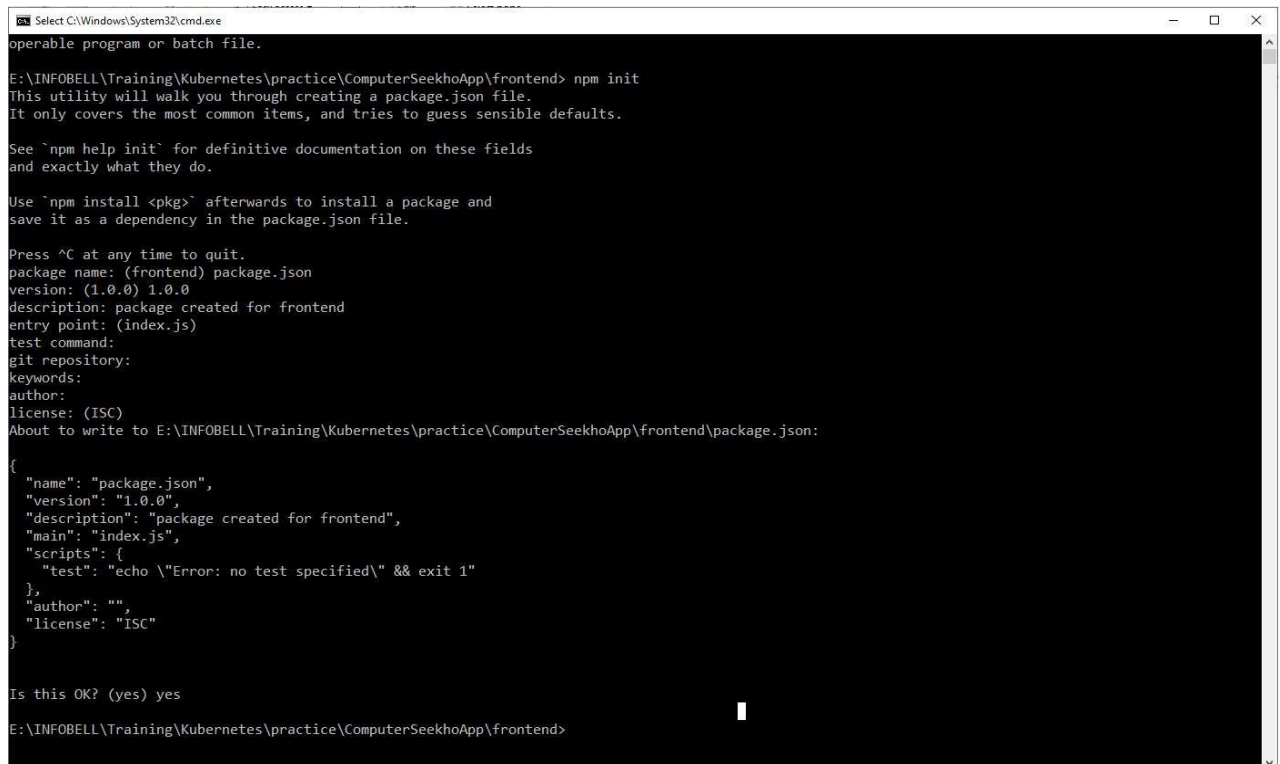
// Dockerfile for frontend application



## // Docker-compose.yml file



// created a package.json file using npm init in frontend repository with version 1.0.0 and keeping main as index.js



// Running docker-compose.yml file using docker-compose up command

```
C:\Windows\System32\cmd.exe - docker-compose up

E:\INFOBELL\Training\Kubernetes\practice\ComputerSeekhoApp\ComputerseekhoBackend> docker-compose up
time="2023-04-30T18:39:48+05:30" level=warning msg="Found orphan containers ([computerseekhobackend-server-1]) for this project. If you removed or renamed this service in your compose file, you can run this command with the --remove-orphans flag to clean it up."

