LAB ASSIGNMENTS 1: Spring boot application on EC2 instance

Instruction:
1. create aws account
2. aws iam user
3. Create EC2 instance as demonstrated in the session
4. Run spring boot application on EC2 instance

This project demonstrates the creation of a simple Spring Boot Java project using Maven. It starts with generating project structure via Spring Initializr. Then, it guides through creating Java source code. Next, it involves setting up an EC2 instance on AWS and connecting via MobaXterm. Configurations are done to ensure Maven works, followed by verifying Maven by compiling and building the Java code on EC2. This hands-on project provides practical insights into Maven, AWS setup, and Java project management in a cloud environment.

Learning Outcomes

- Gain proficiency in setting up a Spring Boot Java project using Maven.
- Understand the process of generating project structure with Spring Initializr.
- Learn to write and manage Java source code within a Spring Boot project.
- Acquire skills in setting up and configuring an EC2 instance on AWS.
- Develop competency in connecting to an EC2 instance using MobaXterm.
- Learn to install and configure Maven on an EC2 instance.
- Practice compiling and building Java code using Maven on a remote server.
- Gain insights into cloud-based development workflows and infrastructure management.

- Enhance problem-solving skills by troubleshooting and resolving configuration issues.
- Develop a deeper understanding of software development best practices within a cloud environment.

Building a Simple Spring Boot Java Project on AWS EC2 Using Maven

step 1: create spring boot project and push to github
step 2: create ec2 instance and Connect to EC2 Instance via MobaXterm
step 3: configure ec2 instance

