

Birla Institute of Technology and Science



INTRODUCTION TO DEVOPS

Assignment: Part A

Group No: 7

Topic: DEVOPS LIVE PROJECT

Sr.No.	Team Members	BITS ID
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Project Title: Employee Management

Project Description: Employee management is a microservice based project which can handle the employees data with their department details.

Features:

- i) Department service handles all the departments available.
- ii) User service handles all the employees data.
- iii) User service interacts with department service to give employee data with department data.

Technologies:

- **Frontend:** UI5
- **Backend:** Spring boot, Java
- **Testing:** Selenium, Junits

IDE:

- IntelliJ
- Visual Studio Code

Platform:

- Web Browser

GitHub Repository:

- Frontend: <https://github.com/DEVOPS-TEAM-BITS/Devops-Assignment>
- Backend: <https://github.com/aaasarshak/devops-UI>

Source Code Management:

- We have used Git and GitHub for our Source code management.
- The workflow that has been followed is Feature branch workflow, where each of the developers in our team has their own dedicated feature branches to work on the features instead of directly working on main branch.
- We have also leveraged the feature of Pull Requests to merge our feature branches into our main branch in our central repository

GitHub Repository:

- Frontend: <https://github.com/DEVOPS-TEAM-BITS/Devops-Assignment>
- Backend: <https://github.com/aaasarthak/devops-UI>

DEVOPS-TEAM-BITS / Devops-Assignment · Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

master · 1 branch · 0 tags

Nikhil8109 Integration Tests added · 78fa0f4 20 hours ago · 18 commits

.github/workflows global pom updated 3 days ago

cloud-config-server global pom updated 3 days ago

cloud-gateway global pom updated 3 days ago

department-service APIs added 2 days ago

service-registry Sonarcube integrated 3 days ago

src/test/java/practice Integration Tests added 20 hours ago

user-service APIs added 2 days ago

.DS_Store sonarcube integration 4 days ago

pom.xml APIs added 2 days ago

Add a README

About

No description, website, or topics provided.

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Contributors 5

Java 100%

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master · 1 branch · 0 tags

sarthak505 UI added · 1e54ee4 2 days ago · 3 commits

.che first 2 days ago

webapp UI added 2 days ago

.gitignore first 2 days ago

neo-app.json first 2 days ago

package-lock.json first 2 days ago

package.json first 2 days ago

pom.xml first 2 days ago

ui5.yaml first 2 days ago

Add a README

About

No description, website, or topics provided.

Releases

No releases published

Packages

No packages published

Languages

JavaScript 74.1% HTML 25.5% CSS 0.4%

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Continuous Build Management:

- We have used Maven for maintaining builds and dependencies of our project.
- Maven helped us in making our build process easy by hiding the complexities involved in maintaining the dependencies.

Pom.xml: (Depicting Our dependencies)

```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <project xmlns="http://maven.apache.org/POM/4.0.0">
3      <modelVersion>4.0.0</modelVersion>
4      <parent>
5          <groupId>org.springframework.boot</groupId>
6          <artifactId>spring-boot-starter-parent</artifactId>
7          <version>2.5.1</version>
8          <relativePath/> <!-- lookup parent from repository -->
9      </parent>
10     <packaging>pom</packaging>
11     <groupId>com.practice</groupId>
12     <artifactId>Devops-assignment</artifactId>
13     <version>0.0.1-SNAPSHOT</version>
14     <description>Demo project for Spring Boot</description>
15     <properties>
16         <java.version>11</java.version>
17         <spring-cloud.version>2020.0.3</spring-cloud.version>
18         <sonar.organization>devopstest11</sonar.organization>
19         <sonar.host.url>https://sonarcloud.io/sonar.host.url</sonar.host.url>
20     </properties>
21     <modules>
22         <module>cloud-gateway</module>
23         <module>department-service</module>
24         <module>service-registry</module>
25         <module>user-service</module>
26     </modules>
27     <dependencyManagement>
28         <dependencies>
29             <dependency>
30                 <groupId>org.springframework.cloud</groupId>
31                 <artifactId>spring-cloud-dependencies</artifactId>
32                 <version>${spring-cloud.version}</version>
33                 <type>pom</type>
34                 <scope>import</scope>
35             </dependency>
36         </dependencies>
37     </dependencyManagement>
38 </project>
```

Compilation using Maven (mvn compile):

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19042.1237]
(c) Microsoft Corporation. All rights reserved.

C:\Users\I524947\IdeaProjects\Devops-Assignment>mvn compile
[INFO] Scanning for projects...
[INFO] -----
[INFO] Reactor Build Order:
[INFO]
[INFO] Devops-assignment           [pom]
[INFO] cloud-gateway               [jar]
[INFO] department-service           [jar]
[INFO] service-registry             [jar]
[INFO] user-service                 [jar]
[INFO]
[INFO] -----< com.practice:Devops-assignment >-----
[INFO] Building Devops-assignment 0.0.1-SNAPSHOT      [1/5]
[INFO] [ pom ]
[INFO]
[INFO] -----< com.practice:cloud-gateway >-----
[INFO] Building cloud-gateway 0.0.1-SNAPSHOT          [2/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ cloud-gateway ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 1 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] -----< com.practice:department-service >-----
[INFO] Building department-service 0.0.1-SNAPSHOT        [3/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ department-service ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 1 resource
[INFO]