[+] Running 3/3
 Container computerseekhobackend-mysqldb-1      Running
 Container computerseekhobackend-computerseekho-frontent-1 Created
 Container computerseekhobackend-computerseekhoproject-1 Recreated
Attaching to computerseekhobackend-computerseekho-frontent-1, computerseekhobackend-computerseekhoproject-1, computerseekhobackend-mysqldb-1
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:10.812494Z 11 [System] [MY-013172] [Server] Received SHUTDOWN from user root. Shutting down mysqld (Version: 8.0.33).
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:37.466680Z 0 [System] [MY-010910] [Server] /usr/sbin/mysqld: Shutdown complete (mysqld 8.0.33) MySQL Community Server - GPL.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:39+00:00 [Note] [Entrypoint]: Temporary server stopped
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:39+00:00 [Note] [Entrypoint]: MySQL init process done. Ready for start up.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:42.789340Z 0 [Warning] [MY-011068] [Server] The syntax '--skip-host-cache' is deprecated and will be removed in a future release. Please use SET GLOBAL host_cache_size=0 instead.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:42.792452Z 0 [System] [MY-010116] [Server] /usr/sbin/mysqld (mysqld 8.0.33) starting as process 1
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:42.910844Z 1 [System] [MY-013576] [InnoDB] InnoDB initialization has started.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:30:51.805865Z 1 [System] [MY-013577] [InnoDB] InnoDB initialization has ended.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:31:00.261205Z 0 [Warning] [MY-010068] [Server] CA certificate ca.pem is self signed.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:31:00.261287Z 0 [System] [MY-013602] [Server] Channel mysql_main configured to support TLS. Encrypted connections are now supported for this channel.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:31:00.584248Z 0 [Warning] [MY-011810] [Server] Insecure configuration for --pid-file: Location '/var/run/mysqld' in the path is accessible to all OS users. Consider choosing a different directory.
computerseekhobackend-mysqldb-1 | 2023-04-30T18:31:00.619456Z 0 [System] [MY-011323] [Server] X Plugin ready for connections. Bind-address: '::' port: 33060, socket: /var/run/mysqld/mysqld.sock
computerseekhobackend-mysqldb-1 | 2023-04-30T18:31:00.619731Z 0 [System] [MY-010931] [Server] /usr/sbin/mysqld: ready for connections. Version: '8.0.33' socket: '/var/run/mysqld/mysqld.sock' port: 3306 MySQL Community Server - GPL.
computerseekhobackend-computerseekho-frontent-1 | npm ERR! code EENOENT
computerseekhobackend-computerseekho-frontent-1 | npm ERR! syscall open
computerseekhobackend-computerseekho-frontent-1 | npm ERR! path /app/package.json
computerseekhobackend-computerseekho-frontent-1 | npm ERR! errno -2
computerseekhobackend-computerseekho-frontent-1 | npm ERR! enoent ENOENT: no such file or directory, open '/app/package.json'
computerseekhobackend-computerseekho-frontent-1 | npm ERR! enoent This is related to npm not being able to find a file.
