A Lab Manual

on

DEVOPS LAB

R22

(III- B. Tech. – II– Semester)

Submitted to

DEPARTMENT OF COMPUTER SCIENCE& ENGINEERING

By

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(2024-25)

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1. Vision and Mission of CMR Institute of Technology

I. Vision, Mission and Quality Policy

Vision: To create world class technocrats for societal needs.

Mission: Achieve global quality technical education by assessing learning environment through

- Innovative Research & Development
- Eco-system for better Industry institute interaction
- Capacity building among stakeholders

Quality Policy: Strive for global professional excellence in pursuit of key-stakeholders.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (CSE)

Vision: Develop competent software professionals, researchers and entrepreneurs to serve global society.

Mission: The department of **Computer Science and Engineering** is committed to

- create technocrats with proficiency in design and code for software development
- adapt contemporary technologies by lifelong learning and face challenges in IT and ITES sectors
- quench the thirst of knowledge in higher education, employment, R&D and entrepreneurship

B.Tech. - Computer Science and Engineering (CSE)

I. Programme Educational Objectives (PEOs): Engineering Graduates will

1. Pursue successful professional career in IT and IT-enabled sectors.
2. Pursue lifelong learning skills to solve complex problems through multidisciplinary-research.
3. Exhibit professionalism, ethics and inter-personal skills to develop leadership qualities.

II. Programme Specific Outcomes (PSOs): Engineering Graduates will be able to

1. Design and Develop Software Systems using appropriate SDLC Models.
2. Apply cutting-edge technologies to solve real world problems.

2. Syllabus

Devops LAB

Course	B.Tech.-VI-Sem.	L	T	P	C
Course Code	22CDPC66	-	-	2	1

Course Outcomes (COs) & CO-PO Mapping (3-Strong; 2-Medium; 1-Weak Correlation)

COs	Upon completion of course the students will be able to	PO4	PO5	PO9	PSO2
CO1	identify DevOps workflow	3	3	3	3
CO2	use eclipse and Jenkins for DevOps	3	3	3	3
CO3	develop docker image	3	3	3	3
CO4	take part in grid deployment	3	3	3	3
CO5	make use of monitoring, operations tools in DevOps	3	3	3	3

List of Experiments

Week	Title/Experiment
1	Start DevOps with a workflow that includes four phases: to do, in progress, code review, and done.
2	Setup Eclipse for DevOps.
3	Jenkins Setup on AWS.
4	Build WAR file in DevOps.
5	Ansible Setup and SSH keys.
6	Deploy the artifact on the Test Server.
7	Perform automation using Jenkins.
8	Build and deploy a grid for Chrome and Firefox based testing.
9	Create deployment resource using Kubernetes.
10	Create a docker image for any application using Docker file and push it to Docker hub.
11	Setup Grafana for Devops.
12	Setup Prometheus for Devops.

References

1. DevOps Lab Manual, Department of CSE, CMRIT, Hyd.
2. https://www.udemy.com/course/practical-devops-for-beginners/

Micro-Projects: Student should submit a report on one of the following/any other micro-project(s) approved by the lab faculty before commencement of lab internal examination.

1. Deploy a Containerized Web Application.
2. Develop a Version Control System/Tool: GIT.
3. Create a Monitoring Dashboard for any Application.
4. Implement a Continuous Integration/Continuous Delivery (CI/CD) Pipeline for an application.
5. Implement DevOps Lifecycle with Amazon Web Services (AWS).
6. Build a Scalable Application with Docker.
7. Create a Jenkins project that connects to a remote Jenkins server and controls it.
8. Deploy an application (with high availability) with a database
9. Create a Continuous Delivery of a Java Web Application.
10. Build and execute a selenium project.

3. Student Entry Behavior or Pre-requisites

- Students should have basic knowledge on Linux commands
- Students should have basic knowledge on basic programming.
- Student should have knowledge on software engineering concepts
- These prerequisites are taken by the students during the first two years. However during the initial sessions the topics are reviewed.

4. Course Outcomes

Course Outcome	Course Outcome Statements
CO - 1	identify DevOps workflow
CO – 2	use eclipse for DevOps
CO – 3	develop docker image
CO – 4	take part in grid deployment
CO – 5	make use of Jenkins framework in DevOps

5. Mapping of Course with PEOs-POs

(Only Ticking)

Program Educational Objectives (PEOs)

Sl. No.	PEOs Name	Program Education Objective Statements
1	PEO - 1	Pursue successful professional career in IT and IT-enabled sectors. [PO's: 1,2,3,4,5,7,8,9,10,11 and 12] [PSO's: 1 and 2]
2	PEO – 2	Pursue lifelong learning skills to solve complex problems through multidisciplinary-research. [PO's: 1,2,3,4,5,6,7,8,9,10 and 12] [PSO's: 1, 2]
3	PEO – 3	Exhibits professionalism, ethics and inter-personal skills to develop leadership qualities. [PO's: 1,2,3,4,5,6,7,8,9,10,11 and 12] [PSO's: 2]

Program Outcomes (POs)

PO Name	Graduate Attributes	PO Statements
PO1	Engineering knowledge	Apply mathematics, science, engineering fundamentals to solve complex engineering problems. [PEO's: 1,2 and 3] [PSO's: 1,2]
PO 2	Problem analysis	Identify, formulate and analyze complex engineering problems to reach substantiated conclusions. [PEO's: 1,2 and 3] [PSO's: 1,2]
PO 3	Design/ development of solutions	Design and develop a component/system/process to solve complex societal engineering problems. [PEO's: 1,2 and 3] [PSO's: 1,2]
PO 4	Conduct investigations of complex problems	Design and conduct experiments to analyze, interpret and synthesize data for valid conclusions. [PEO's: 1,2 and 3] [PSO's: 1,2]
PO 5	Modern tool usage	Create, select and apply modern tools, skills, resources to solve complex engineering problems. [PEO's: 1,2 and 3] [PSO's: 1,2]
PO 6	The engineer and society	Apply contextual engineering knowledge to solve societal issues. [PEO's: 2 and 3]
PO 7	Environment and sustainability	Adapt modern engineering practices with environmental safety and sustainable development. [PEO's: 1,2 and 3]
PO 8	Ethics	Apply professional code of ethics, responsibilities and norms in engineering practices. [PEO's: 1,2 and 3] [PSO's: 2]
PO 9	Individual and team work	Compete as an individual and/or as a leader in collaborative cross cultural teams. [PEO's: 1,2 and 3]
PO 10	Communication	Communicate effectively through technical reports, designs, documentations and presentations. [PEO's: 1,2 and 3] [PSO's: 2]
PO 11	Project management and finance	Endorse cognitive management skills to prepare project report using modern tools and finance. [PEO's: 1 and 3] [PSO's: 2]
PO 12	Life-long learning	Engage in independent and life-long learning in the broad context of technological changes. [PEO's: 1,2 and 3] [PSO's: 1,2]

6. Mapping Of Course Outcomes With POs

No	Course Outcomes	PO_1	PO_2	PO_3	PO_4	PO_5	PO_6	PO_7	PO_8	PO_9	PO_{10}	PO_{11}	PO_{12}	Avg
1	CO - 1				3	3				3				
2	CO – 2				3	3				3				
3	CO – 3				3	3				3				
4	CO – 4				3	3				3				
5	CO – 5				3	3				3				
	Avg				3	3				3				

7. Direct Course Assessment

(As mentioned in following table of 10 parameters, of which consider only the parameters required for this courses)

No	Description	Targeted Performance	Actual Performance	Remarks	Course Attainment
1	Internal Marks(25)	80% of Students(182 Students) should Secure 60% of Internal Marks i.e., 15 Marks			
2	External Marks(50)	80% of Students(182 Students) should Secure 70% of External Marks i.e., 35 Marks			
3	Clearing of Subject	A minimum of 95% of Students(216 Students) should clear this course in first attempt			
4	Getting First Class	90% of Students(205 Students) should Secure I Class Marks i.e., 45 Marks in my course			
5	Distinction	80% of Students (182 Students) should secure First Class With Distinction i.e., 53 Marks in my course			
6	Outstanding Performance	60% of Students (137 Students) should secure 80% and above Marks. i.e., 60 Marks in my course			

8. Indirect Course Assessment

(As mentioned-strong (3), moderate (2), weak (1) & no comment (0))

Mission Statement of CSE

- **Impart fundamentals through state of art technologies for research and career in Computer Science & Engineering.**
- **Create value-based, socially committed professionals for anticipating and satisfying fast changing societal requirements.**
- **Foster continuous self learning abilities through regular interaction with various stake holders for holistic development.**

Correlation of Mission Elements with Mission Statement of CSE Department related to the Course (only Ticking given by faculty)

No	Mission Elements	Strong	Moderate	Weak	No Comment
M-1	Impart Fundamentals	√			
M-2	State Of Art Technologies	√			
M-3	Research & Career Development	√			
M-4	Value based Socially Committed Professional	√			
M-5	Anticipating & Satisfying Industry Trends		√		
M-6	Changing Societal Requirements			√	
M-7	Foster Continuous Learning	√			
M-8	Self-Learning Abilities	√			
M-9	Interaction with stakeholders	√			
M-10	Holistic Development		√		

Indirect Course Assessment through Student Satisfaction Survey

(Note for *: Parameters used for course teaching like

a: Classroom teaching b: Simulations c:labs d: Mini_Projects
e: Major Projects f: Conferences g: professional activities
h: Technical Clubs i: Guest Lectures j: Workshops k: Technical Fests l:Tutorials
m:NPTLs n:Digital Library o: Industrial Visits p: software Tools q: Internship/training r:Technical Seminars
s: NSS t: NSS u: sports etc.

No	Question Based on PEO/ PO/PSO/CO	Parameters (a /b /c…/)*	Strong (3)	Moderate (2)	Weak (1)	No comment (0)
1	Did the course impart fundamentals through interactive learning and contribute to core competence?					
2	Did the course provide the required knowledge to foster continuous learning?					
3	Whether the syllabus content anticipates & satisfies the industry and societal needs?					
4	Whether the course focuses on value based education to be a socially committed professional?					
5	Rate the role of the facilitator in mentoring and promoting the self learning abilities to excel academically and professionally?					
6	Rate the methodology adopted and techniques used in teaching learning processes?					
7	Rate the course in applying sciences & engineering fundamentals in providing research based conclusions with the help of modern tools?					
8	Did the course have any scope to design, develop and test a system or component?					
9	Rate the scope of this course in addressing cultural, legal, health, environment and safety issues?					
10	Scope of applying management fundamentals to demonstrate effective technical project presentations & report writing?					
	Total					
	Average					
Total Average						

9. Overall Course Assessment

(80% Direct + 20% Indirect, if any)

No	Assessment Type	Weightage	Attainment Level
1	Direct-Assignment, Quiz, Subjective, University Exams, Results, Bench Marks	0.8	
2	Indirect-Surveys-Questionnaire	0.2	
	Overall		

DEVOPS LAB Course Attainment level:

10. Pi diagrams, Bar charts, Histograms

(For representing previous results, if any)

ICS Pass % for Last 4 Academic Years	Appeared	Passed	Pass%

11. Lesson/Course Plan

Week No.	Name of the Program	Week	Text Books	**Mode of Assessment**
1	Start DevOps with a workflow that includes four phases: to do, in progress, code review, and done	1	R1	By observations, lab records, viva-voice
2	Setup Eclipse for DevOps.	2	R1	By observations, lab records, viva
3	Jenkins Setup on AWS.	3	R1	By observations, lab records, viva
4	Build WAR file in DevOps.	4	R1	By observations, lab records, viva
5	Ansible Setup and SSH keys.	5	R1	By observations, lab records, viva
6	Deploy the artifact on the Test Server.	6	R1	By observations, lab records, viva
7	Perform automation using Jenkins.	7	R1	By observations, lab records, viva
8	Build and deploy a grid for Chrome and Firefox based testing.	8	R1	By observations, lab records, viva
9	Create deployment resource using Kubernetes.	9	R1	By observations, lab records, viva
10	Create a docker image for any application using Docker file and push it to Docker hub.	10	R1	By observations, lab records, viva
11	Setup Grafana for Devops.	11	R1	By observations, lab records, viva
12	Setup Prometheus for Devops.	12	R1	By observations, lab records, viva

12. Programs

Experiment-1

Aim: Start DevOps with a workflow that includes four phases: to do, in progress, code review, and done.

Require Software& Tools: JIRA, KANBAN.

Procedure:

Phase 1: To Do

- **Objective:** Identify and prioritize tasks or features to be developed.
- **Key Actions:**
  - Define tasks clearly in a backlog.
  - Prioritize tasks based on impact, urgency, and dependencies.
  - Assign owners or teams to each task.

Tools:

Jira, Trello, GitHub Issues, or Asana.

Phase 2: In Progress

- **Objective:** Actively work on tasks selected from the "To Do" phase.
- **Key Actions:**
  - Begin coding or configuring based on task requirements.
  - Update the task status to reflect ongoing work.
  - Ensure team members collaborate effectively (e.g., stand-ups, pair programming).

Best Practices:

- Use branches in version control systems for individual tasks (e.g., Git feature branches).
- Write unit tests alongside development.

Phase 3: Code Review

- **Objective:** Validate the quality, functionality, and security of the code.
- **Key Actions:**
  - Submit pull requests for peer review.
  - Review code for adherence to standards, logic, and potential issues.
  - Approve or request changes.

Tools:

GitHub Pull Requests, GitLab Merge Requests, Bitbucket.

Automation:

Integrate CI/CD pipelines to run tests automatically during reviews.

Phase 4: Done

- **Objective:** Mark tasks as completed and deploy changes if necessary.
- **Key Actions:**
  - Merge the approved code into the main branch.
  - Deploy to staging or production environments.
  - Monitor deployment and validate functionality.

Post-Completion:

- Add documentation for the changes.
- Gather feedback from stakeholders or users.

Workflow Visualization

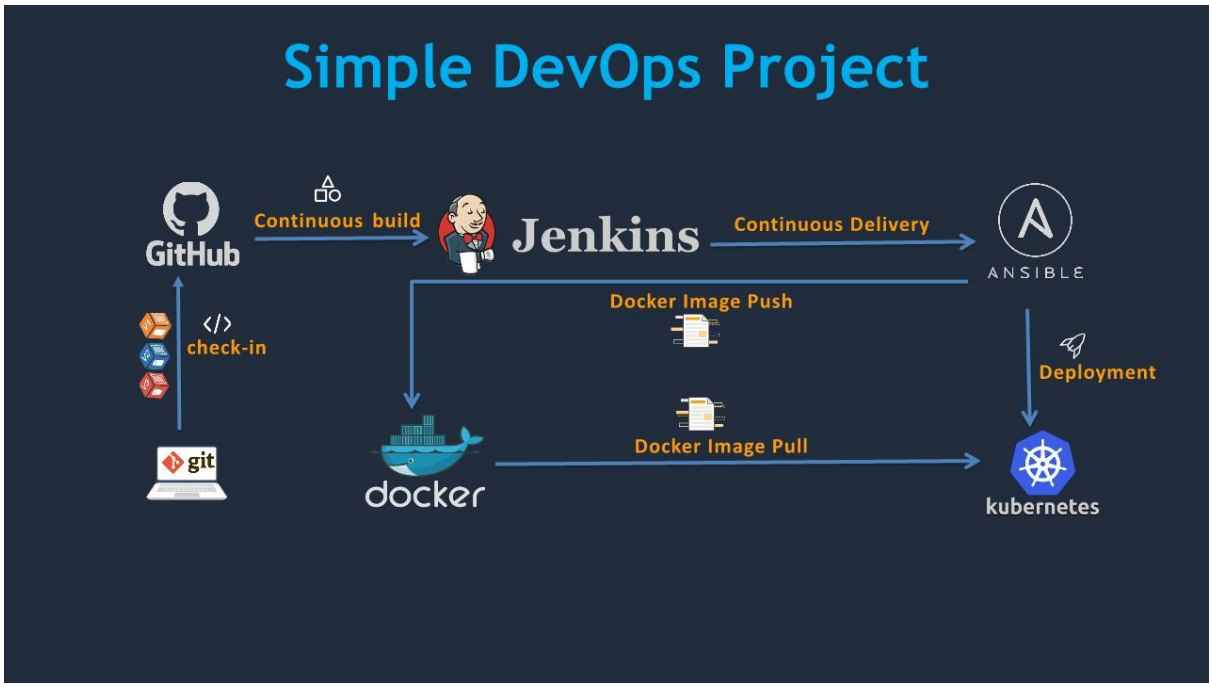
A Kanban board or similar visual representation can help track the status of tasks across these phases. For example:

1. **To Do**: Contains all pending tasks.
2. **In Progress**: Tasks currently being worked on.
3. **Code Review**: Tasks awaiting review or approval.
4. **Done**: Completed and deployed tasks.