C:\Windows\System32\cmd.exe
[INFO] Building service-registry 0.0.1-SNAPSHOT          [4/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ service-registry ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ service-registry ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] -----< com.practice:user-service >-----
[INFO] Building user-service 0.0.1-SNAPSHOT            [5/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ user-service ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 1 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ user-service ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] -----
[INFO] Reactor Summary for Devops-assignment 0.0.1-SNAPSHOT:
[INFO]
[INFO] Devops-assignment ..... SUCCESS [ 0.016 s]
[INFO] cloud-gateway ..... SUCCESS [ 2.849 s]
[INFO] department-service ..... SUCCESS [ 0.588 s]
[INFO] service-registry ..... SUCCESS [ 0.551 s]
[INFO] user-service ..... SUCCESS [ 0.564 s]
[INFO]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO]
[INFO] -----
[INFO] Total time: 5.318 s
[INFO] Finished at: 2021-10-22T14:40:02+05:30
[INFO] -----
```

C:\Users\I524947\IdeaProjects\Devops-Assignment>

Unit Testing using Maven (mvn test):

```
C:\Windows\System32\cmd.exe
C:\Users\I524947\IdeaProjects\Devops-Assignment>mvn test
[INFO] Scanning for projects...
[INFO] -----
[INFO] Reactor Build Order:
[INFO]
[INFO] Devops-assignment                               [pom]
[INFO] cloud-gateway                                 [jar]
[INFO] department-service                            [jar]
[INFO] service-registry                             [jar]
[INFO] user-service                                  [jar]
[INFO]
[INFO] -----< com.practice:Devops-assignment >-----
[INFO] Building Devops-assignment 0.0.1-SNAPSHOT      [1/5]
[INFO] [ pom ]
[INFO] -----< com.practice:cloud-gateway >-----
[INFO] Building cloud-gateway 0.0.1-SNAPSHOT          [2/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ cloud-gateway ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 1 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:testResources (default-testResources) @ cloud-gateway ---
[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:\Users\I524947\IdeaProjects\Devops-Assignment\cloud-gateway\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @ cloud-gateway ---
[INFO]
[INFO] -----
[INFO] T E S T S
[INFO] -----
Caused by: java.net.ConnectException: Connection refused: connect: localhost:8761
    at org.apache.http.impl.client.InternalHttpClient.doExecute(InternalHttpClient.java:185)
    at org.apache.http.impl.client.CloseableHttpClient.execute(CloseableHttpClient.java:83)
    at org.apache.http.impl.client.CloseableHttpClient.execute(CloseableHttpClient.java:56)
    at org.springframework.http.client.HttpComponentsClientHttpRequest.executeInternal(HttpComponentsClientHttpRequest.java:87)
    at org.springframework.http.client.AbstractBufferingClientHttpRequest.executeInternal(AbstractBufferingClientHttpRequest.java:48)
    at org.springframework.http.client.AbstractClientHttpRequest.execute(AbstractClientHttpRequest.java:66)
    at org.springframework.web.client.RestTemplate.doExecute(RestTemplate.java:776)
    ... 39 more
Caused by: java.net.ConnectException: Connection refused: connect: localhost:8761
    at java.base/java.net.PlainSocketImpl.connect0(Native Method)
    at java.base/java.net.PlainSocketImpl.socketConnect(PlainSocketImpl.java:101)
    at java.base/java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:399)
    at java.base/java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:242)
    at java.base/java.net.AbstractPlainSocketImpl.connect(AbstractPlainSocketImpl.java:224)
    at java.base/java.net.SocksSocketImpl.connect(SocksSocketImpl.java:392)
    at java.base/java.net.Socket.connect(Socket.java:609)
    at org.apache.http.conn.socket.PlainConnectionSocketFactory.connectSocket(PlainConnectionSocketFactory.java:75)
    at org.apache.http.impl.conn.DefaultHttpClientConnectionOperator.connect(DefaultHttpClientConnectionOperator.java:142)
    ... 52 more
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] -----
[INFO] Reactor Summary for Devops-assignment 0.0.1-SNAPSHOT:
[INFO]
[INFO] Devops-assignment ..... SUCCESS [ 0.012 s]
[INFO] cloud-gateway ..... SUCCESS [ 49.151 s]
[INFO] department-service ..... SUCCESS [01:18 min]
[INFO] service-registry ..... SUCCESS [ 24.395 s]
[INFO] user-service ..... SUCCESS [ 42.602 s]
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] -----
[INFO] Total time: 03:15 min
[INFO] Finished at: 2021-10-22T14:44:50+05:30
[INFO] -----
```

Packaging using Maven (mvn package):

```
C:\Windows\System32\cmd.exe
Caused by: java.net.ConnectException: Connection refused: connect: localhost:8761
    at java.base/java.net.PlainSocketImpl.connect0(Native Method)
    at java.base/java.net.PlainSocketImpl.socketConnect(PlainSocketImpl.java:101)
    at java.base/java.net.AbstractPlainSocketImpl.doConnect(AbstractPlainSocketImpl.java:399)
    at java.base/java.net.AbstractPlainSocketImpl.connectToAddress(AbstractPlainSocketImpl.java:242)
    at java.base/java.net.AbstractPlainSocketImpl.connect(AbstractPlainSocketImpl.java:224)
    at java.base/java.net.SocksSocketImpl.connect(SocksSocketImpl.java:392)
    at java.base/java.net.Socket.connect(Socket.java:609)
    at org.apache.http.conn.socket.PlainConnectionSocketFactory.connectSocket(PlainConnectionSocketFactory.java:75)
    at org.apache.http.impl.conn.DefaultHttpClientConnectionOperator.connect(DefaultHttpClientConnectionOperator.java:142)
    ... 52 more