computerseekhobackend-computerseekho-frontent-1 | npm ERR! enoent
computerseekhobackend-computerseekho-frontent-1 | npm ERR! A complete log of this run can be found in:
computerseekhobackend-computerseekho-frontent-1 | npm ERR! /root/.npm/_logs/2023-04-30T18_31_04_210Z-debug.log
computerseekhobackend-computerseekho-frontent-1 exited with code 254
```

// Started tomcat on port 8000

```
Projectwork - Spring - Computerseekho/src/main/java/com/project/ComputerseekhoApplication.java - Spring Tool Suite

File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer
  Computerseekho [boot] [devtools]
    src/main/java
      com.project
        ComputerseekhoApplication.java
        com.project.Controllers
        com.project.Entities
        com.project.Repositories
        com.project.Services
      src/main/resources
        application.properties
        templates
      src/test/java
        JRE System Library [JWS5E-1.8]
        Maven Dependencies
        target/generated-sources/annotations
        target/generated-sources/test-annotations
      src
      target
      Docker-compose.yml
      Dockerfile
      HELP.md
      pom.xml
      Course
      CourseEligibility
      Followup
      JWTags
      Servers

Servers
  Pivotal Server Developer Edition v3.1 [Stopped]

package com.project;

import org.springframework.boot.SpringApplication;

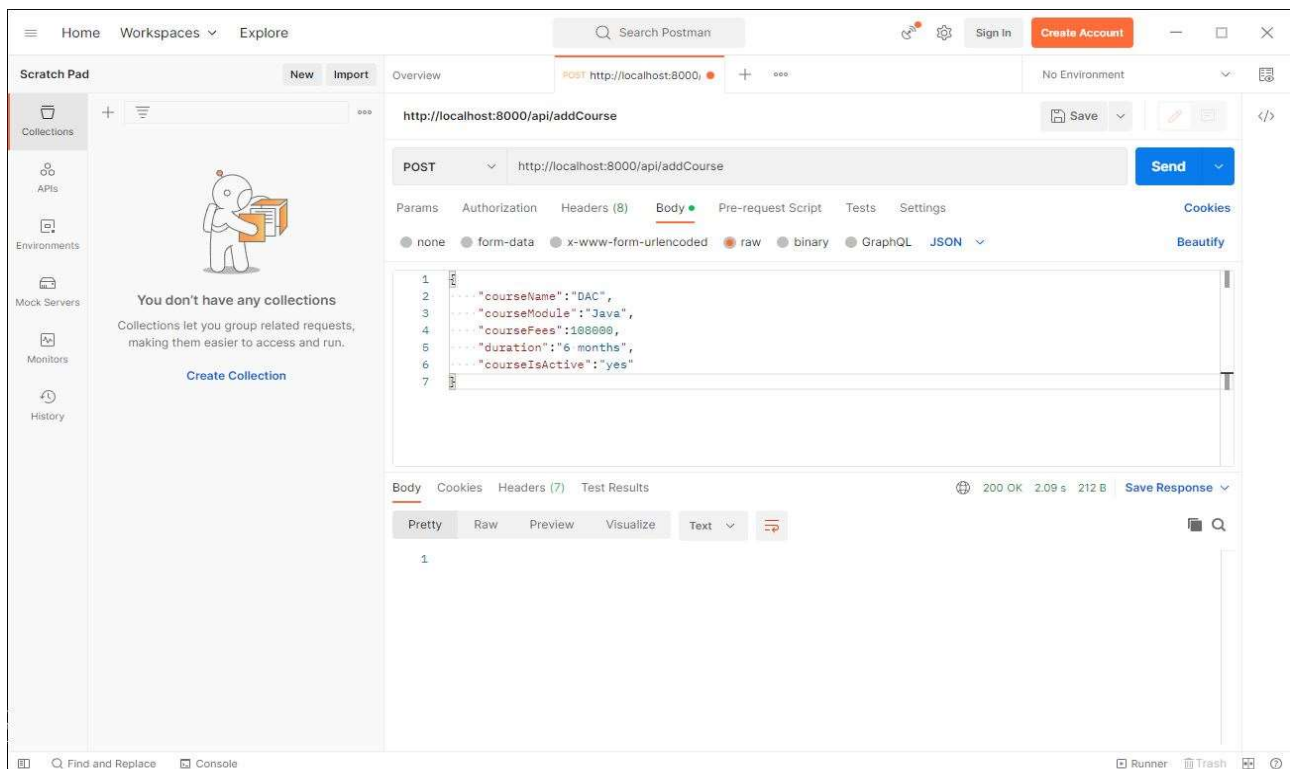
@SpringBootApplication
@ComponentScan(basePackages="com.project.*")
@EntityScan(basePackages="com.project.*")
@EnableJpaRepositories(basePackages="com.project.*")
@Configuration
@EnableWebMvc
public class ComputerseekhoApplication implements WebMvcConfigurer{