Tools:

Trello, Jira, Azure.

Output:-


Simple DevOps Project
GitHub
Continuous build
Jenkins
Continuous Delivery
ANSIBLE
Docker Image Push
check-in
Deployment
Docker Image Pull
git
docker
kubernetes

Experiment-2

Aim: Setups Eclipse for Devops

Note: Write the given steps in your lab manual. The provided image is just for your better understanding.

Require Software& Tools: Eclipse, Java jdk-17, Tomcat v.9, TestNG and Dependencies.

Procedure:

Step-1: Install Jdk-17 and set the java path in System environment

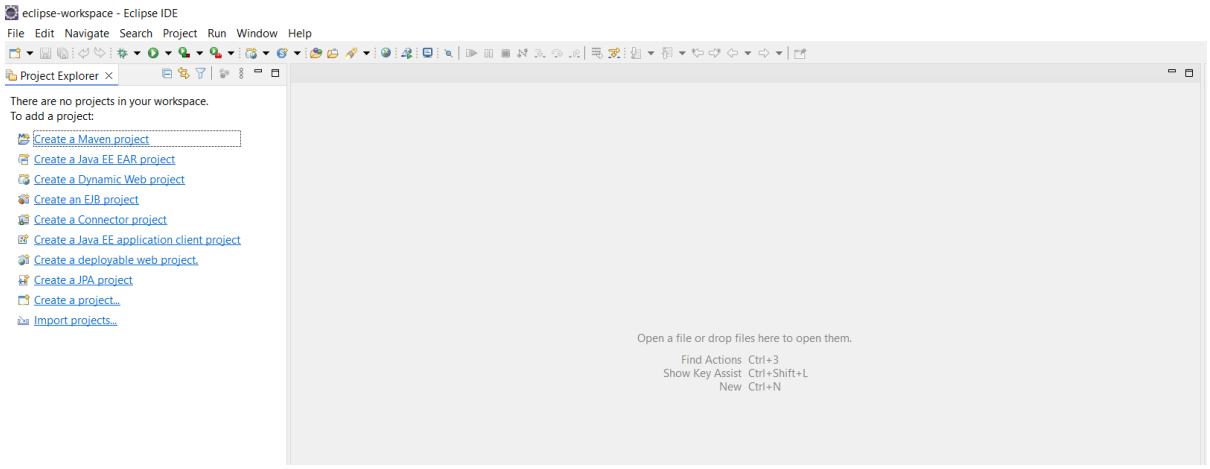
Step-2: Download eclipse zipfile and extract the contents the all eclipse file

Step-3: Create a Maven Project from eclipse as:

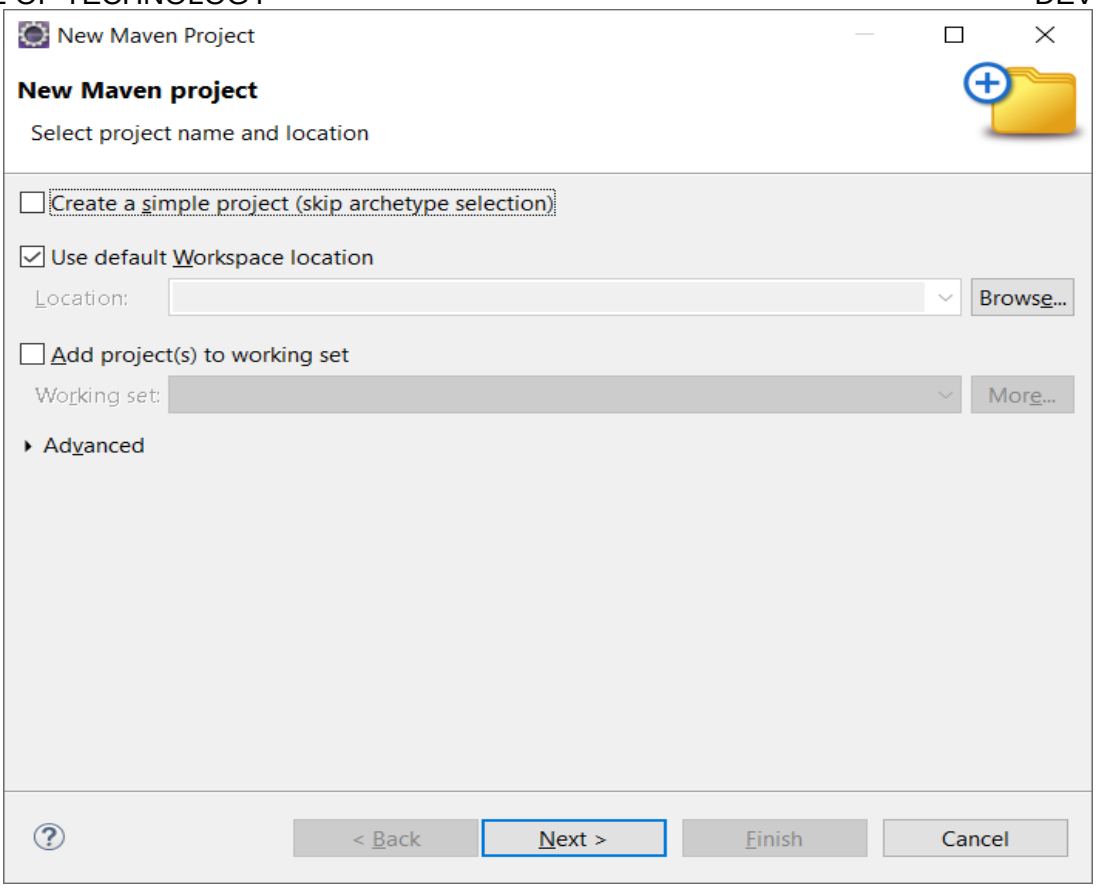
OR

Click on File in left corner -> Click on new -> click on Maven Project and follow the given image steps.

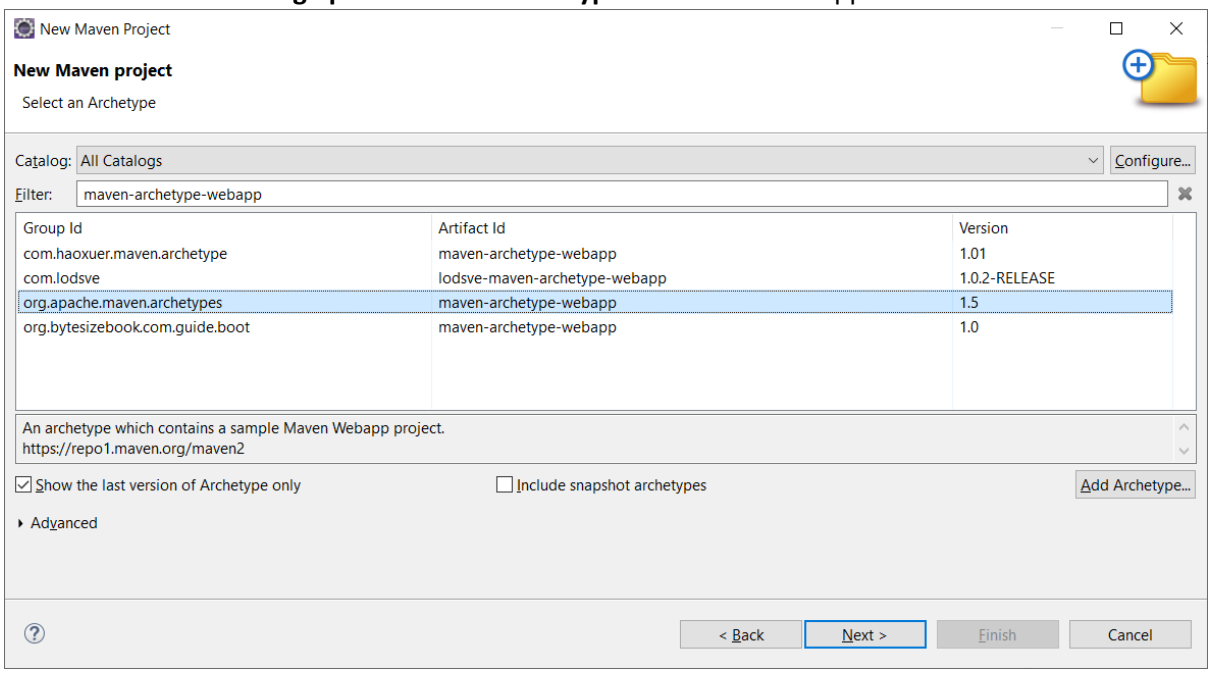
a.



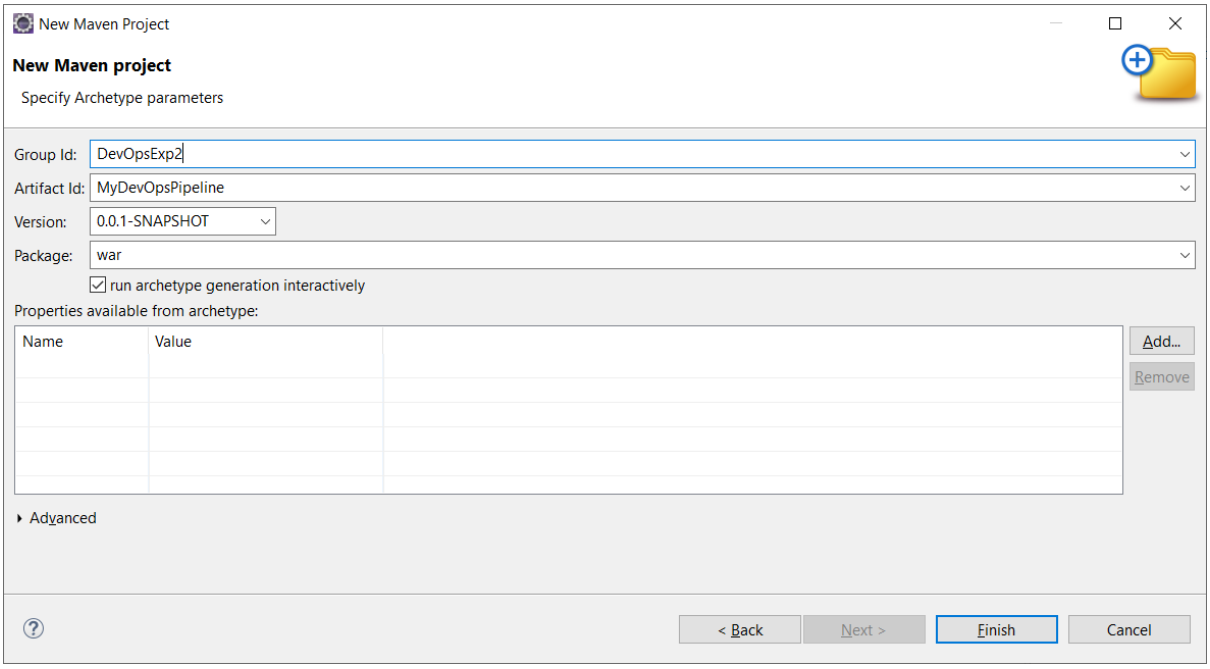
b.



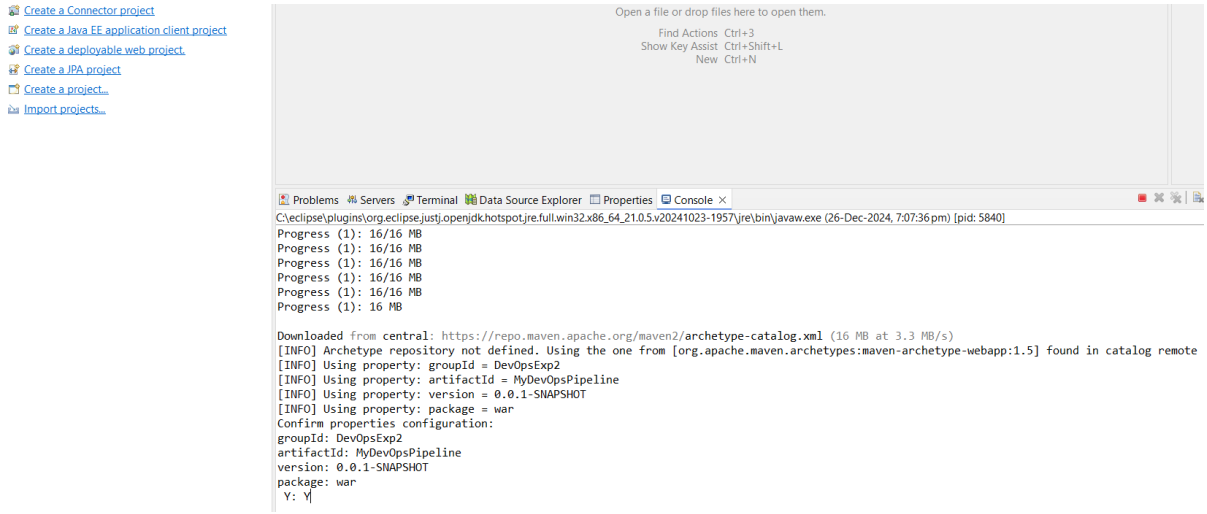
b. Click Next and Search **org.apache.maven.archetypes** and select webapp file



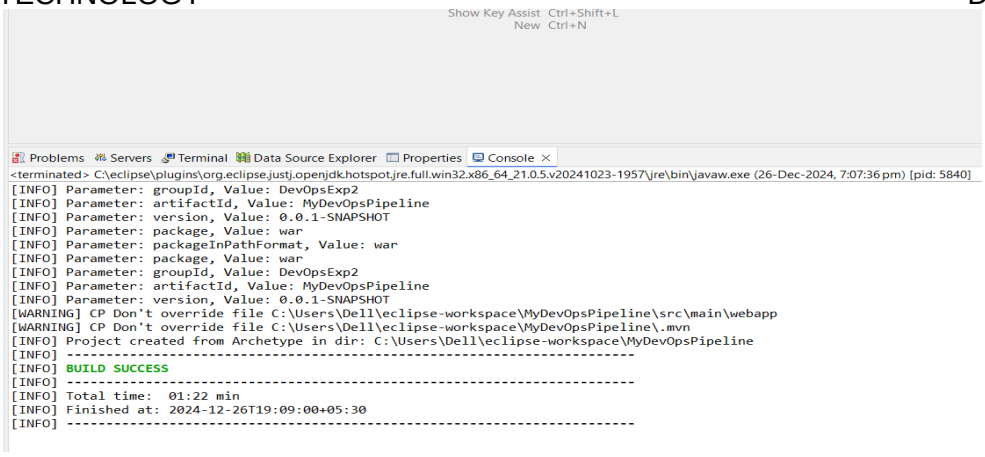
c. In a **group id** you can type anything like name and in a**artefact id:** you can type anything like your roll number