[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.2.0:jar (default-jar) @ user-service ---
[INFO] Building jar: C:\Users\I524947\IdeaProjects\Devops-Assignment\user-service\target\user-service-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:2.5.1:repackage (repackage) @ user-service ---
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] Reactor Summary for Devops-assignment 0.0.1-SNAPSHOT:
[INFO]
[INFO] Devops-assignment ..... SUCCESS [  0.017 s]
[INFO] cloud-gateway ..... SUCCESS [ 50.635 s]
[INFO] department-service ..... SUCCESS [01:19 min]
[INFO] service-registry ..... SUCCESS [ 22.593 s]
[INFO] user-service ..... SUCCESS [ 45.516 s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time:  03:19 min
[INFO] Finished at: 2023-10-22T14:51:05+05:30
[INFO] -----
```

C:\Users\I524947\IdeaProjects\Devops-Assignment>

```
C:\Users\I524947\IdeaProjects\Devops-Assignment>mvn package
[INFO] Scanning for projects...
[INFO] -----
[INFO] Reactor Build Order:
[INFO]
[INFO] Devops-assignment                  [pom]
[INFO] cloud-gateway                     [jar]
[INFO] department-service                 [jar]
[INFO] service-registry                  [jar]
[INFO] user-service                      [jar]
[INFO]
[INFO] -----< com.practice:Devops-assignment >-----
[INFO] Building Devops-assignment 0.0.1-SNAPSHOT [1/5]
[INFO] ----- [ pom ] -----
[INFO]
[INFO] -----< com.practice:cloud-gateway >-----
[INFO] Building cloud-gateway 0.0.1-SNAPSHOT [2/5]
[INFO] ----- [ jar ] -----
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ cloud-gateway ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 1 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:testResources (default-testResources) @ cloud-gateway ---
[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:\Users\I524947\IdeaProjects\Devops-Assignment\cloud-gateway\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @ cloud-gateway ---
[INFO]
[INFO] -----
[INFO] T E S T S
```

Installing in Repository using maven (mvn install):

```
C:\Windows\System32\cmd.exe
C:\Users\I524947\IdeaProjects\Devops-Assignment>mvn install
[INFO] Scanning for projects...
[INFO] -----
[INFO] Reactor Build Order:
[INFO]
[INFO] Devops-assignment           [pom]
[INFO] cloud-gateway               [jar]
[INFO] department-service          [jar]
[INFO] service-registry            [jar]
[INFO] user-service                [jar]
[INFO]
[INFO] -----< com.practice:Devops-assignment >-----
[INFO] Building Devops-assignment 0.0.1-SNAPSHOT      [1/5]
[INFO] [ pom ] -----
[INFO]
[INFO] --- maven-install-plugin:2.5.2:install (default-install) @ Devops-assignment ---
[INFO] Installing C:\Users\I524947\IdeaProjects\Devops-Assignment\pom.xml to C:\Users\I524947\.m2\repository\com\practice\Devops-assignment\0.0.1-SNAPSHOT.pom
[INFO]
[INFO] -----< com.practice:cloud-gateway >-
[INFO] Building cloud-gateway 0.0.1-SNAPSHOT      [2/5]
[INFO] [ jar ] -----
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ cloud-gateway ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 2 resources
[INFO] Copying 1 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:testResources (default-testResources) @ cloud-gateway ---
[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:\Users\I524947\IdeaProjects\Devops-Assignment\cloud-gateway\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ cloud-gateway ---
[INFO] Nothing to compile - all classes are up to date
[INFO]

C:\Windows\System32\cmd.exe
at java.base/java.net.AbstractPlainSocketImpl.connect(AbstractPlainSocketImpl.java:224)
at java.base/java.net.SocksSocketImpl.connect(SocksSocketImpl.java:392)
at java.base/java.net.Socket.connect(Socket.java:609)
at org.apache.http.conn.socket.PlainConnectionSocketFactory.connectSocket(PlainConnectionSocketFactory.java:75)
at org.apache.http.impl.conn.DefaultHttpClientConnectionOperator.connect(DefaultHttpClientConnectionOperator.java:142)
... 52 more