apt-get update -y
apt-get upgrade -y

apt install openjdk-21-jdk openjdk-21-jre -y

apt-get install maven -y

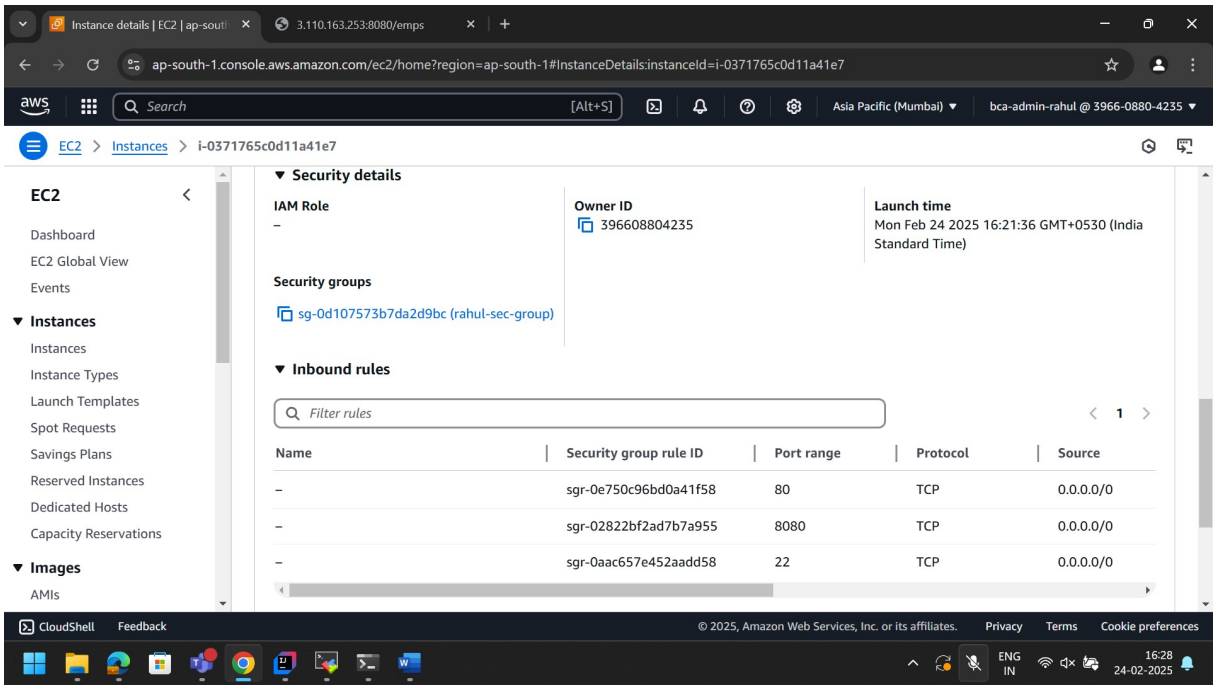
mvn -version

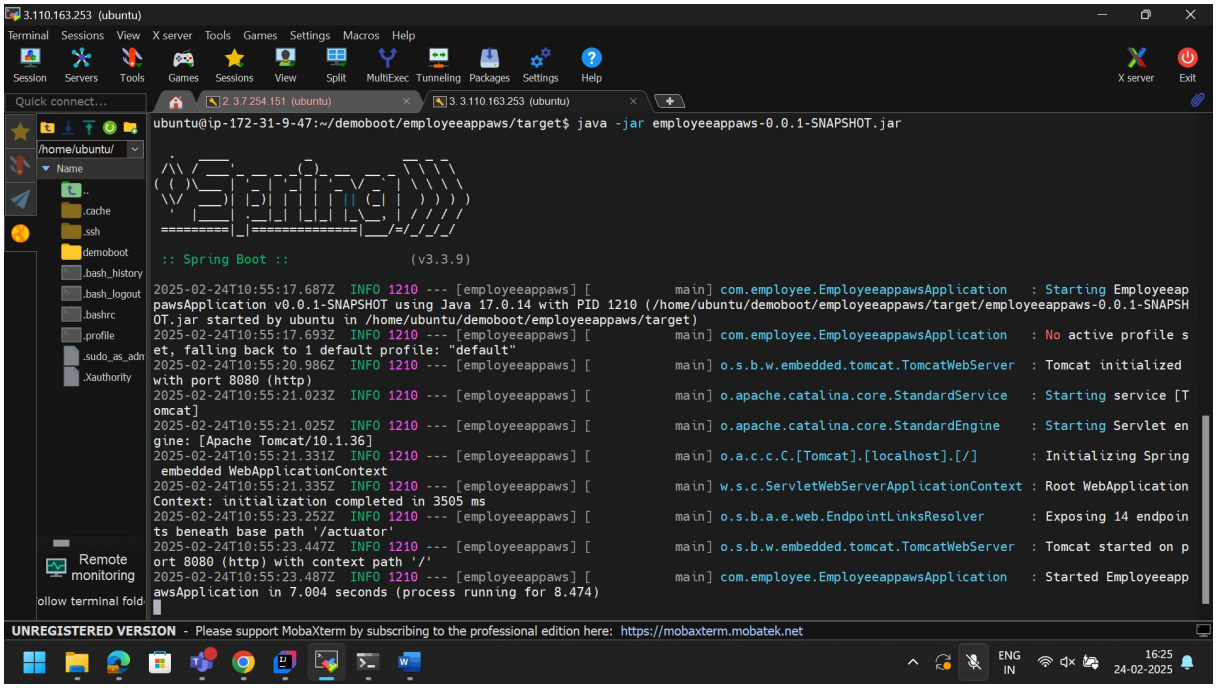
step 4: package spring boot application on ec2 instance and run

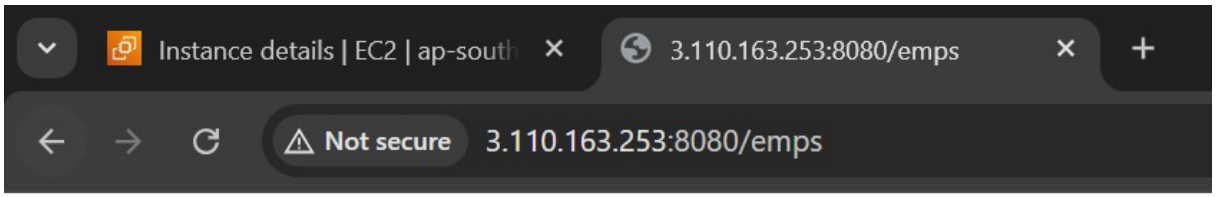
java -jar target/ <<your jar file name>>