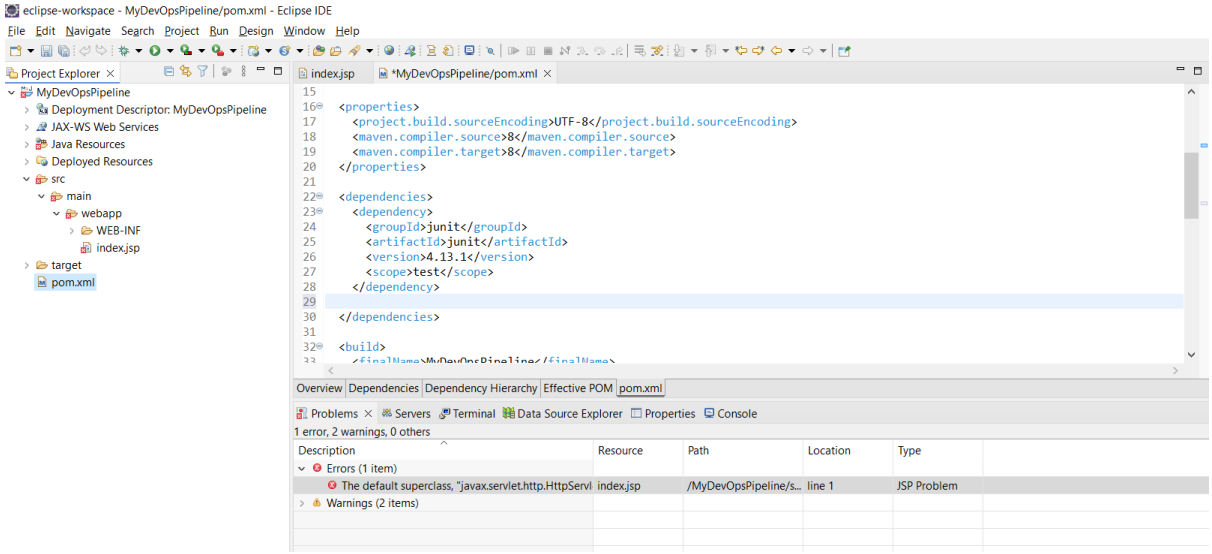
d. Click Finish



e. Type Y and Press enter, You should see a Build Success message as below:

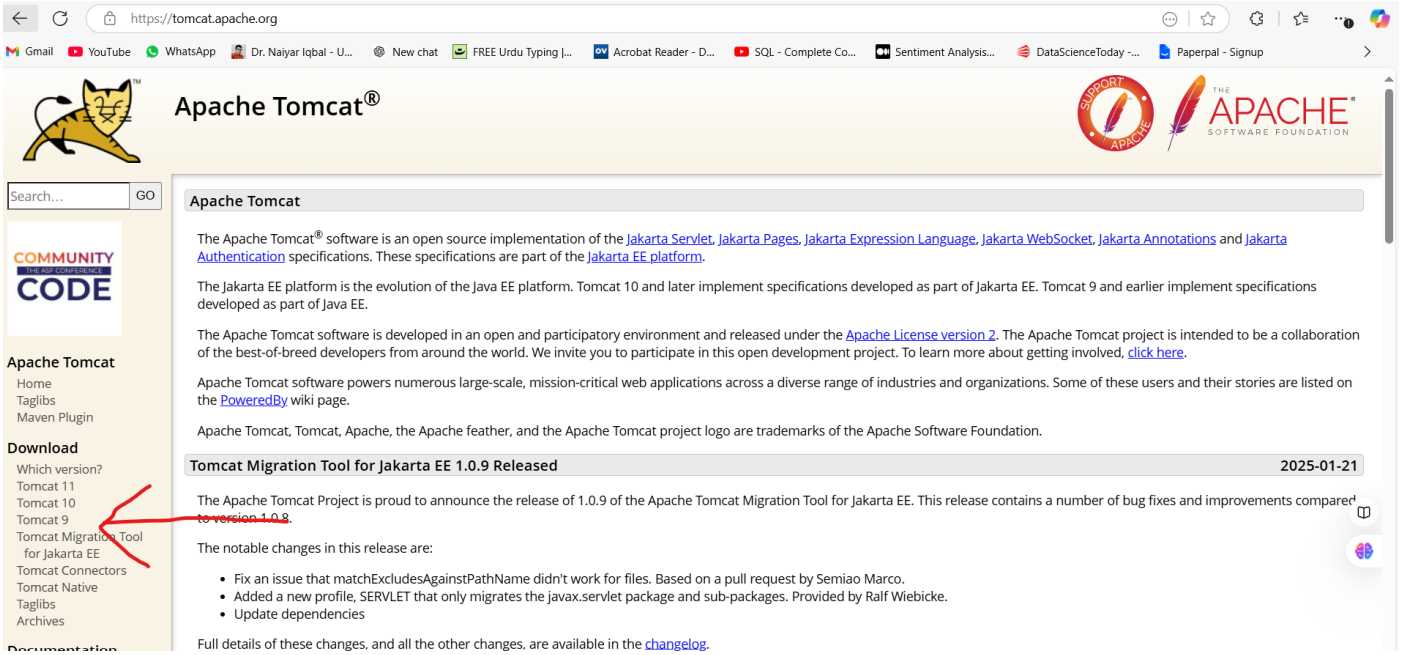


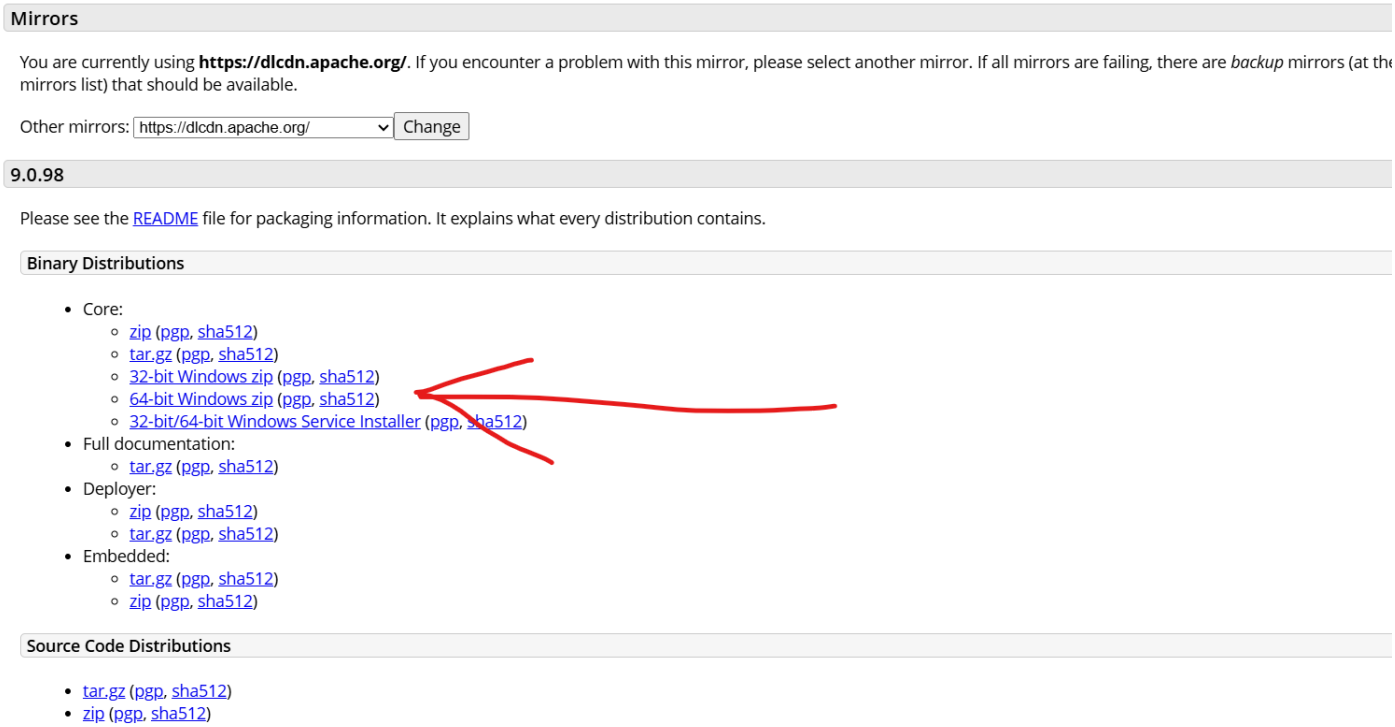
Step-4:now open your **pom.xml** file and add your **dependencies (Given file, Copy and Paste)**



Step-5: Update your project once (Right click on Project -> click on Maven -> click on Update Project)

Step-6: Download **Apache tomcat v9** from Official website.

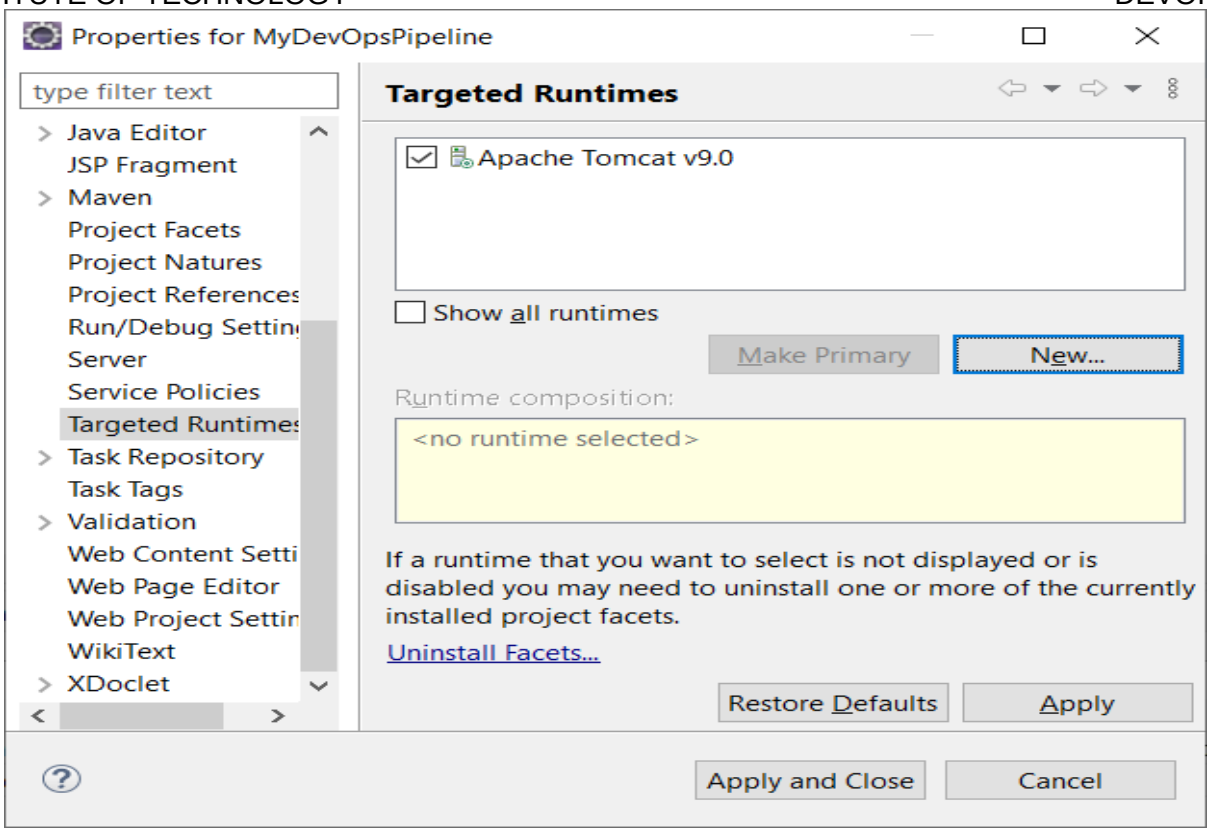




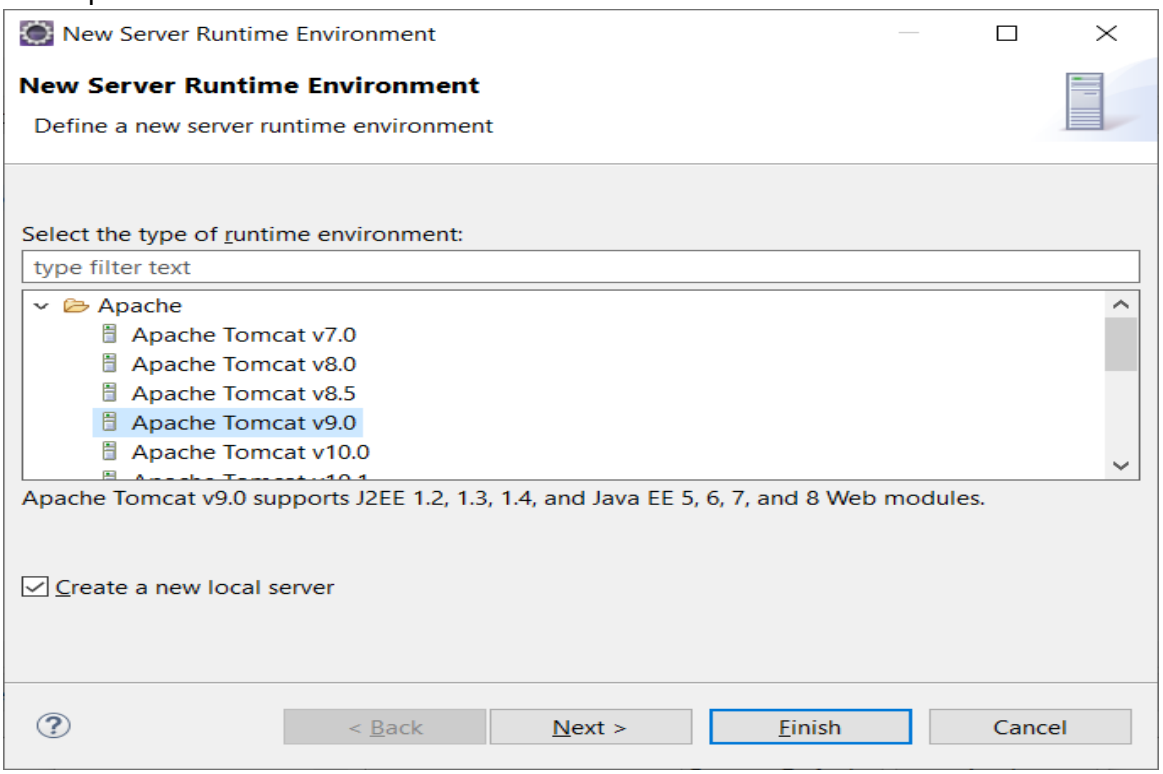
Step-7: After Download the Apache tomcat, Extract the .zip file and paste your apache-tomcat-9.0.98 folder in your folder

Step-8: Now click on your **project option in Menu -> Click on Properties -> Click on Targeted Runtime**

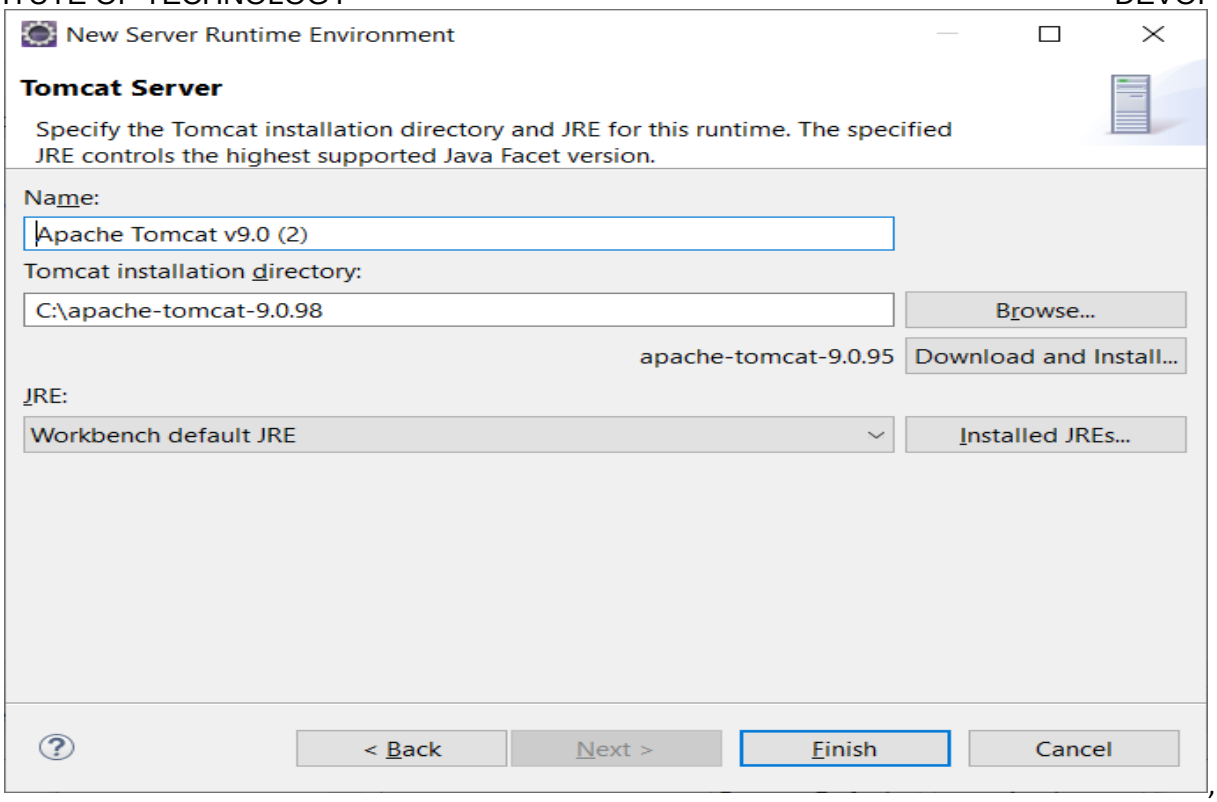
Step-9: Click on **new or follow the given image**