[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO] --- maven-jar-plugin:3.2.0:jar (default-jar) @ user-service ---
[INFO] --- spring-boot-maven-plugin:2.5.1:repackage (repackage) @ user-service ---
[INFO] Replacing main artifact with repackaged archive
[INFO]
[INFO] --- maven-install-plugin:2.5.2:install (default-install) @ user-service ---
[INFO] Installing C:\Users\I524947\IdeaProjects\Devops-Assignment\user-service\target\user-service-0.0.1-SNAPSHOT.jar to C:\Users\I524947\.m2\repository\com\practice\user-service\0.0.1-SNAPSHOT\user-service-0.0.1-SNAPSHOT.jar
[INFO] Installing C:\Users\I524947\IdeaProjects\Devops-Assignment\user-service\pom.xml to C:\Users\I524947\.m2\repository\com\practice\user-service\0.0.1-SNAPSHOT\user-service-0.0.1-SNAPSHOT.pom
[INFO]
[INFO] -----
[INFO] Reactor Summary for Devops-assignment 0.0.1-SNAPSHOT:
[INFO]
[INFO] Devops-assignment ..... SUCCESS [ 0.717 s]
[INFO] cloud-gateway ..... SUCCESS [ 45.526 s]
[INFO] department-service ..... SUCCESS [01:08 min]
[INFO] service-registry ..... SUCCESS [ 20.304 s]
[INFO] user-service ..... SUCCESS [ 42.347 s]
[INFO]
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 02:58 min
[INFO] Finished at: 2021-10-22T14:55:52+05:30
[INFO] -----
```

Clean up using Maven (mvn clean):

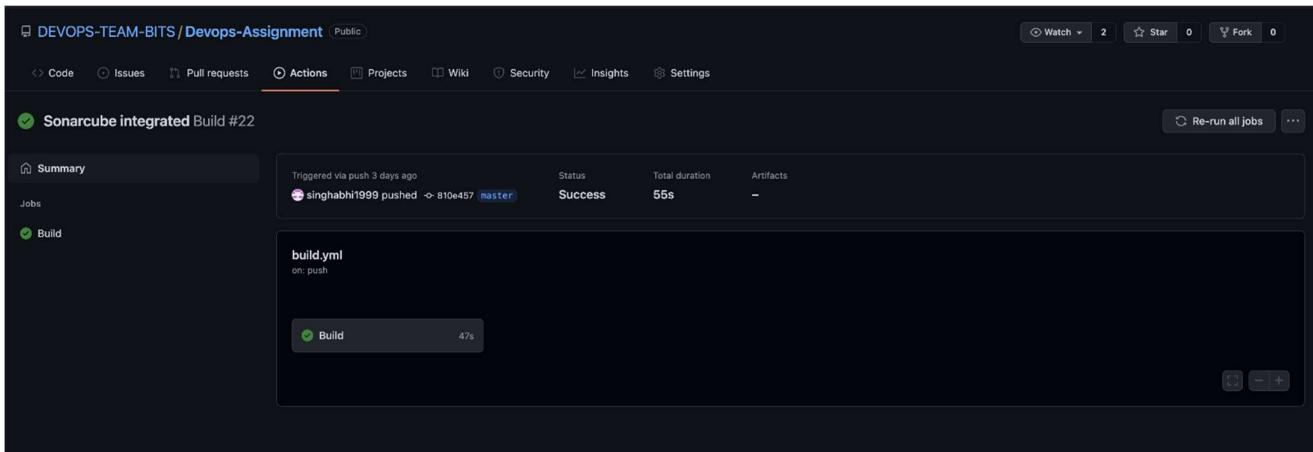
```
C:\Windows\System32\cmd.exe
C:\Users\I524947\IdeaProjects\Devops-Assignment>mvn clean
[INFO] Scanning for projects...
[INFO] -----
[INFO] Reactor Build Order:
[INFO]
[INFO] Devops-assignment                               [pom]
[INFO] cloud-gateway                                 [jar]
[INFO] department-service                            [jar]
[INFO] service-registry                             [jar]
[INFO] user-service                                  [jar]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ Devops-assignment ---
[INFO]
[INFO] --- com.practice:Devops-assignment >-
[INFO] Building Devops-assignment 0.0.1-SNAPSHOT      [1/5]
[INFO] [ pom ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ Devops-assignment ---
[INFO]
[INFO] --- com.practice:cloud-gateway >-
[INFO] Building cloud-gateway 0.0.1-SNAPSHOT          [2/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cloud-gateway ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\cloud-gateway\target
[INFO]
[INFO] --- com.practice:department-service >-
[INFO] Building department-service 0.0.1-SNAPSHOT       [3/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ department-service ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\department-service\target
[INFO]
[INFO] --- com.practice:service-registry >-
[INFO] Building service-registry 0.0.1-SNAPSHOT         [4/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ service-registry ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\service-registry\target
[INFO]
[INFO] --- com.practice:user-service >-
[INFO] Building user-service 0.0.1-SNAPSHOT            [5/5]
[INFO]

