**Task 1**

1. Download and install docker.
2. Run command ‘ docker run jboss/keycloak’ on cmd
3. Open Kitematic.exe
4. Select running Keycloak container
5. Go to settings and click General Tab
6. Add a user name for KEY\_CLOAK user
7. Add a password for KEY\_CLOAK user
8. Now click Hostname/Ports tab
9. Add 8080 as a port ahead of ip ‘192.168.99.100’
10. Access KeyCloak by URL ‘192.168.99.100 :8080’ by using the username and password set at steps 6 and 7.
11. Create a realm using Name as ‘TestProjectKeyCloak’
12. Create a Client with id ‘test-app’ and set Valid redirect URI ‘http://localhost :8080’
13. Create a role with name ‘user’
14. Create a user with name ‘user1’. Set credentials of user to ‘password’. Go to role mapping TAB and map ‘user’ role to the user
15. Run spring application and access a url ‘http://localhost :8080/getSecuredProjects’
16. You will be prompted to give username and password. Add the credentials username = user1, password = password (the user created on keycloak)
17. You will see the predefined Projects in db.

**TASK 2**

1. A page is also created on Angular 6 which shows lists of project by calling api from spring boot. (So you need the spring project running on localhost :8080)
2. After running angular app you will see list of projects and above it