Step-10: Select Apache Tomcat v9.0

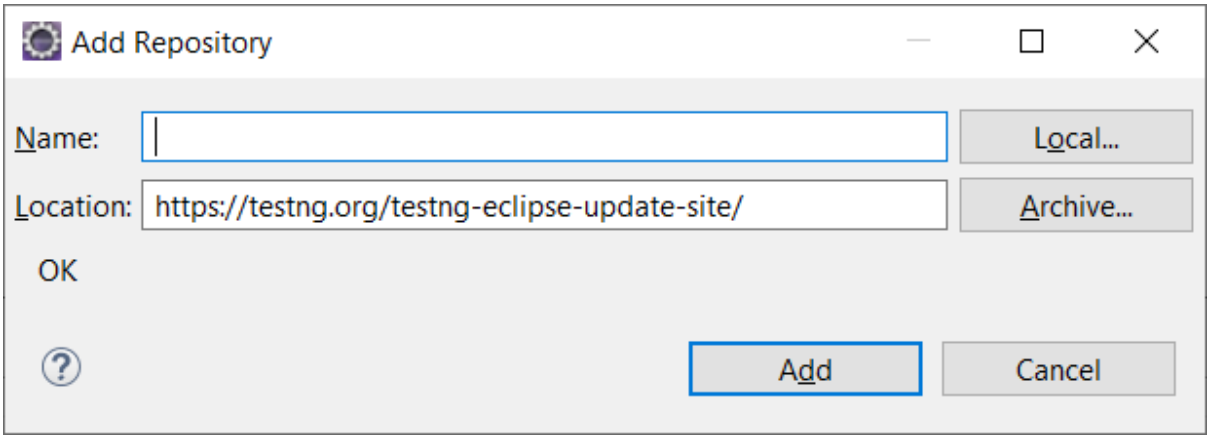


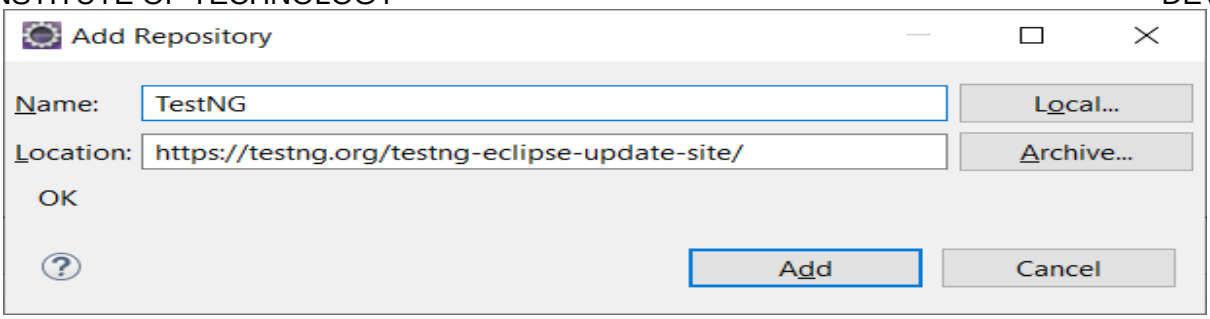
Step-11: Click on Browse and Select your Extracted file and then click on finish as given image



Step-12: Now Click on **help Menu ->**click on **Install new Software.**
Step-13: Click on **Add** and it will show a **popup dialog box** like given image

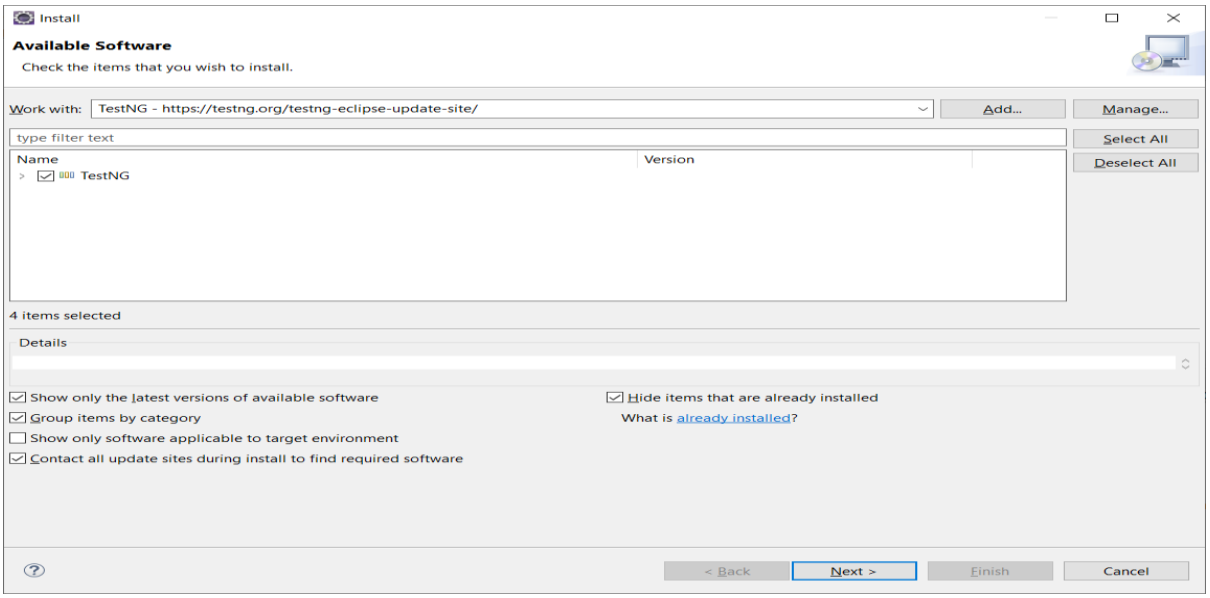
In the place of Name type: **TestNG**
In the place of Location type: **https://testng.org/testng-eclipse-update-site/**

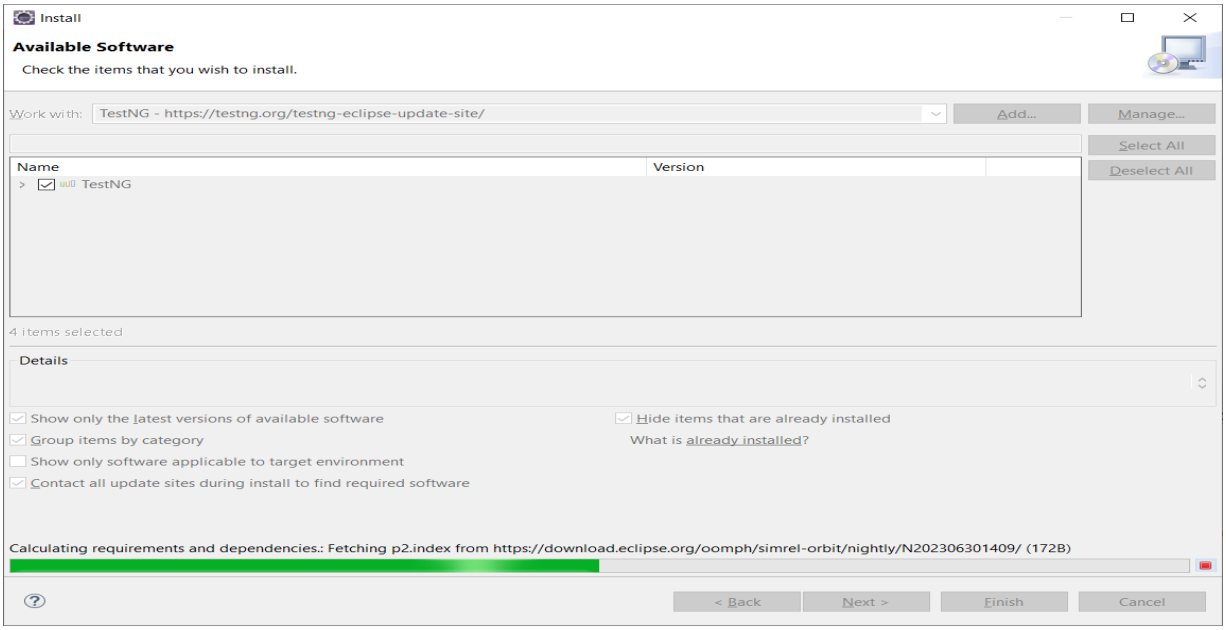




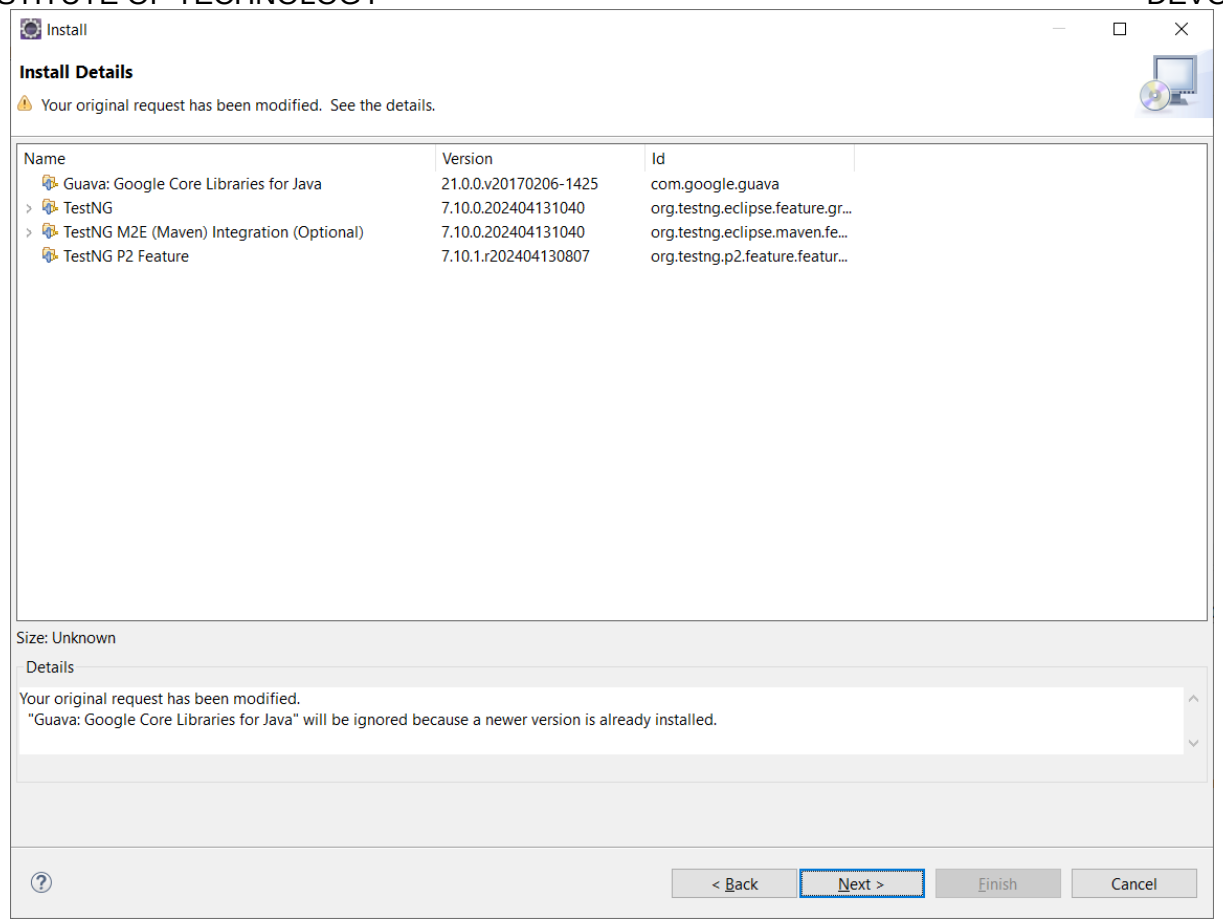
Step-14: Click on **Add ->**It will load a**testNG Dependencies ->**Select**TestNg**like given Imageand then click **Next.**

It will take 10 minute to update TestNG in our Project

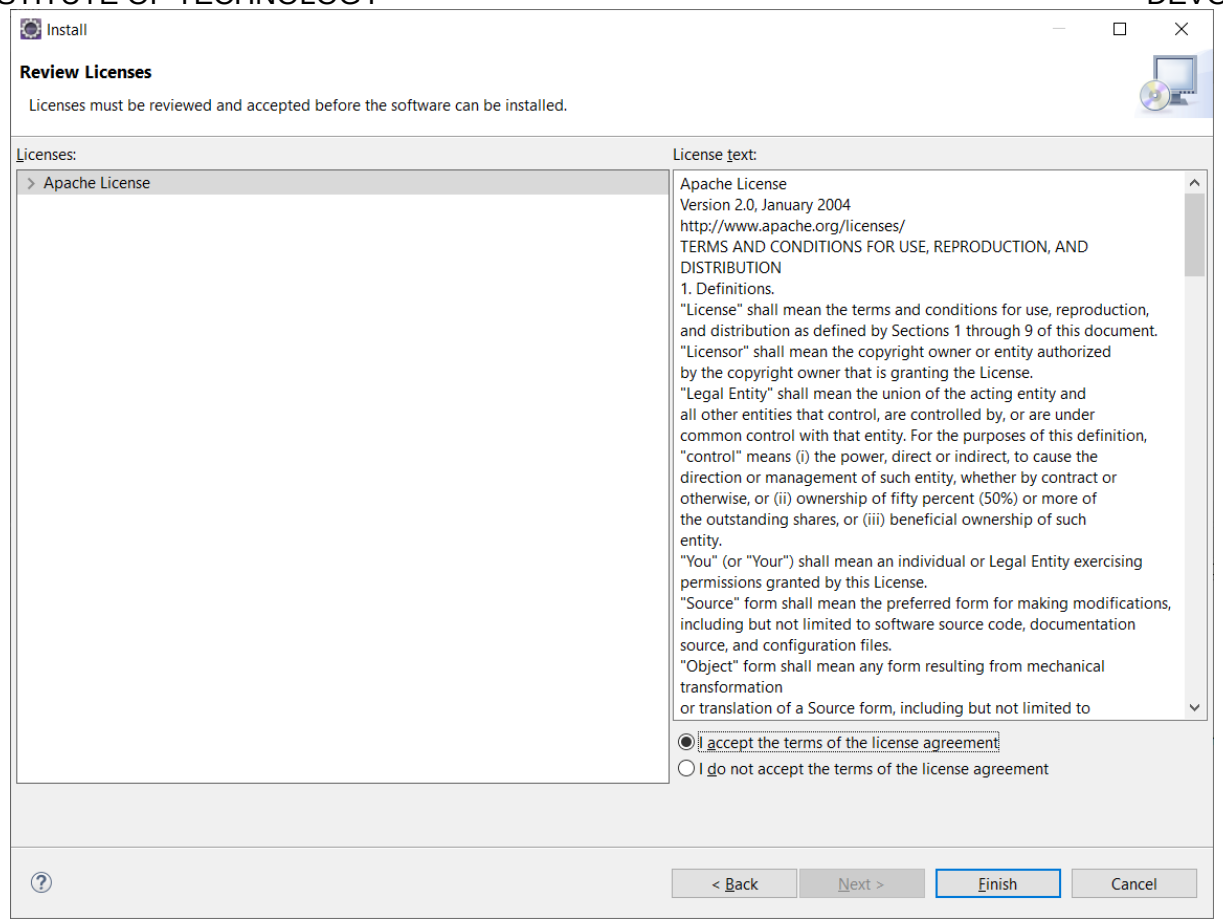




Step-15: After downloading the all dependencies it will show some file select all and click on next.