C:\Windows\System32\cmd.exe
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ cloud-gateway ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\cloud-gateway\target
[INFO]
[INFO] --- com.practice:department-service >-
[INFO] Building department-service 0.0.1-SNAPSHOT       [3/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ department-service ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\department-service\target
[INFO]
[INFO] --- com.practice:service-registry >-
[INFO] Building service-registry 0.0.1-SNAPSHOT         [4/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ service-registry ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\service-registry\target
[INFO]
[INFO] --- com.practice:user-service >-
[INFO] Building user-service 0.0.1-SNAPSHOT            [5/5]
[INFO] [ jar ]
[INFO]
[INFO] --- maven-clean-plugin:3.1.0:clean (default-clean) @ user-service ---
[INFO] Deleting C:\Users\I524947\IdeaProjects\Devops-Assignment\user-service\target
[INFO]
[INFO] Reactor Summary for Devops-assignment 0.0.1-SNAPSHOT:
[INFO]
[INFO] Devops-assignment ..... SUCCESS [ 0.488 s]
[INFO] cloud-gateway ..... SUCCESS [ 0.189 s]
[INFO] department-service ..... SUCCESS [ 0.215 s]
[INFO] service-registry ..... SUCCESS [ 0.187 s]
[INFO] user-service ..... SUCCESS [ 0.204 s]
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 2.124 s
[INFO] Finished at: 2021-10-22T14:57:19+05:30
[INFO]
```

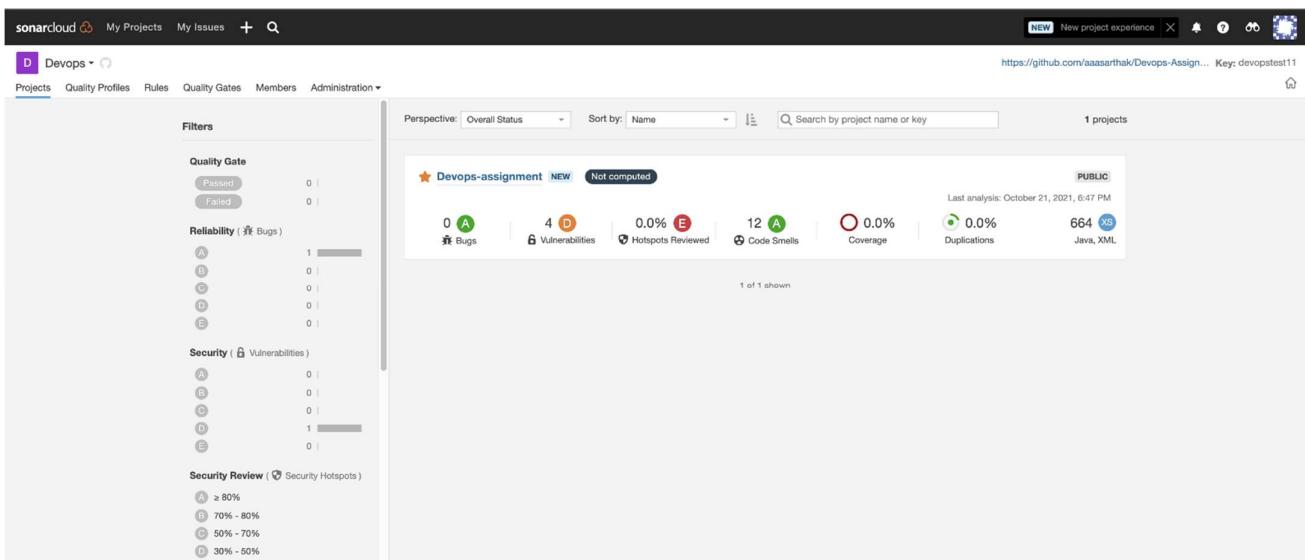
Code Quality Management:

- We have used SonarQube for checking the quality of the code.
- Build will be triggered on every code push.

SonarQube integrated with Git repo:



SonarQube Report :



SonarQube Report Summary:

The screenshot shows the SonarQube interface for the 'Devops-assignment' project. The top navigation bar includes 'Devops / Devops-assignment / Overview'. The main content area displays the 'Main Branch Status' with a 'Not computed' quality gate. It shows 18 findings, 0% coverage, and 0% duplications. Below this is the 'Main Branch Evolution' chart, which tracks bugs, code smells, vulnerabilities, and security hotspots over time. The 'Latest Activity' section shows a new analysis from October 21 at 6:47 PM with 0 fixed issues, +1 new issue, 0.0% coverage, and 0.0% duplications. The sidebar on the left provides links for Overview, Main Branch, Pull Requests, and Branches.

This screenshot shows the SonarCloud interface for the same project. The top navigation bar includes 'sonarcloud My Projects My Issues +'. The main content area displays the 'Summary' tab of the project. It highlights 664 lines of code and a version of 0.0.1-SNAPSHOT. The 'Quality Gate' status is 'Not computed'. The 'Reliability' section shows 0 bugs (A), 12 code smells (A). The 'Security' section shows 4 vulnerabilities (D) and 2 security hotspots (E). The 'Coverage' section shows 0.0% coverage. The 'Duplication' section shows 0.0% duplications. The sidebar on the left is identical to the SonarQube interface.

Files scanned and respective report:

This screenshot shows the SonarCloud interface focusing on the 'Code' tab. It displays a search bar for files and a table of analyzed files. The table includes columns for Lines of Code, Bugs, Vulnerabilities, Code Smells, Security Hotspots, Coverage, and Duplications. The files listed are 'cloud-gateway' (79 LOC, 0 bugs, 0 vulnerabilities, 1 code smell, 0 security hotspots, 0.0% coverage, 0.0% duplications), 'department-service' (237 LOC, 0 bugs, 2 vulnerabilities, 5 code smells, 1 security hotspot, 0.0% coverage, 0.0% duplications), 'service-registry' (63 LOC, 0 bugs, 0 vulnerabilities, 1 code smell, 0 security hotspots, 0.0% coverage, 0.0% duplications), 'src/test/java/practice' (0 LOC, 0 bugs, 0 vulnerabilities, 1 code smell, 0 security hotspots, 0.0% coverage, 0.0% duplications), 'user-service' (247 LOC, 0 bugs, 2 vulnerabilities, 4 code smells, 1 security hotspot, 0.0% coverage, 0.0% duplications), and 'pom.xml' (38 LOC, 0 bugs, 0 vulnerabilities, 0 code smells, 0 security hotspots, 0.0% coverage, 0.0% duplications). The sidebar on the left is identical to the previous screenshots.

SonarQube issue with details:

The screenshot shows the SonarQube Issues page for the project 'Devops-assignment' in the 'master' branch. The page displays 16 issues, all of which are 'Code Smell' type and have a severity of 'Info'. The issues are listed in a table with columns for file path, issue type, severity, and creation date.

File Path	Type	Severity	Created
cloud-gateway.../java/com/practice/cloudgateway/CloudGatewayApplicationTests.java	Code Smell	Info	5 days ago
department-service.../practice/department/controller/DepartmentController.java	Code Smell	Info	5 days ago
department-service.../_com/practice/department/dto/UserList.java	Code Smell	Info	yesterday
service-registry.../com/practice/serviceregistry/ServiceRegistryApplicationTests.java	Code Smell	Info	5 days ago
cloud-gateway.../java/com/practice/cloudgateway/CloudGatewayApplicationTests.java	Code Smell	Info	5 days ago
department-service.../practice/department/controller/DepartmentController.java	Code Smell	Info	5 days ago
department-service.../_com/practice/department/dto/UserList.java	Code Smell	Info	yesterday
service-registry.../com/practice/serviceregistry/ServiceRegistryApplicationTests.java	Code Smell	Info	5 days ago
cloud-gateway.../java/com/practice/cloudgateway/CloudGatewayApplicationTests.java	Code Smell	Info	5 days ago
department-service.../practice/department/controller/DepartmentController.java	Code Smell	Info	5 days ago
department-service.../_com/practice/department/dto/UserList.java	Code Smell	Info	yesterday
service-registry.../com/practice/serviceregistry/ServiceRegistryApplicationTests.java	Code Smell	Info	5 days ago
cloud-gateway.../java/com/practice/cloudgateway/CloudGatewayApplicationTests.java	Code Smell	Info	5 days ago
department-service.../practice/department/controller/DepartmentController.java	Code Smell	Info	5 days ago
department-service.../_com/practice/department/dto/UserList.java	Code Smell	Info	yesterday
service-registry.../com/practice/serviceregistry/ServiceRegistryApplicationTests.java	Code Smell	Info	5 days ago

Integration Testing using Selenium:

- We used Selenium to test our application by automating the UI Elements.

Automatically navigating to User's service:

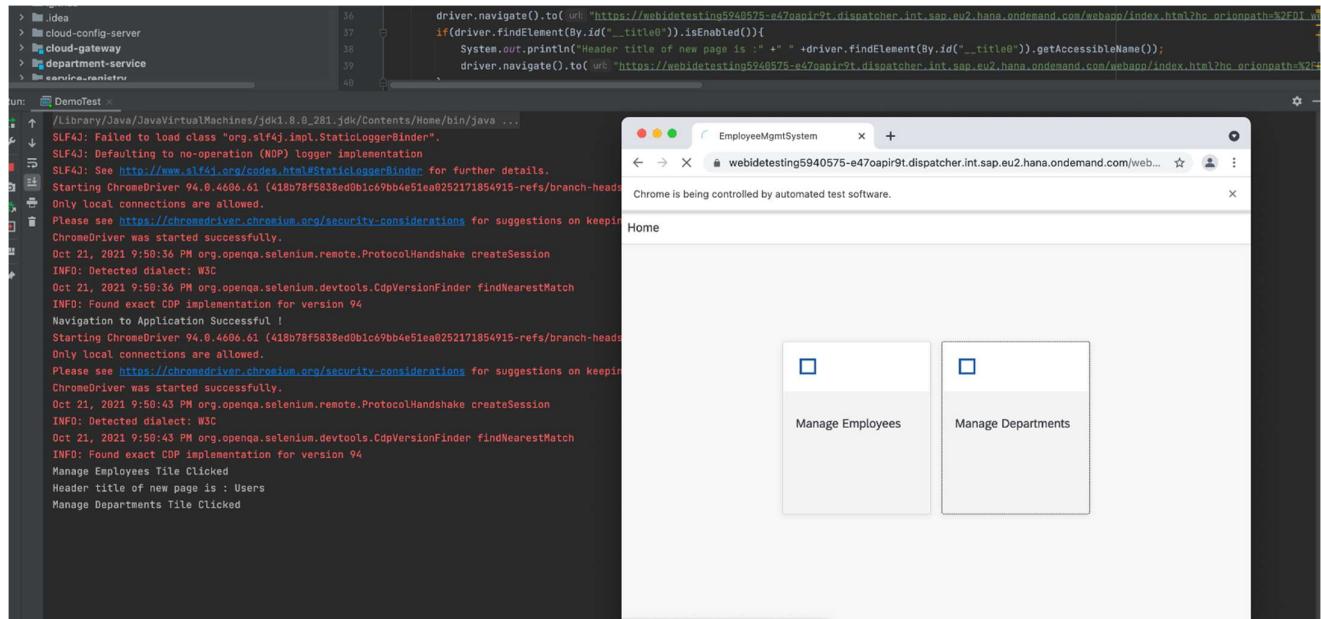
The screenshot shows a Java IDE interface with two tabs open. The left tab, titled 'DemoTest', displays command-line logs for a Selenium test. The logs show the setup of a ChromeDriver instance, navigation to an application, and a successful execution of a test method named 'testNavToManageDepartmentsAndEmployees'. The right tab, also titled 'DemoTest', shows two browser windows. The first window is titled 'EmployeeMgmtSystem' and displays a home page with 'Manage Employees' and 'Manage Departments' buttons. The second window is titled 'User' and displays a table with columns: First Name, Last Name, Email Address, and Department ID. A tooltip 'Waiting for webidetesting5940575-e47oapir...' is visible at the bottom.