Cloned the spring boot project

```
demoboot
ubuntu@ip-172-31-9-47:~$ cd demoboot
ubuntu@ip-172-31-9-47:~/demoboot$ ls
employeeappaws
ubuntu@ip-172-31-9-47:~/demoboot$ cd employeeappaws/
ubuntu@ip-172-31-9-47:~/demoboot/employeeappaws$ ls
mvnw  mvnw.cmd  pom.xml  src  target
ubuntu@ip-172-31-9-47:~/demoboot/employeeappaws$
```


Instance details | EC2 | ap-south
3.110.163.253:8080/emps
ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#InstanceDetails:instanceId=i-0371765c0d11a41e7
Search
[Alt+S]
Asia Pacific (Mumbai)
bca-admin-rahul @ 3966-0880-4235
EC2 > Instances > i-0371765c0d11a41e7
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
Security details
IAM Role
–
Owner ID
396608804235
Launch time
Mon Feb 24 2025 16:21:36 GMT+0530 (India Standard Time)
Security groups
sg-0d107573b7da2d9bc (rahul-sec-group)
Inbound rules
Filter rules
Name
Security group rule ID
Port range
Protocol
Source
– sgr-0e750c96bd0a41f58 80 TCP 0.0.0.0/0
– sgr-02822bf2ad7b7a955 8080 TCP 0.0.0.0/0
– sgr-0aac657e452aadd58 22 TCP 0.0.0.0/0
CloudShell
Feedback
© 2025, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences
ENG IN
16:28
24-02-2025


3.110.163.253 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help X server Exit
Quick connect...
/home/ubuntu/
Name
.cache
.ssh
demoboot
.bash_history
.bash_logout
.bashrc
.profile
.sudo_as_adn
.Xauthority
Remote monitoring
ollow terminal fold
ubuntu@ip-172-31-9-47:~/demoboot/employeeappaws/target$ java -jar employeeappaws-0.0.1-SNAPSHOT.jar
:: Spring Boot :: (v3.3.9)
2025-02-24T10:55:17.687Z INFO 1210 --- [employeeappaws] [main] com.employee.EmployeeappawsApplication : Starting EmployeeappawsApplication v0.0.1-SNAPSHOT using Java 17.0.14 with PID 1210 (/home/ubuntu/demoboot/employeeappaws/target/employeeappaws-0.0.1-SNAPSHOT.jar started by ubuntu in /home/ubuntu/demoboot/employeeappaws/target)
2025-02-24T10:55:17.693Z INFO 1210 --- [employeeappaws] [main] com.employee.EmployeeappawsApplication : No active profile set, falling back to 1 default profile: "default"
2025-02-24T10:55:20.986Z INFO 1210 --- [employeeappaws] [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port 8080 (http)
2025-02-24T10:55:21.023Z INFO 1210 --- [employeeappaws] [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2025-02-24T10:55:21.025Z INFO 1210 --- [employeeappaws] [main] o.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/10.1.36]
2025-02-24T10:55:21.331Z INFO 1210 --- [employeeappaws] [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2025-02-24T10:55:21.335Z INFO 1210 --- [employeeappaws] [main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 3505 ms
2025-02-24T10:55:23.252Z INFO 1210 --- [employeeappaws] [main] o.s.b.a.e.web.EndpointLinksResolver : Exposing 14 endpoints beneath base path '/actuator'
2025-02-24T10:55:23.447Z INFO 1210 --- [employeeappaws] [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8080 (http) with context path '/'
2025-02-24T10:55:23.487Z INFO 1210 --- [employeeappaws] [main] com.employee.EmployeeappawsApplication : Started EmployeeappawsApplication in 7.004 seconds (process running for 8.474)
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
ENG IN
16:25
24-02-2025


Instance details | EC2 | ap-south
3.110.163.253:8080/emps
Not secure
3.110.163.253:8080/emps

emp v4: LOCAL