    public static void main(String[] args) {
        SpringApplication.run(ComputerseekhoApplication.class, args);
    }
}

Console
ComputerseekhoApplication [Java Application] C:\Program Files\Eclipse Foundation\jdk-8.0.302.8-hotspot\bin\java.exe (01-May-2023, 8:19:47 PM)
o.h.e.t.j.p.i.JtaPlatformInitiator : HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.t
j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFactory for persistence unit 'default'
jpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enabled by default. Therefore, database q
o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port 35729
o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8000 (http) with context path ''
com.project.ComputerseekhoApplication : Started ComputerseekhoApplication in 22.061 seconds (JVM running for
```



// Using postman, added data to Course table in infobell database



Command Prompt - mysql -uroot -pmysql@123

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

mysql> show databases;
+-----+
| Database |
+-----+
| abc      |
| advancejava |
| assignment |
| assignment1 |
| hibernate |
| infobell |
| information_schema |
| mysql    |
| performance_schema |
| project  |
| restdb   |
| sakila   |
| sample   |
| sys      |
| test     |
| world    |
+-----+
16 rows in set (2.99 sec)

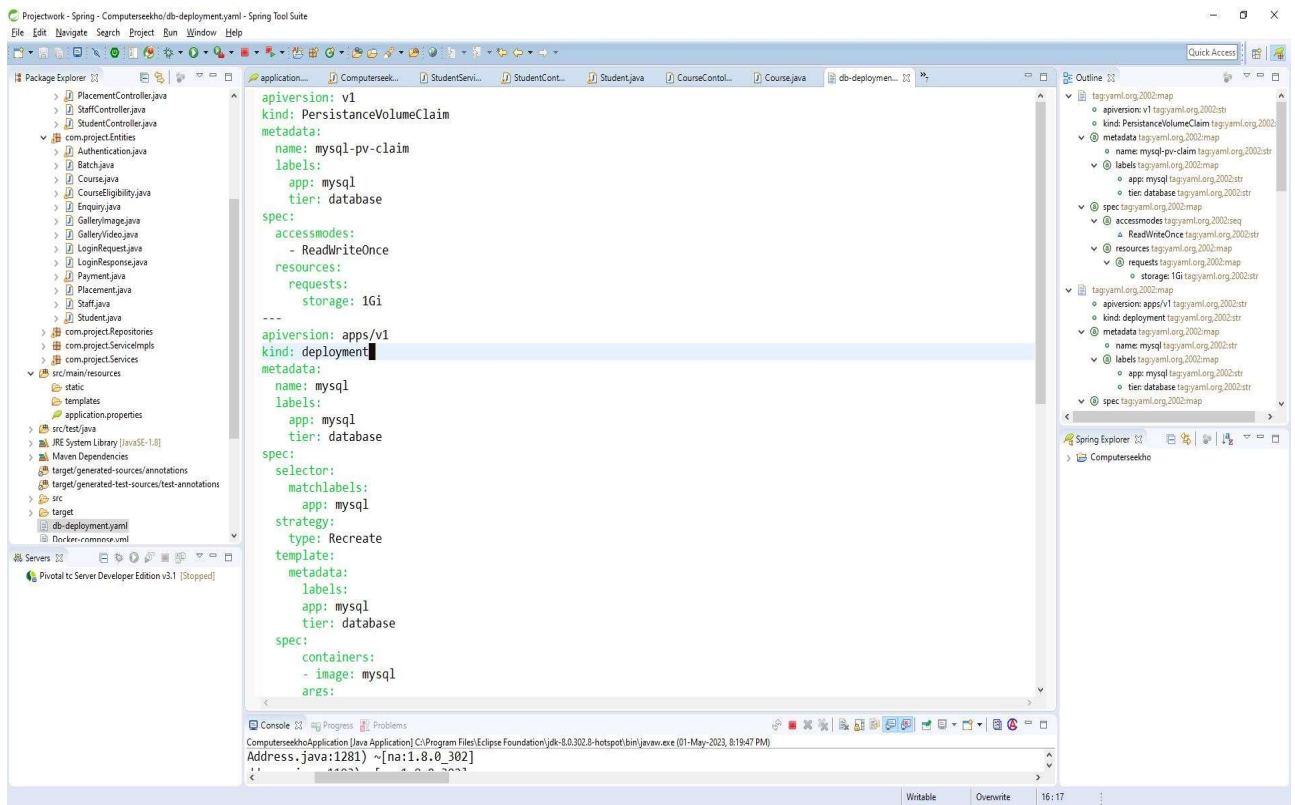
mysql> use infobell;
Database changed
mysql> show tables;
+-----+
| Tables_in_infobell |
+-----+
| authentication      |
| batch               |
| course              |
| course_eligibility  |
| enquiry             |
| gallery_image       |
| gallery_video       |
| payment             |
| placement           |
| staff               |