Step-16: Accept Terms and condition and click on **finish**

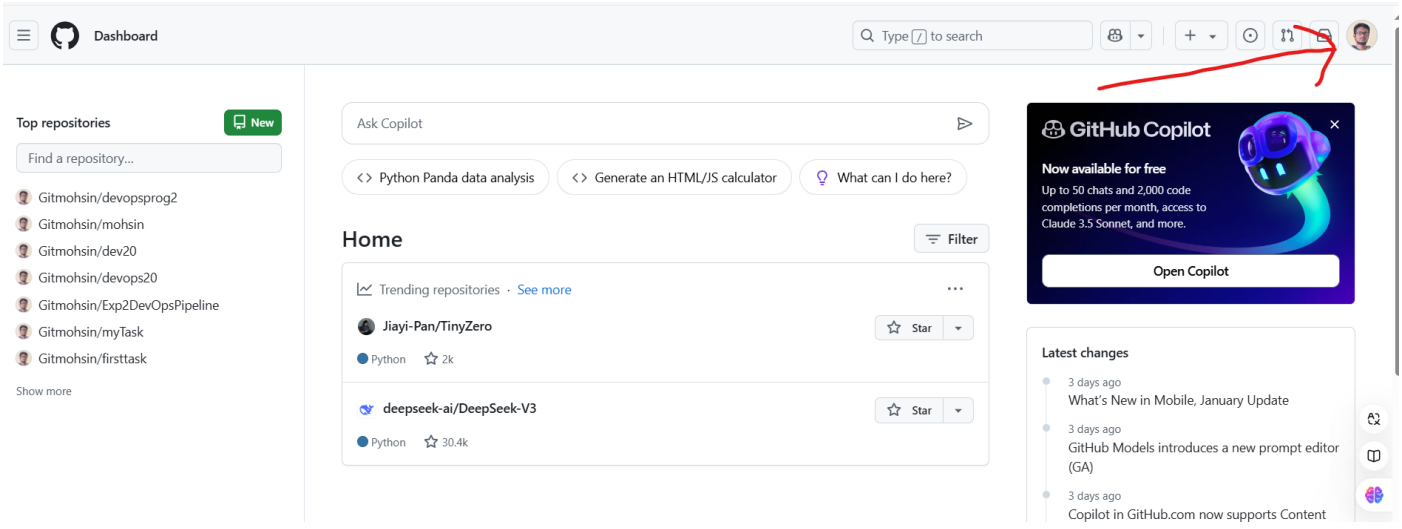


Step-17: After finish it will show **restart option (Restart the Project**) otherwise just **update** once of your project.

Step-18: Now Login your**GitHub Account.**

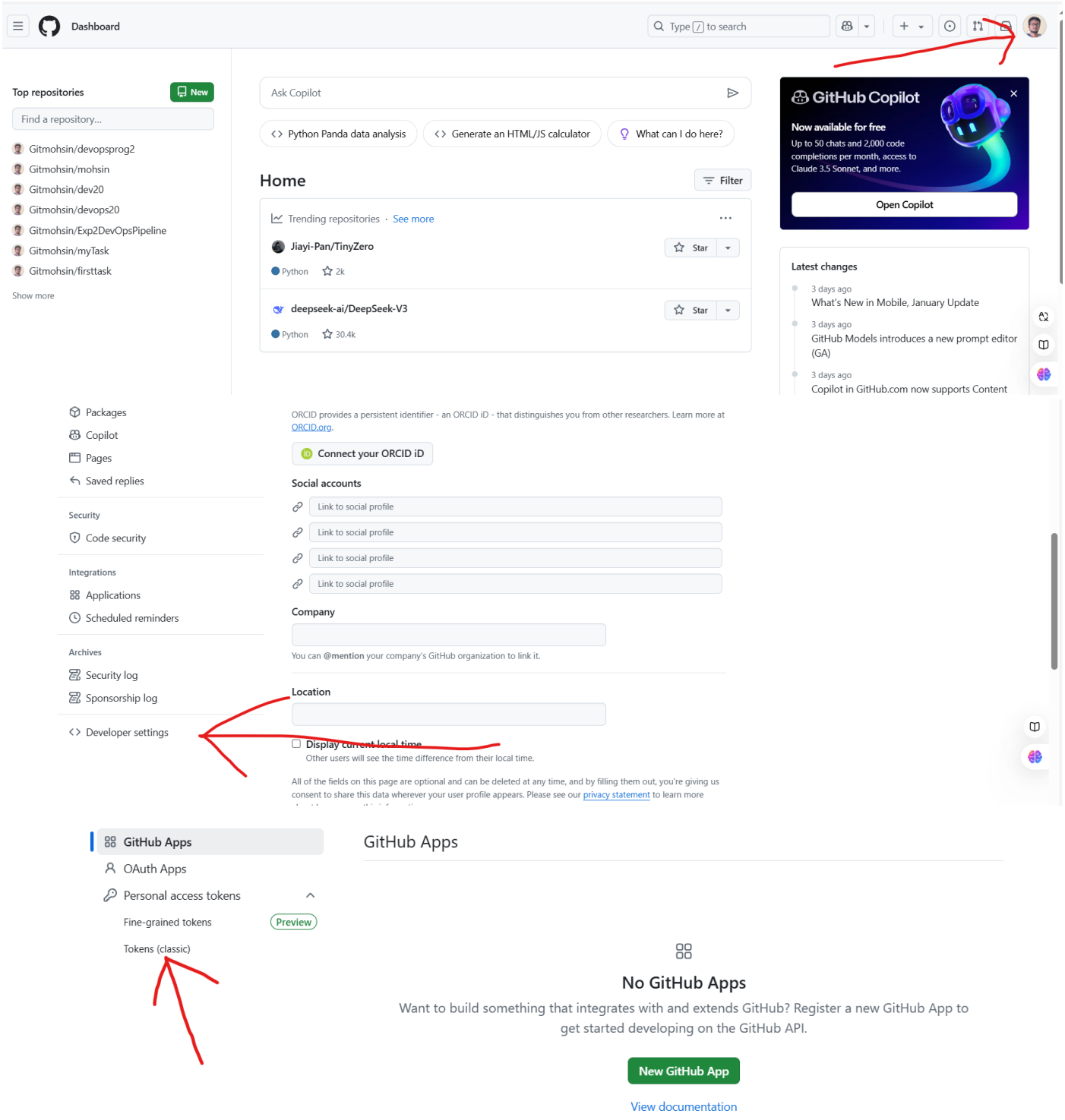
Step-19: Create a New **Repository** and Copy your **Repository** and paste in notepad

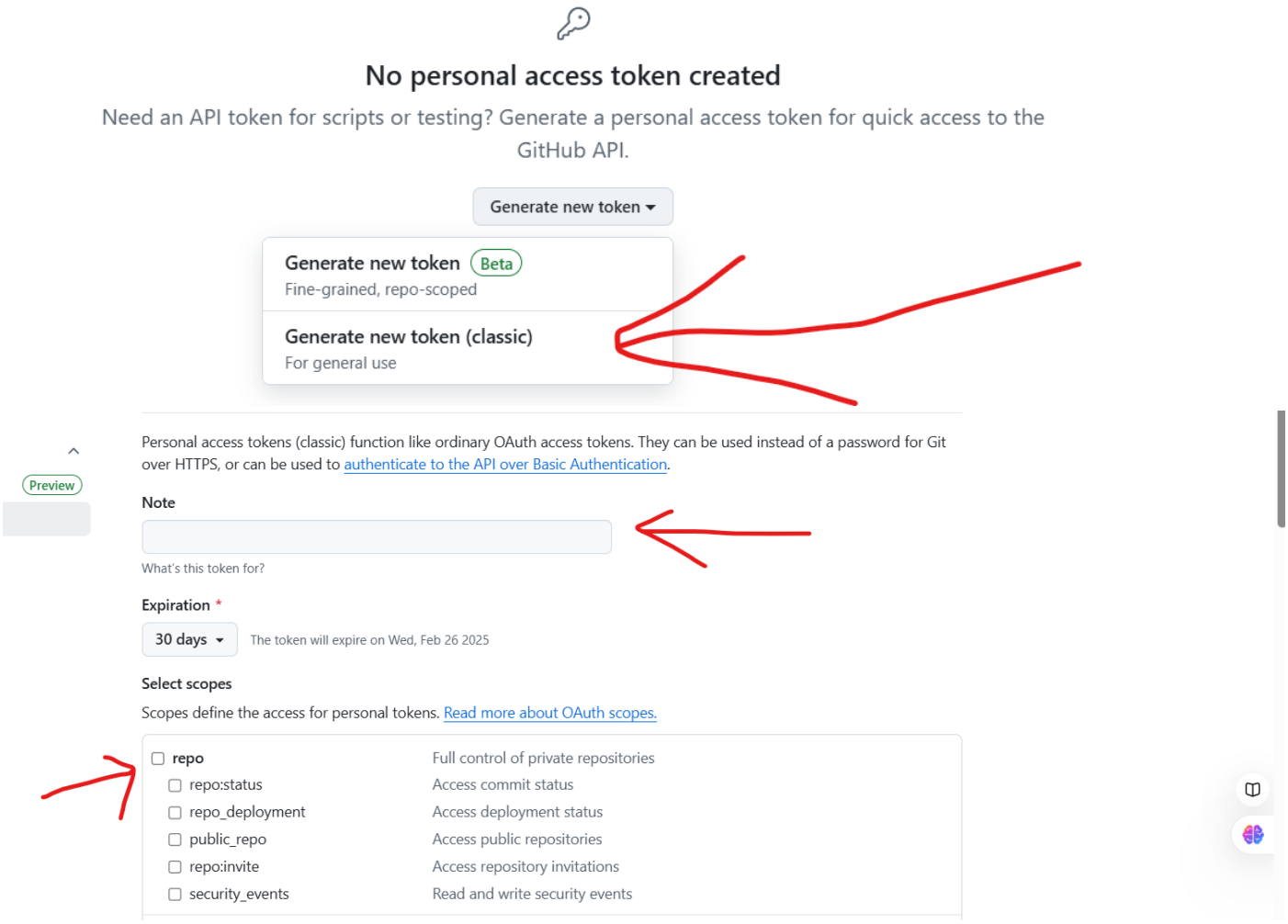
Step-20: After that **Click** on your **Profile** in Right corner **-> Click on Setting.**



Step-21: It will show a new page, scroll down and select the **developer setting ->**click on **personal access token ->**select **Token(Classic) ->**click on **Generate new token** and select **Generate new token(Classic) -**

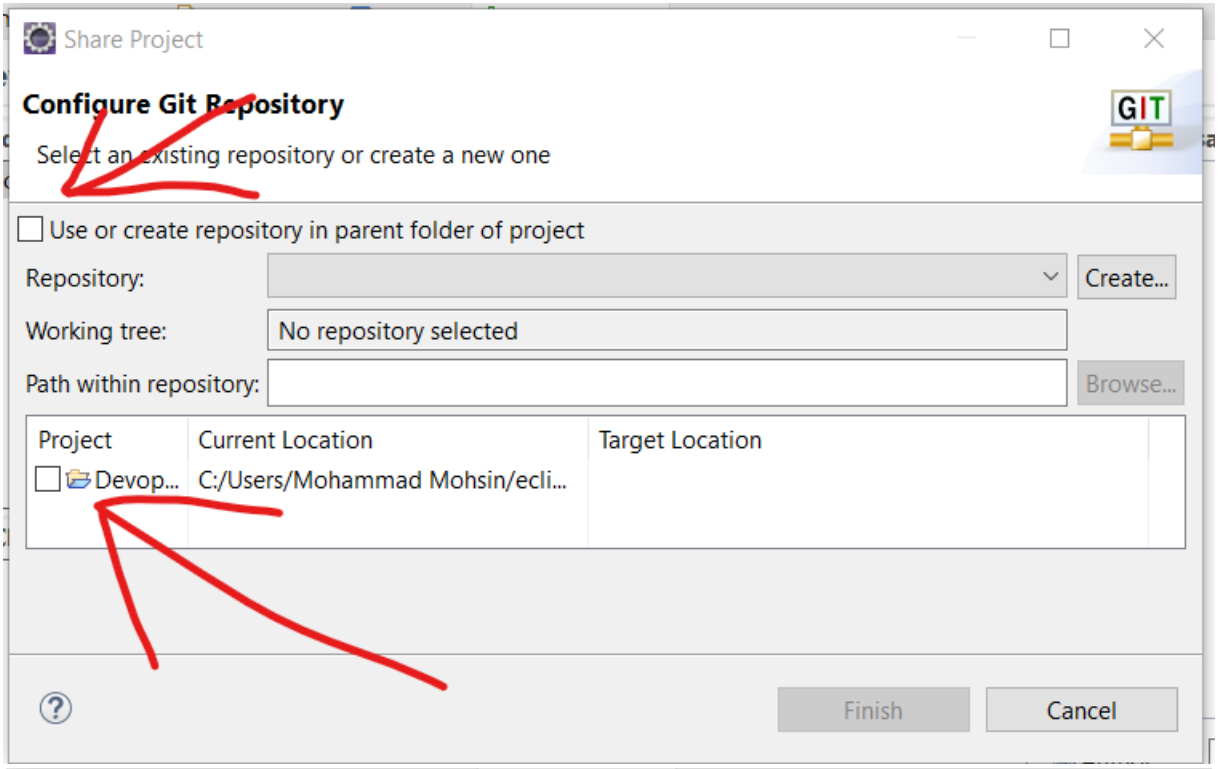
>write your **token name** and select **repo option** and scroll down and click on **Generate Token.** (Follow the given Image)