```
INFO: Detected dialect: W3C
Oct 21, 2021 9:49:26 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Navigation to Application Successful !
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/4606@{Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver was started successfully.
Oct 21, 2021 9:49:42 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:49:42 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Exception in thread "main" org.openqa.selenium.NoSuchElementException: no such element: Unable to locate element:{"using": "css selector", "value": ".list-group-item a[href^='/#/department']"}
(Session info: chrome=94.0.4606.81)
For documentation on this error, please visit: https://selenium.dev/exceptions/#no\_such\_element
Build info: version: '4.0.0', revision: '5a21814679'
System info: host: 'C02FQ77SM6M', ip: 'fe80:0:0:42b:34f7:845b:e5df%en0', os.name: 'Mac OS X', os.version: '10.15.7', java.version: '11.0.11'
Driver info: org.openqa.selenium.chrome.ChromeDriver
Command: [681aa84cd70f1dc74a084fb8843aeaf, {"method": "findElement", "params": {"using": "css selector", "value": ".list-group-item a[href^='/#/department']"}}]
Capabilities {acceptInsecureCerts: false, browserName: chrome, browserVersion: 94.0.4606.81, chrome: {"version": "94.0.4606.81"}, chromeOptions: {"args": ["--remote-debugging-port=9222"], "extensions": [], "prefs": {}}, javascriptEnabled: true, platformName: mac, se: {"browserName": "chrome", "version": "94.0.4606.81"}, setWindowRect: true, timeouts: {}, unhandledPromptBehavior: "dismiss", version: 94.0.4606.81, webauthn: {}, webkitFileUploads: true}
Session ID: 681aa84cd70f1dc74a084fb8843aeaf <4 internal lines>
   at org.openqa.selenium.remote.codec.w3c.W3CHttpResponseCodec.createException(W3CHttpResponseCodec.java:19)
   at org.openqa.selenium.remote.codec.w3c.W3CHttpResponseCodec.decode(W3CHttpResponseCodec.java:153)
   at org.openqa.selenium.remote.codec.w3c.W3CHttpResponseCodec.decode(W3CHttpResponseCodec.java:51)
   at org.openqa.selenium.remote.HttpCommandExecutor.execute(HttpCommandExecutor.java:184)
   at org.openqa.selenium.service.DriverCommandExecutor.invokeExecute(DriverCommandExecutor.java:134)
   at org.openqa.selenium.service.DriverCommandExecutor.execute(DriverCommandExecutor.java:131)
   at org.openqa.selenium.remote.RemoteWebDriver.execute(RemoteWebDriver.java:559)
   at org.openqa.selenium.remote.ElementLocation$ElementFinder$2.findElement(ElementLocation.java:16)
   at org.openqa.selenium.remote.ElementLocation.findElement(ElementLocation.java:65)
   at org.openqa.selenium.remote.RemoteWebDriver.findElement(RemoteWebDriver.java:381)
   at org.openqa.selenium.remote.RemoteWebDriver.findElement(RemoteWebDriver.java:375)
   at practice.DemoTest.testNavToManageDepartmentsAndEmployees(DemoTest.java:33)
   at practice.DemoTest.main(DemoTest.java:14)