| student             |
+-----+
11 rows in set (0.58 sec)

mysql> select * from course;
Empty set (0.03 sec)

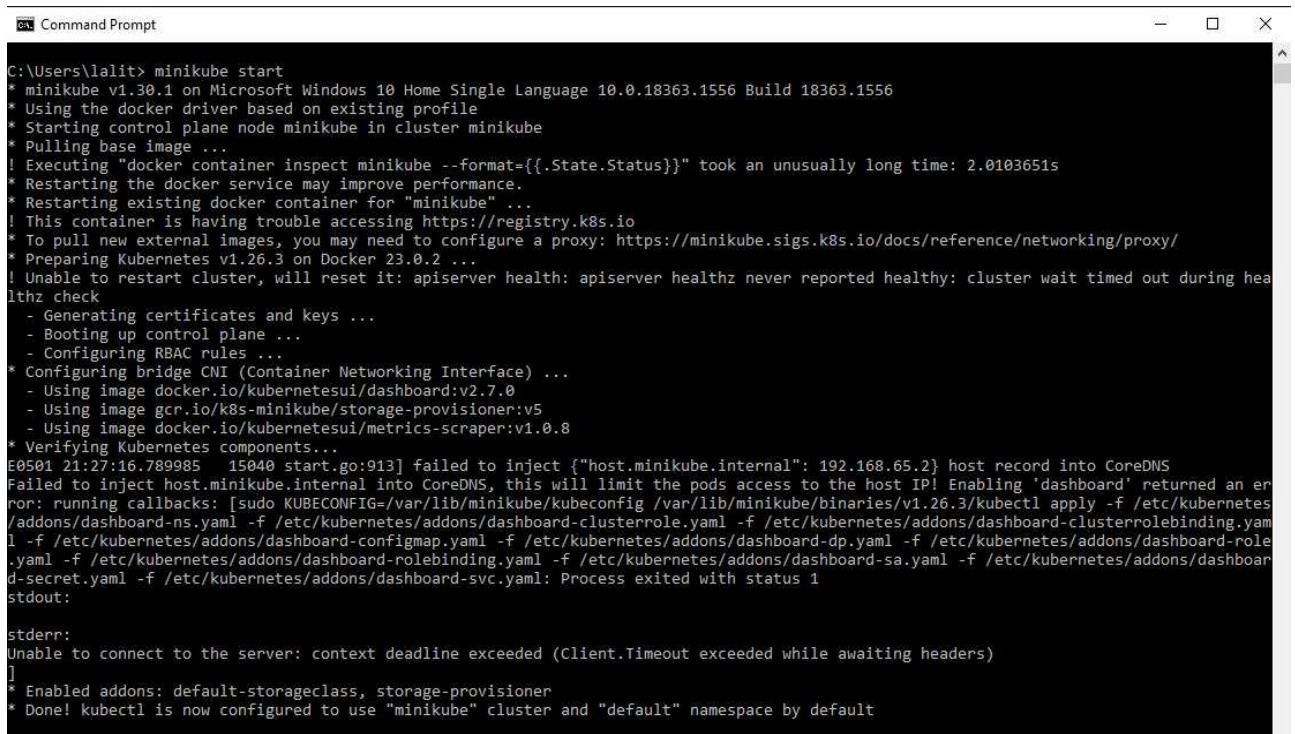
mysql> select * from course;
+-----+
| course_id | course_fees | course_is_active | course_module | course_name | duration |
+-----+
| 1         | 100000     | yes              | Java          | DAC         | 6 months |
+-----+
1 row in set (0.45 sec)

mysql>
```

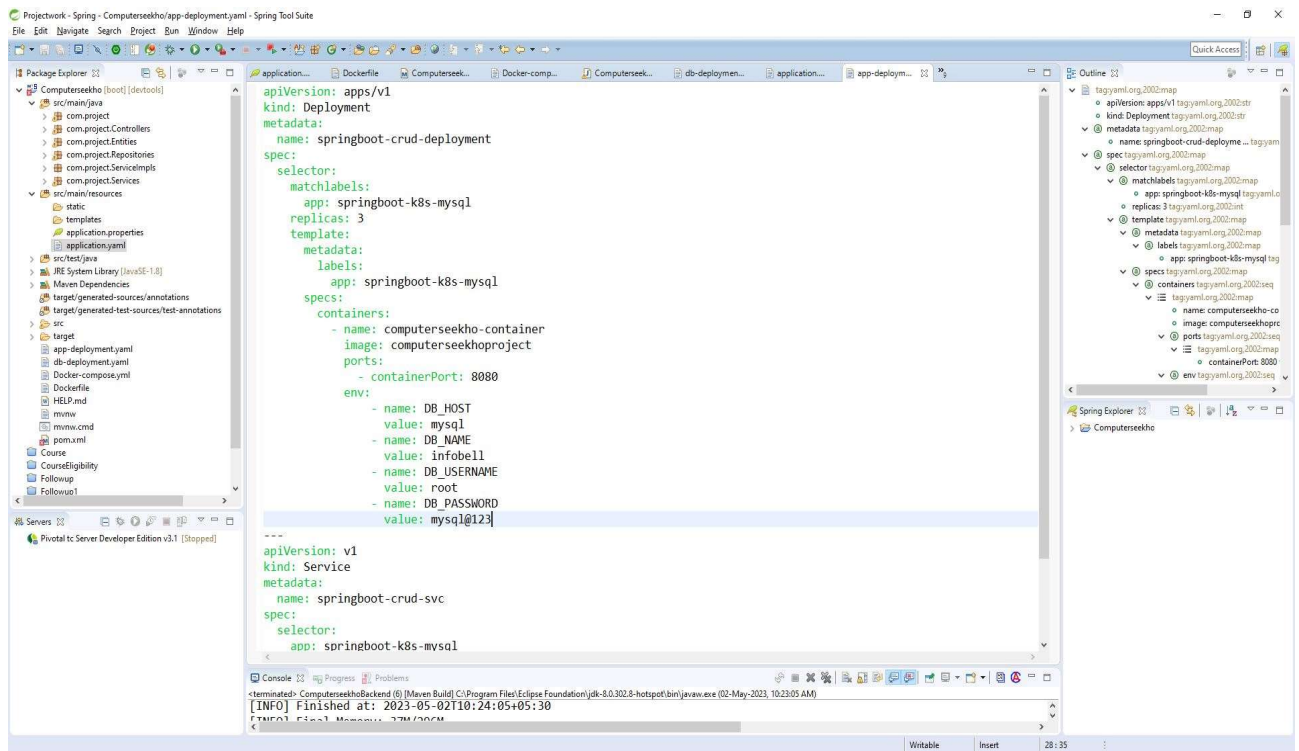
// created db-deployment.yaml file



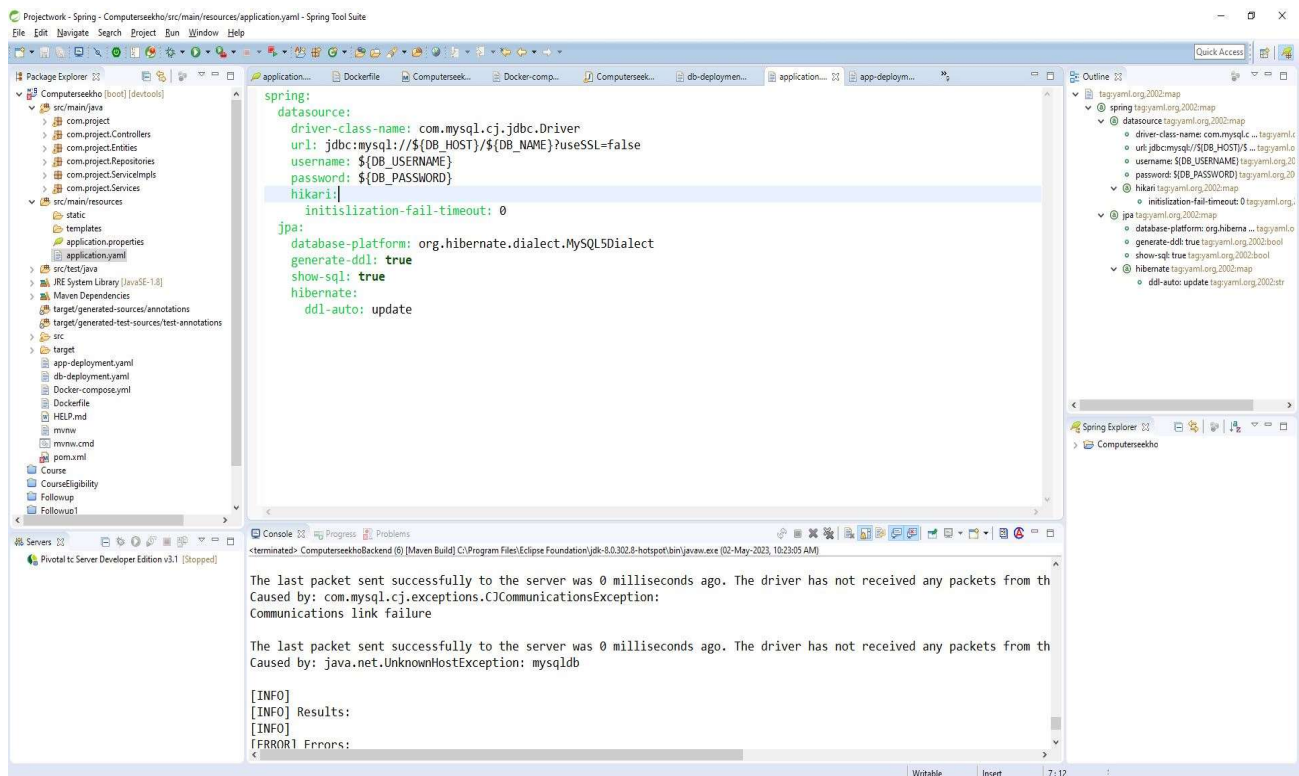
// Started kubernetes using minikube start



// Created app-deployment.yaml file for deployment of application



// Created application.yml file database connectivity



// Got an unexpected error failed to start the Docker Engine, images and Containers got deleted, expected to reset to factory defaults.