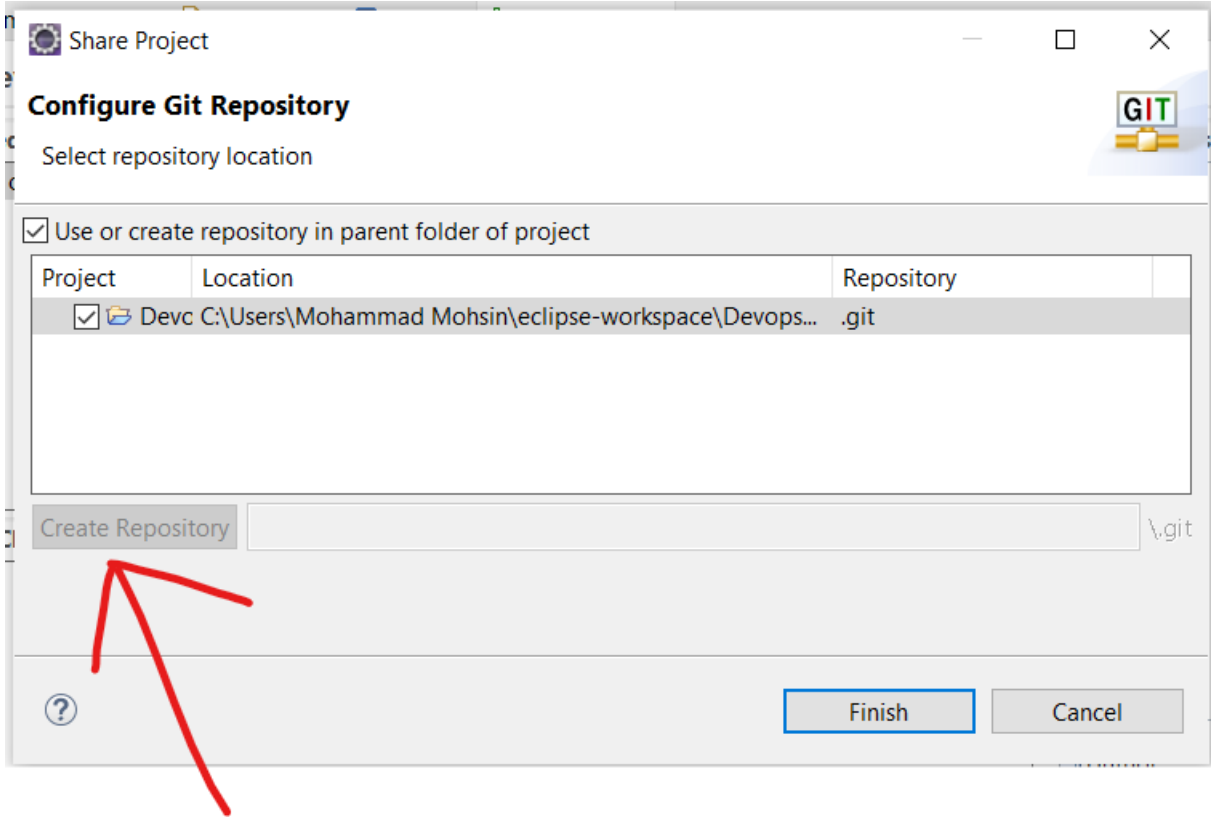




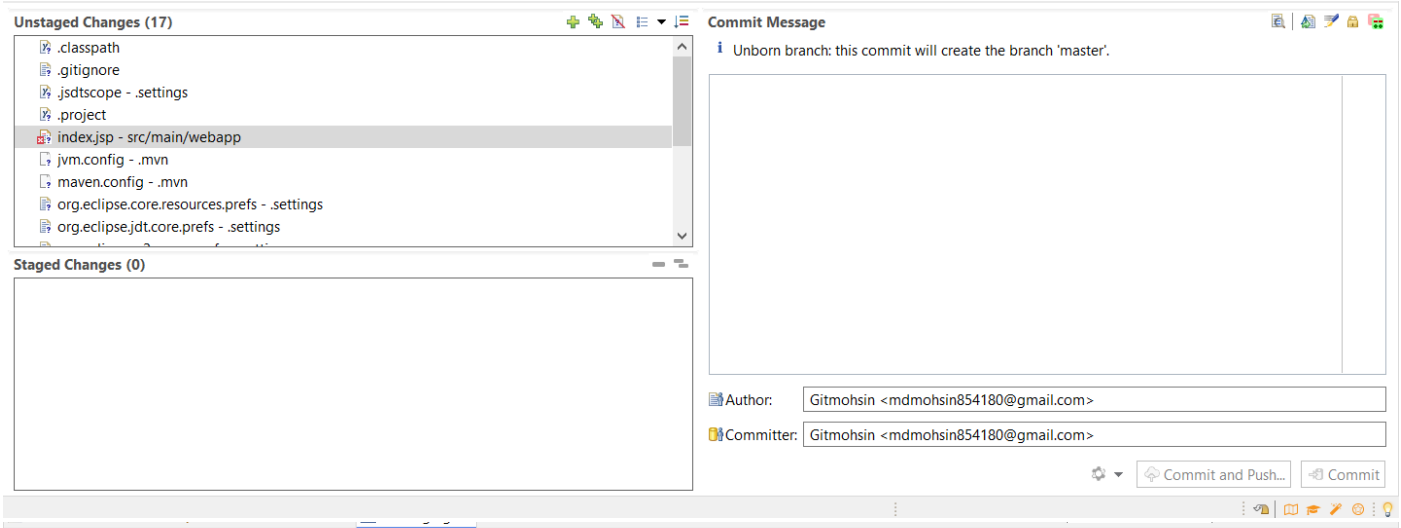
Step-22: After Generating the **token** copy the token id and paste in a**NotePad.**
Step-23: Now come on your project and right click on your**project ->**Click on **Team ->**Click on **Share Project.**

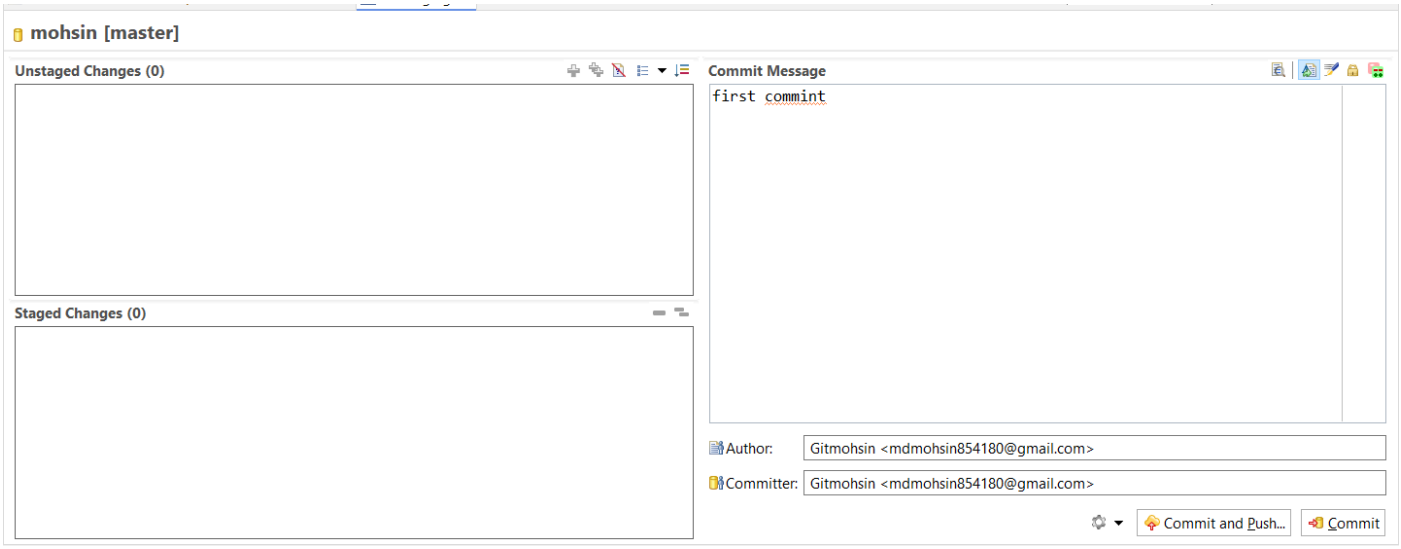
Step- 24: It will open a Dialog Box for**GitHub**Setup, select the **option Use or create repository in parent folder of project - >**Select your Project and Click on **Create Repository** and click on **Finish.**

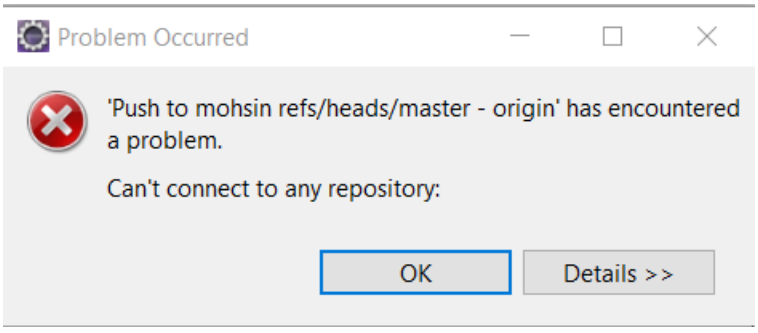


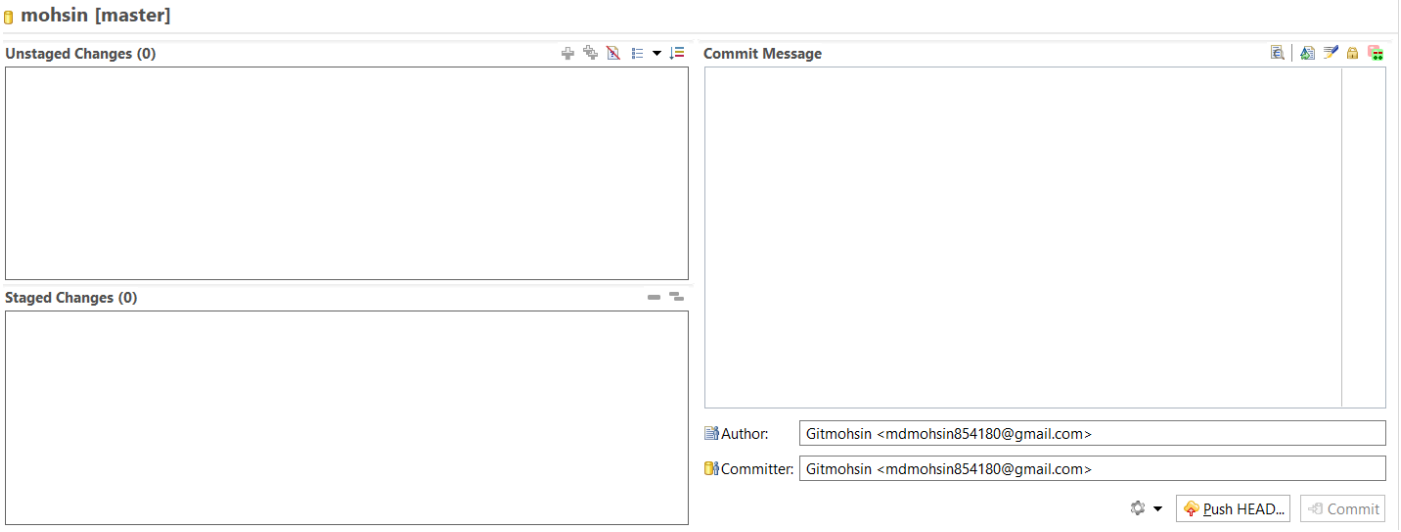


Step-25: After that again **Right click on yourProject** and select the **Team** -> click on **Commit**-> and **stage your all file** -> and Write a comment (i.e. First Commit) and click on **Commit and push**-> after that it show an **error dialog ->**click **OK ->**now again click on **Push Head** Button

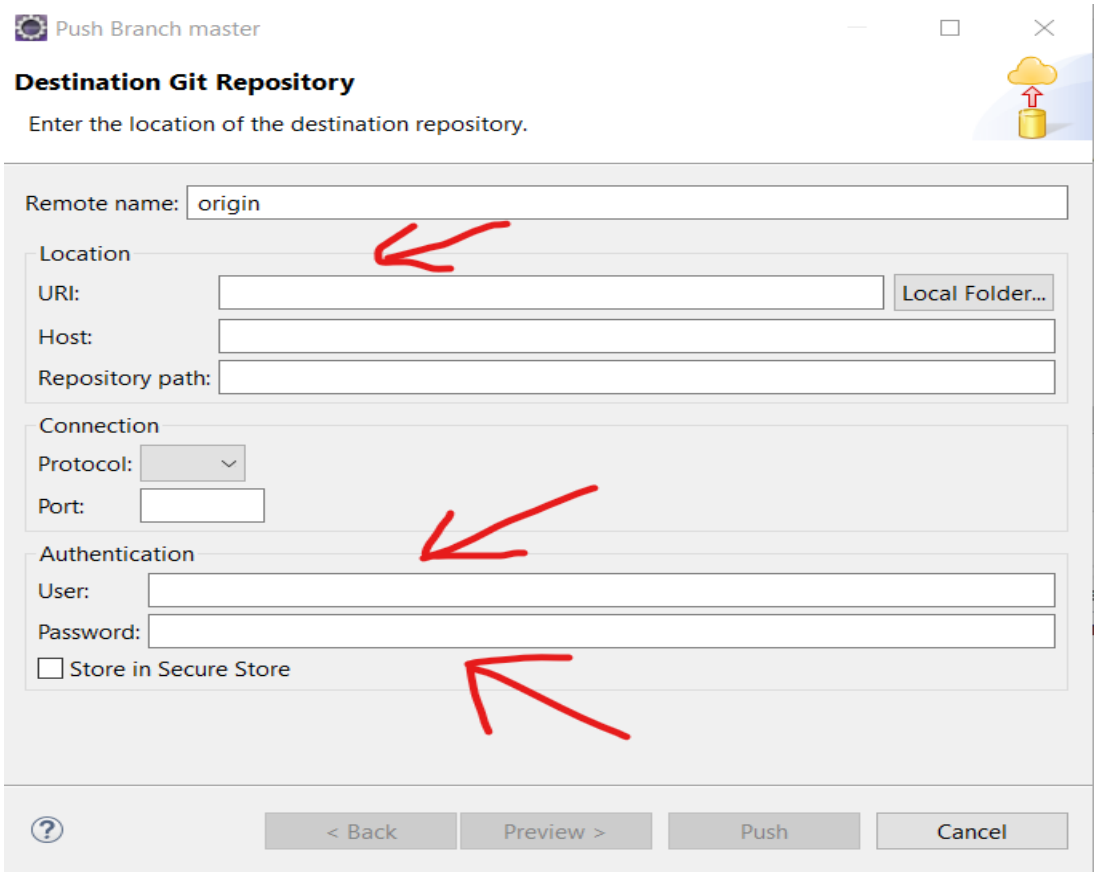

Unstaged Changes (17)
.classpath
.gitignore
.jsdtscope - .settings
.project
index.jsp - src/main/webapp
jvm.config - .mvn
maven.config - .mvn
org.eclipse.core.resources.prefs - .settings
org.eclipse.jdt.core.prefs - .settings
Staged Changes (0)
Commit Message
Unborn branch: this commit will create the branch 'master'.
Author: Gitmohsin <mdmohsin854180@gmail.com>
Committer: Gitmohsin <mdmohsin854180@gmail.com>
Commit and Push...
Commit


mohsin [master]
Unstaged Changes (0)
Staged Changes (0)
Commit Message
first commint
Author: Gitmohsin <mdmohsin854180@gmail.com>
Committer: Gitmohsin <mdmohsin854180@gmail.com>
Commit and Push...
Commit


Problem Occurred
'Push to mohsin refs/heads/master - origin' has encountered a problem.
Can't connect to any repository:
OK
Details >>

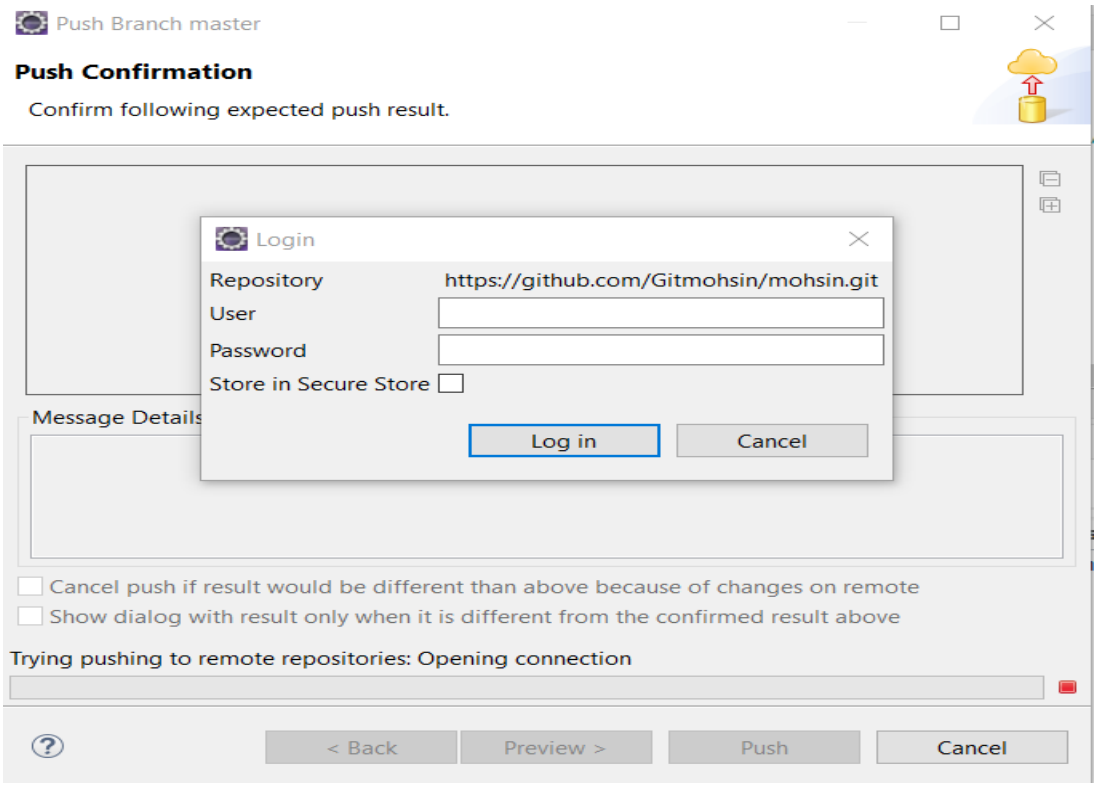


Step-26: After that again click on **Push Head,** it will show a **dialog** like given image, paste your **Repository URL** in **URL** section and type your**GitHub User Id and Password** in User, password section -> Click on **preview ->**Again clickon **Preview.**