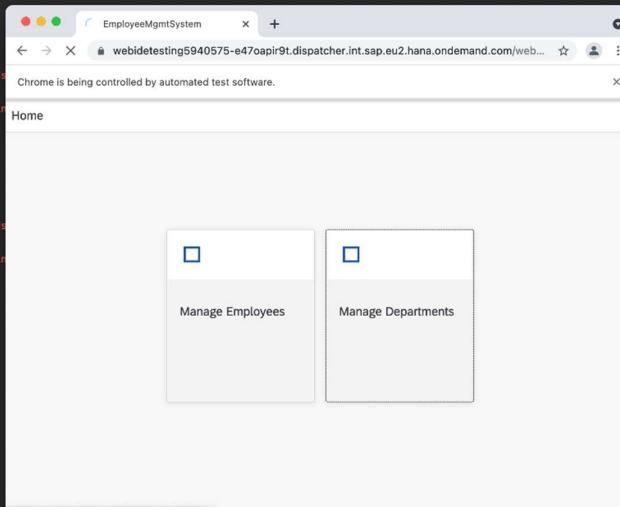
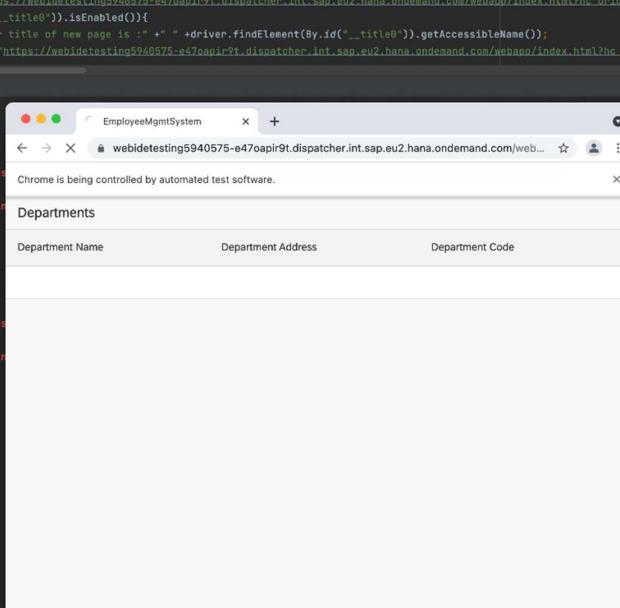
Process finished with exit code 1
```

SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See <http://www.slf4j.org/codes.html#StaticLoggerBinder> for further details.
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/4606@{Only local connections are allowed.
Please see <https://chromedriver.chromium.org/security-considerations> for suggestions on keeping ChromeDriver was started successfully.
Oct 21, 2021 9:53:36 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:53:36 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Navigation to Application Successful !
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/4606@{Only local connections are allowed.
Please see <https://chromedriver.chromium.org/security-considerations> for suggestions on keeping ChromeDriver was started successfully.
Oct 21, 2021 9:53:49 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:53:49 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Manage Employees Tile Clicked
Header title of new page is : Users

Automatically navigating to Department service:



```
> /Library/Java/JavaVirtualMachines/jdk1.8.0_281.jdk/Contents/Home/bin/java ...
SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further details.
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/94@#) on port 54057
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver up to date.
Oct 21, 2021 9:50:36 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:50:36 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Navigation to Application Successful !
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/94@#) on port 54057
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver up to date.
Oct 21, 2021 9:50:43 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:50:43 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Manage Employees Tile Clicked
Header title of new page is : Users
Manage Departments Tile Clicked
```

```
> /Library/Java/JavaVirtualMachines/jdk1.8.0_281.jdk/Contents/Home/bin/java ...
SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further details.
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/94@#) on port 54057
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver up to date.
Oct 21, 2021 9:50:36 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:50:36 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Navigation to Application Successful !
Starting ChromeDriver 94.0.4606.61 (418b78f5838ed0b1c69bb4e51ea0252171854915-refs/branch-heads/94@#) on port 54057
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver up to date.
Oct 21, 2021 9:50:43 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Oct 21, 2021 9:50:43 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found exact CDP implementation for version 94
Manage Employees Tile Clicked
Header title of new page is : Users
Manage Departments Tile Clicked
Header title of new page is : Departments
```

Code for Test Cases:

```
public class DemoTest {

    public void OpenTestBrowserConnection(){
        System.setProperty("webdriver.chrome.driver","/Users/I524946/Downloads/chromedriver");
        WebDriver driver = new ChromeDriver();
        driver.get("https://webidetesting5940575-e47oapir9t.dispatcher.int.sap.eu2.hana.ondemand.com/webapp/index.html?hc_orionpath=%2FDT_webide_di_workspace");
        System.out.println("Navigation to Application Successful !");
        driver.manage().timeouts().implicitlyWait( time: 5, TimeUnit.SECONDS);
        driver.quit();

    }

    public void TestNavToManageDepartmentsAndEmployees(){
        System.setProperty("webdriver.chrome.driver","/Users/I524946/Downloads/chromedriver");
        WebDriver driver = new ChromeDriver();
        driver.navigate().to( url: "https://webidetesting5940575-e47oapir9t.dispatcher.int.sap.eu2.hana.ondemand.com/webapp/index.html?hc_orionpath=%2FDT_webide_di_workspace");
        driver.manage().timeouts().implicitlyWait( time: 10, TimeUnit.SECONDS);
        Actions ac = new Actions(driver);
        WebElement tile = driver.findElement(By.id("__tile1__xmlview0--container-0"));
        ac.click(tile).perform();
        System.out.println("Manage Employees Tile Clicked");
        driver.navigate().to( url: "https://webidetesting5940575-e47oapir9t.dispatcher.int.sap.eu2.hana.ondemand.com/webapp/index.html?hc_orionpath=%2FDT_webide_di_workspace");
        if(driver.findElement(By.id("__title0")).isEnabled()){
            System.out.println("Header title of new page is :" + " " +driver.findElement(By.id("__title0")).getAccessibleName());
            driver.navigate().to( url: "https://webidetesting5940575-e47oapir9t.dispatcher.int.sap.eu2.hana.ondemand.com/webapp/index.html?hc_orionpath=%2FDT_webide_di_workspace");
        }
        else{
            System.out.println("Navigation to Manage Employees page Automation failed !");
        }
        tile = driver.findElement(By.id("__tile1__xmlview0--container-1"));
        ac.click(tile).perform();
        System.out.println("Manage Departments Tile Clicked");
        driver.navigate().to( url: "https://webidetesting5940575-e47oapir9t.dispatcher.int.sap.eu2.hana.ondemand.com/webapp/index.html?hc_orionpath=%2FDT_webide_di_workspace");
        if(driver.findElement(By.id("__title0")).isEnabled()){
            System.out.println("Header title of new page is :" + " " +driver.findElement(By.id("__title0")).getAccessibleName());
            driver.navigate().to( url: "https://webidetesting5940575-e47oapir9t.dispatcher.int.sap.eu2.hana.ondemand.com/webapp/index.html?hc_orionpath=%2FDT_webide_di_workspace");
            driver.quit();
        }
    }
}
```