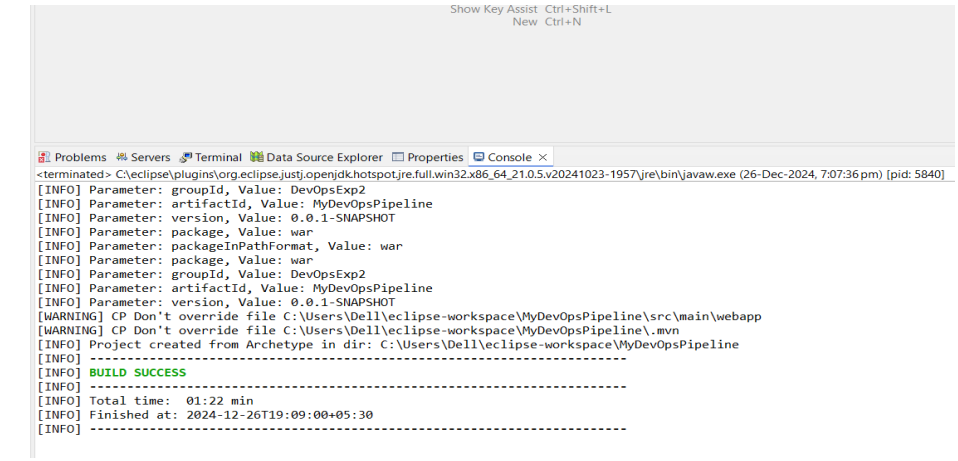
Step-27: After that it will again show a **user Id** and **Password** option **->**just type your**Github id** in user section and paste your **Token id** in Password section -> click on **push ->**one more time it will ask **user id and**

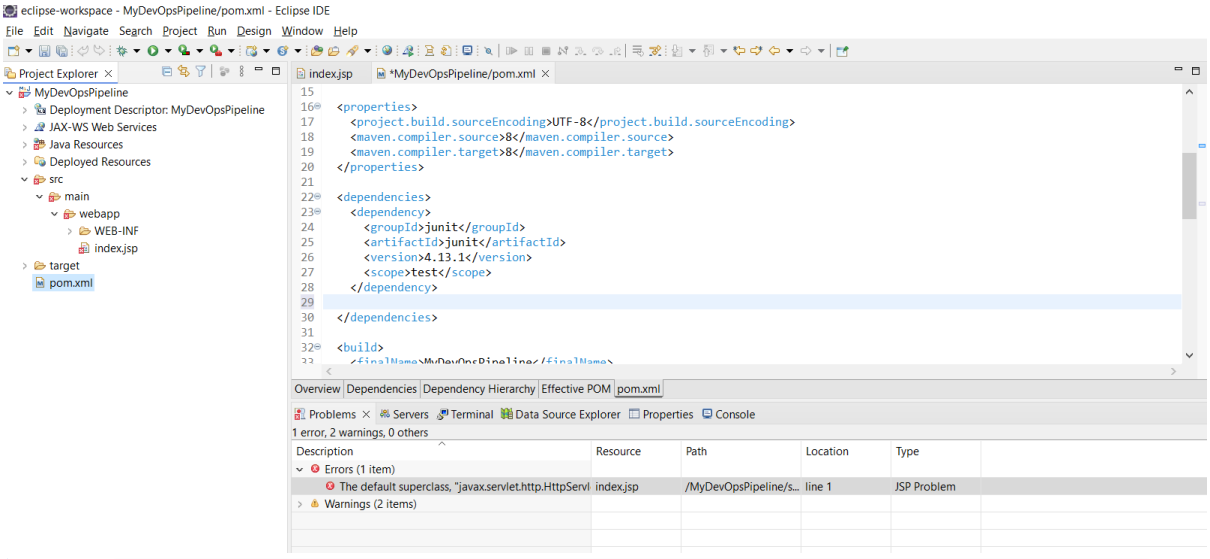
password just repeat your last step with u**ser id and token id ->**now check your **repository on github,** your file is **uploaded or not**

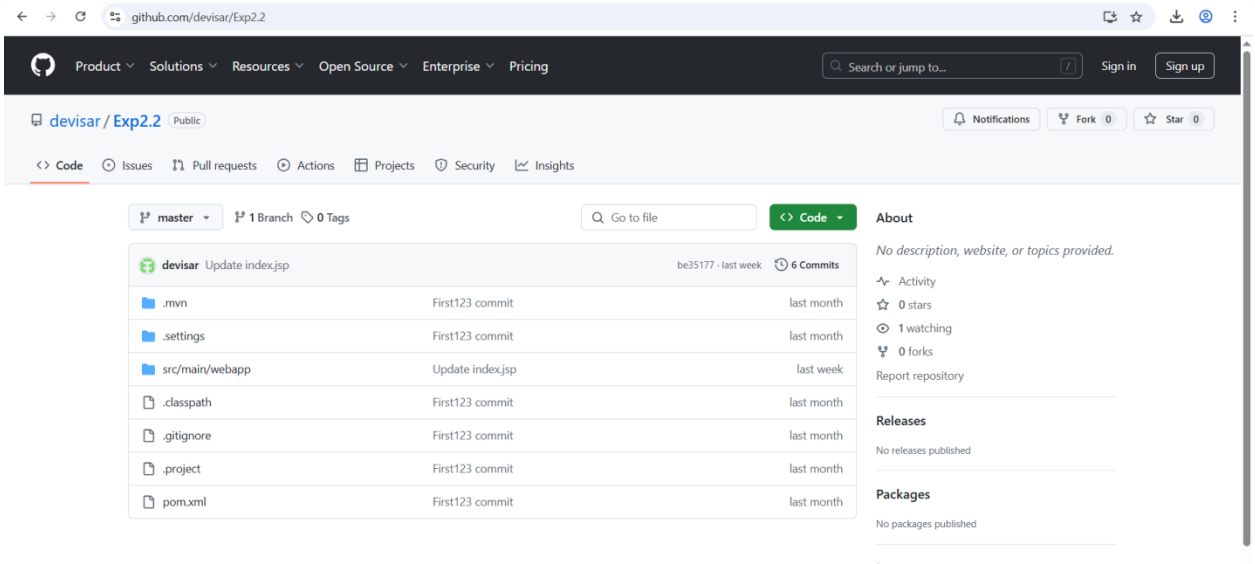


Step-28: Now you have to create a simple java code in SRC File, so first open your project from **file manager->**open **SRC - >**Create two folder in **SRC -> first name: java, second name: test ->**now open **test folder** and create two more folder in **test folder ->**now come on your **eclipse IDE** and **Update** your project once -> After that create a java class file with a Statement **"Hello World"**in your **SRC/TEST/java** folder.
Step-29: Now Push again your **all unstage files** in your**GitHubRepository**with **different version** or **Comment** (Its just for Version Control).
Step-30: Now Check again your Repository your recent file is uploaded or not with different version.

Output:-


Show Key Assist Ctrl+Shift+L
New Ctrl+N
Problems Servers Terminal Data Source Explorer Properties Console
<terminated> C:\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_21.0.5.v20241023-1957\jre\bin\javaw.exe (26-Dec-2024, 7:07:36 pm) [pid: 5840]
[INFO] Parameter: groupId, Value: DevOpsExp2
[INFO] Parameter: artifactId, Value: MyDevOpsPipeline
[INFO] Parameter: version, Value: 0.0.1-SNAPSHOT
[INFO] Parameter: package, Value: war
[INFO] Parameter: packageInPathFormat, Value: war
[INFO] Parameter: package, Value: war
[INFO] Parameter: groupId, Value: DevOpsExp2
[INFO] Parameter: artifactId, Value: MyDevOpsPipeline
[INFO] Parameter: version, Value: 0.0.1-SNAPSHOT
[WARNING] CP Don't override file C:\Users\Dell\eclipse-workspace\MyDevOpsPipeline\src\main\webapp
[WARNING] CP Don't override file C:\Users\Dell\eclipse-workspace\MyDevOpsPipeline\.mvn
[INFO] Project created from Archetype in dir: C:\Users\Dell\eclipse-workspace\MyDevOpsPipeline
[INFO] --
[INFO] BUILD SUCCESS
[INFO] --
[INFO] Total time: 01:22 min
[INFO] Finished at: 2024-12-26T19:09:00+05:30
[INFO] --


eclipse-workspace - MyDevOpsPipeline/pom.xml - Eclipse IDE
File Edit Navigate Search Project Run Design Window Help
Project Explorer
MyDevOpsPipeline
Deployment Descriptor: MyDevOpsPipeline
JAX-WS Web Services
Java Resources
Deployed Resources
src
main
webapp
WEB-INF
index.jsp
target
pom.xml
index.jsp
*MyDevOpsPipeline/pom.xml
<properties>
<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
<maven.compiler.source>8</maven.compiler.source>
<maven.compiler.target>8</maven.compiler.target>
</properties>
<dependencies>
<dependency>
<groupId>junit</groupId>
<artifactId>junit</artifactId>
<version>4.13.1</version>
<scope>test</scope>
</dependency>
</dependencies>
<build>
Overview Dependencies Dependency Hierarchy Effective POM pom.xml
Problems Servers Terminal Data Source Explorer Properties Console
1 error, 2 warnings, 0 others
Description Resource Path Location Type
Errors (1 item)
The default superclass, "javax.servlet.http.HttpServl index.jsp /MyDevOpsPipeline/s... line 1 JSP Problem
Warnings (2 items)


github.com/devisar/Exp2.2
Product Solutions Resources Open Source Enterprise Pricing
Search or jump to...
Sign in
Sign up
devisar / Exp2.2 Public
Notifications Fork 0 Star 0
Code Issues Pull requests Actions Projects Security Insights
master 1 Branch 0 Tags
Go to file
Code
devisar Update index.jsp
be35177 · last week 6 Commits
.mvn First123 commit last month
.settings First123 commit last month
src/main/webapp Update index.jsp last week
.classpath First123 commit last month
.gitignore First123 commit last month
.project First123 commit last month
pom.xml First123 commit last month
About
No description, website, or topics provided.
Activity
0 stars
1 watching
0 forks
Report repository
Releases
No releases published
Packages
No packages published

Experiment-3

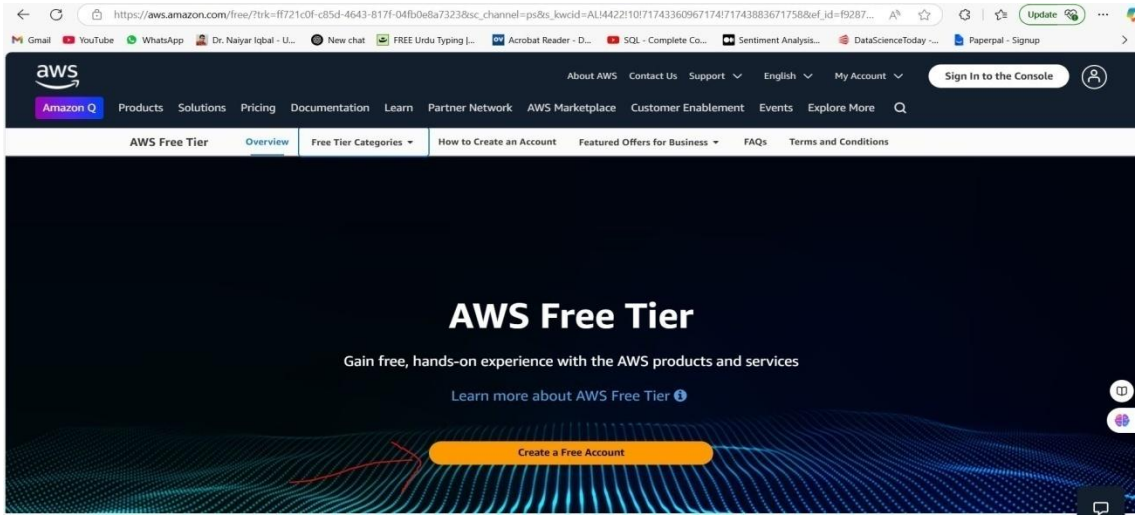
Aim: Jenkins Setup on AWS.

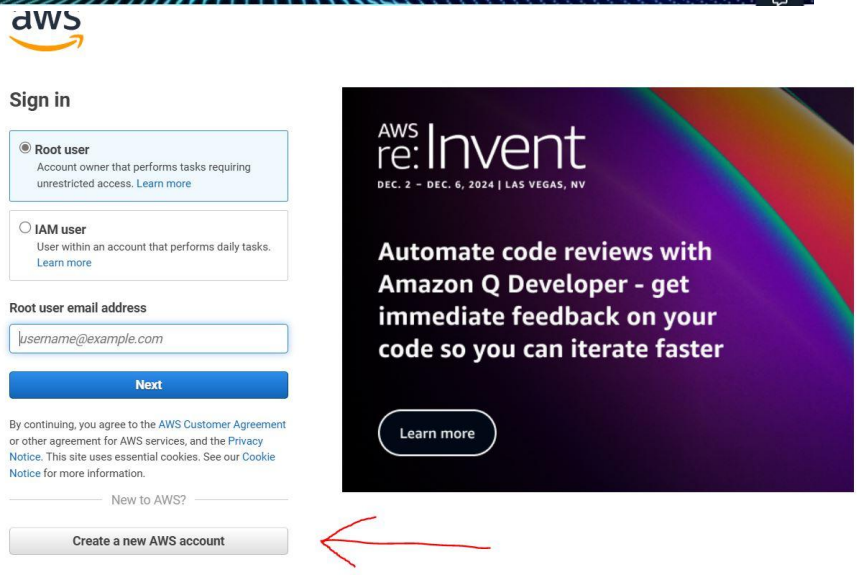
Note: Write the given steps in your lab manual. The provided image is just for your better understanding.

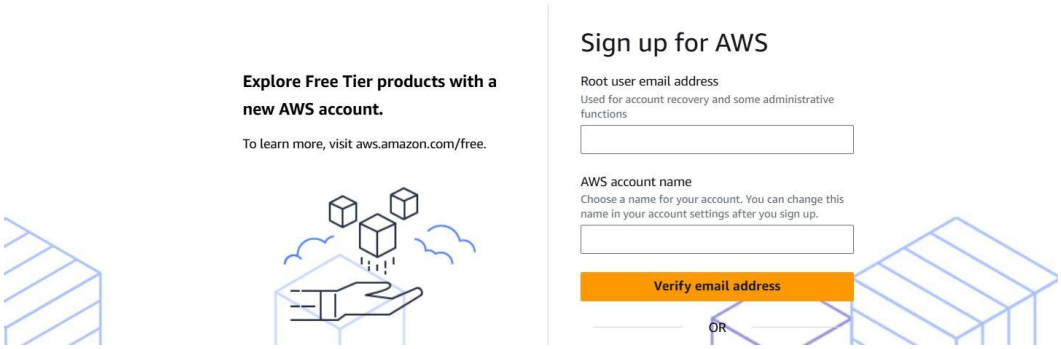
Require Software & Tools: AWS, MobaXterm Software.

Procedure:

Step-1: Search AWS Free Tier Account in any Browser and Create an Account. (if you have already an account then leave the steps)

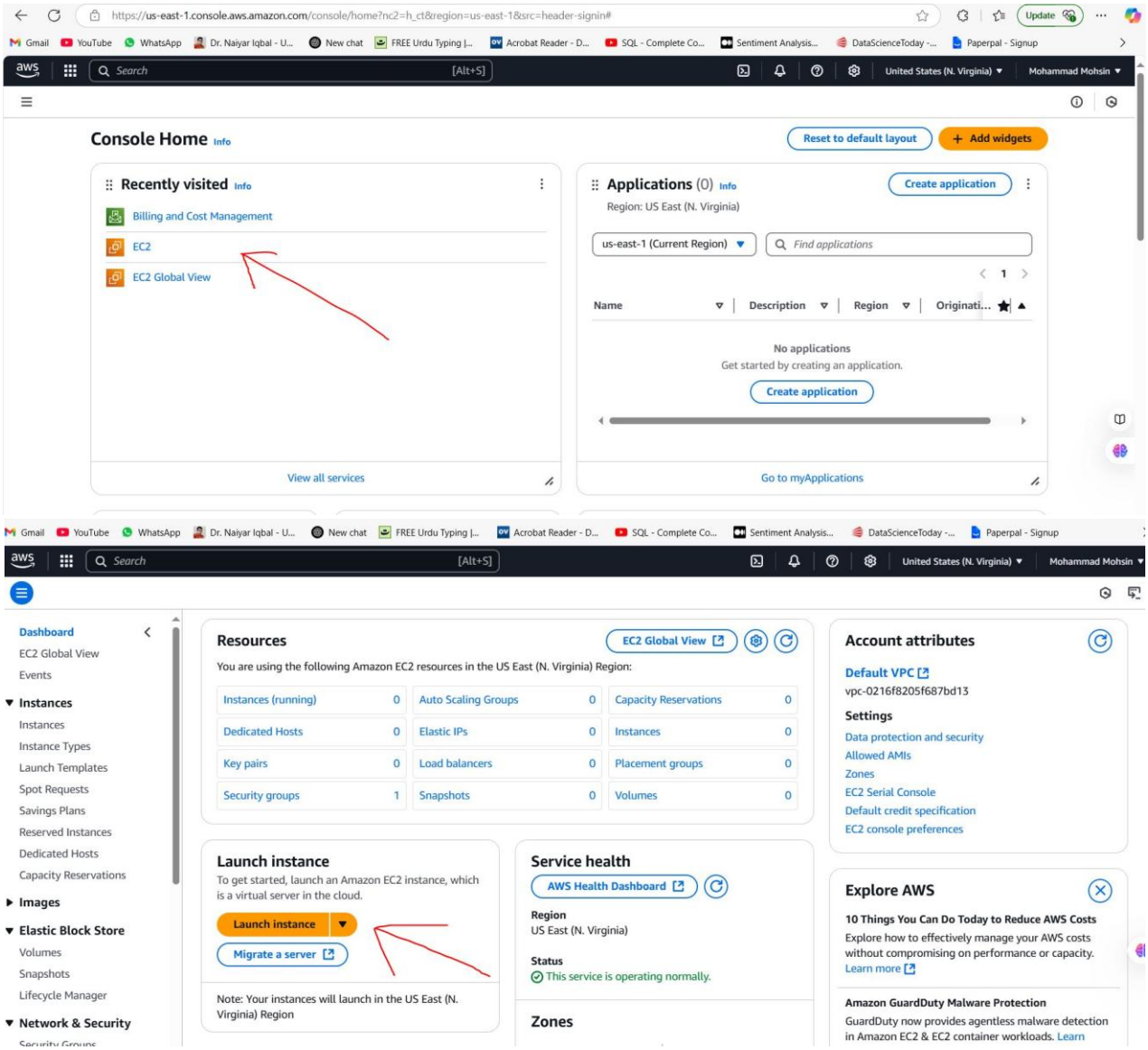




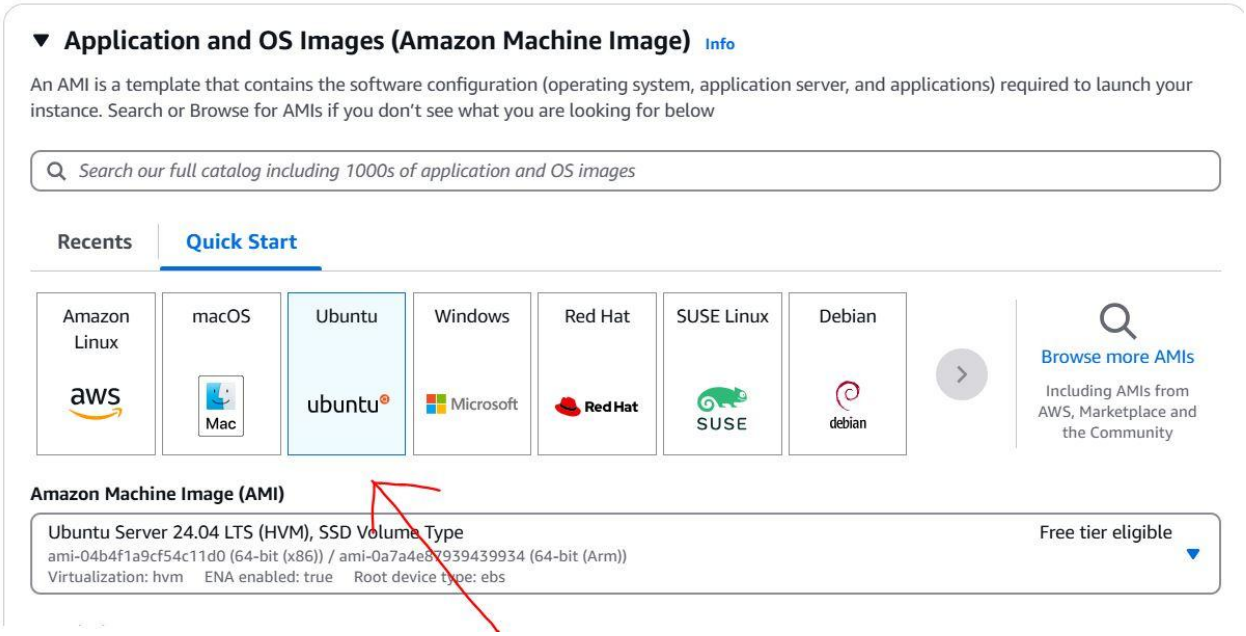


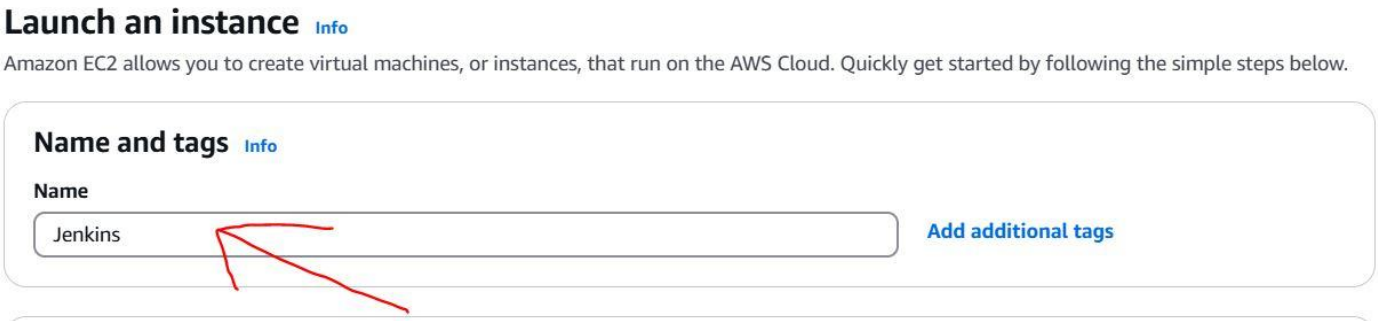
Step-2: After Creating the Account, Just Login as a ROOT User

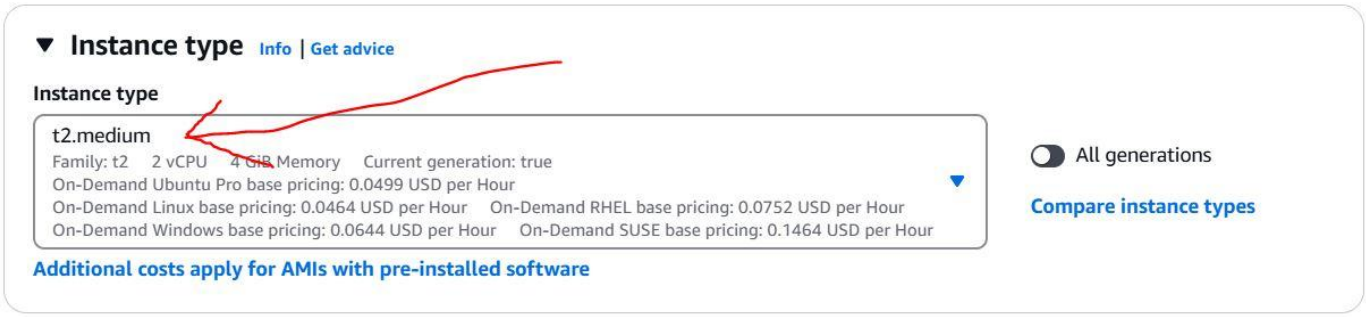
Step-3: After Login It will show your account -> Click on EC2 option -> Click on Launch Instance

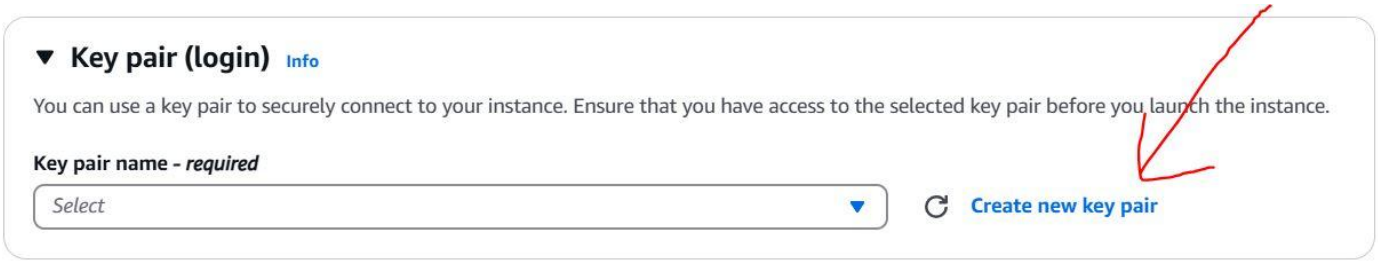


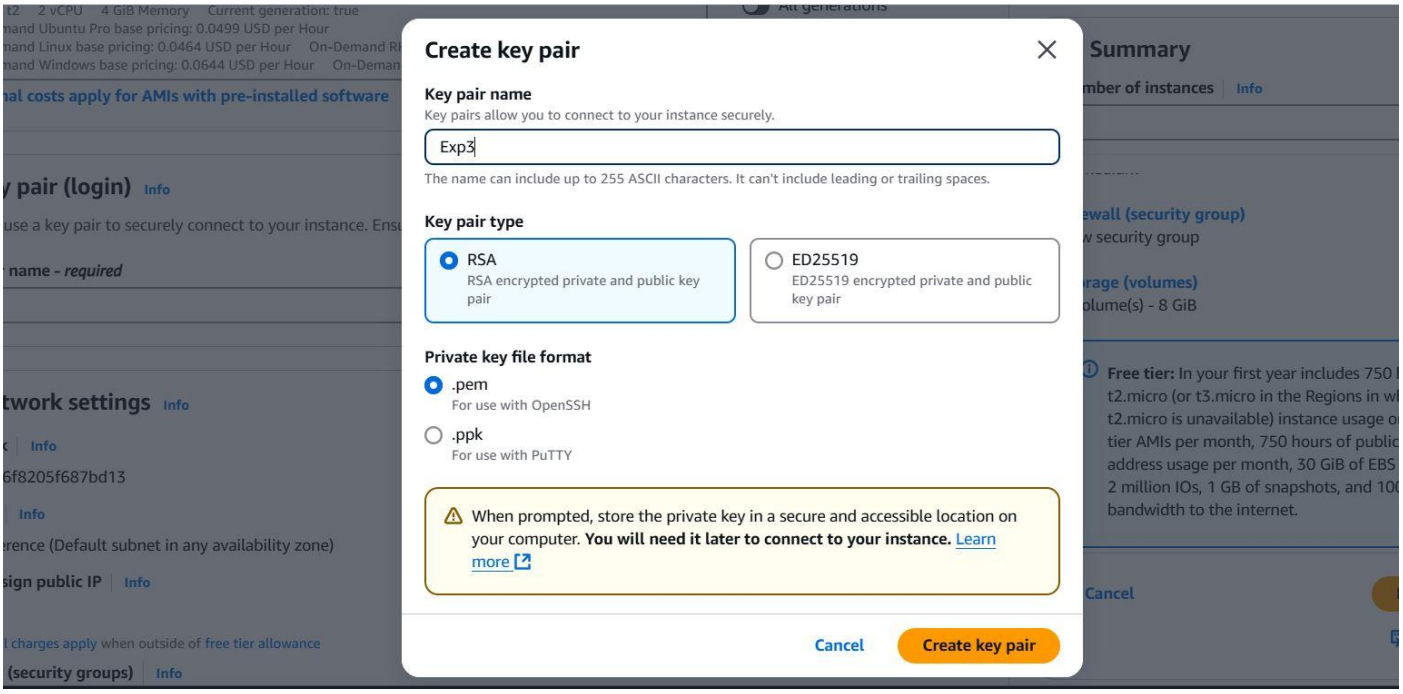
Step-4: After Clicking on Launch Instance It will ask Instance Name and Other things -> Write Instance Name as Jenkins -> Select Application and IOS Image as Ubuntu ->Scroll Down and Come on Instance Type Option and Select t2.Medium -> Now Come in Key Pair(Login) Section and Click on Create New Key Pair -> Write your Key Pair Name as Exp3 -> Select RSA -> Select .pem-> Click on Create Key Pair.



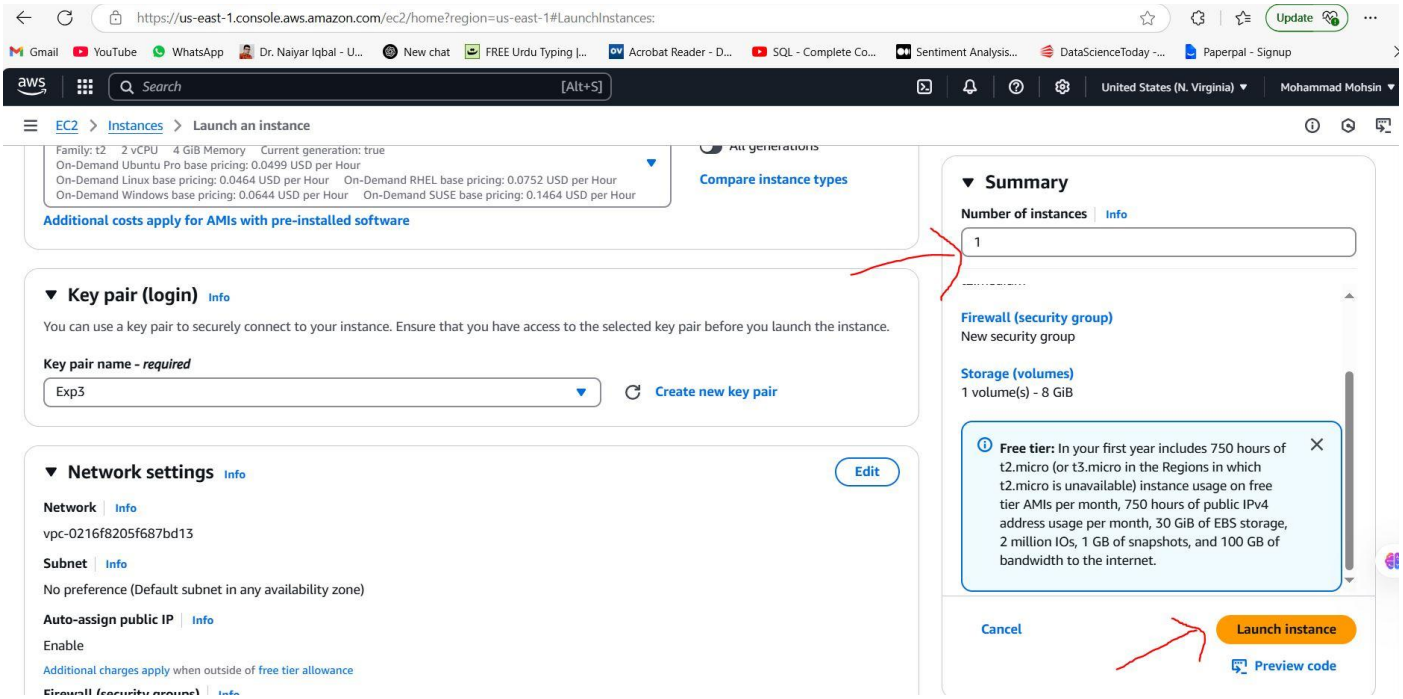




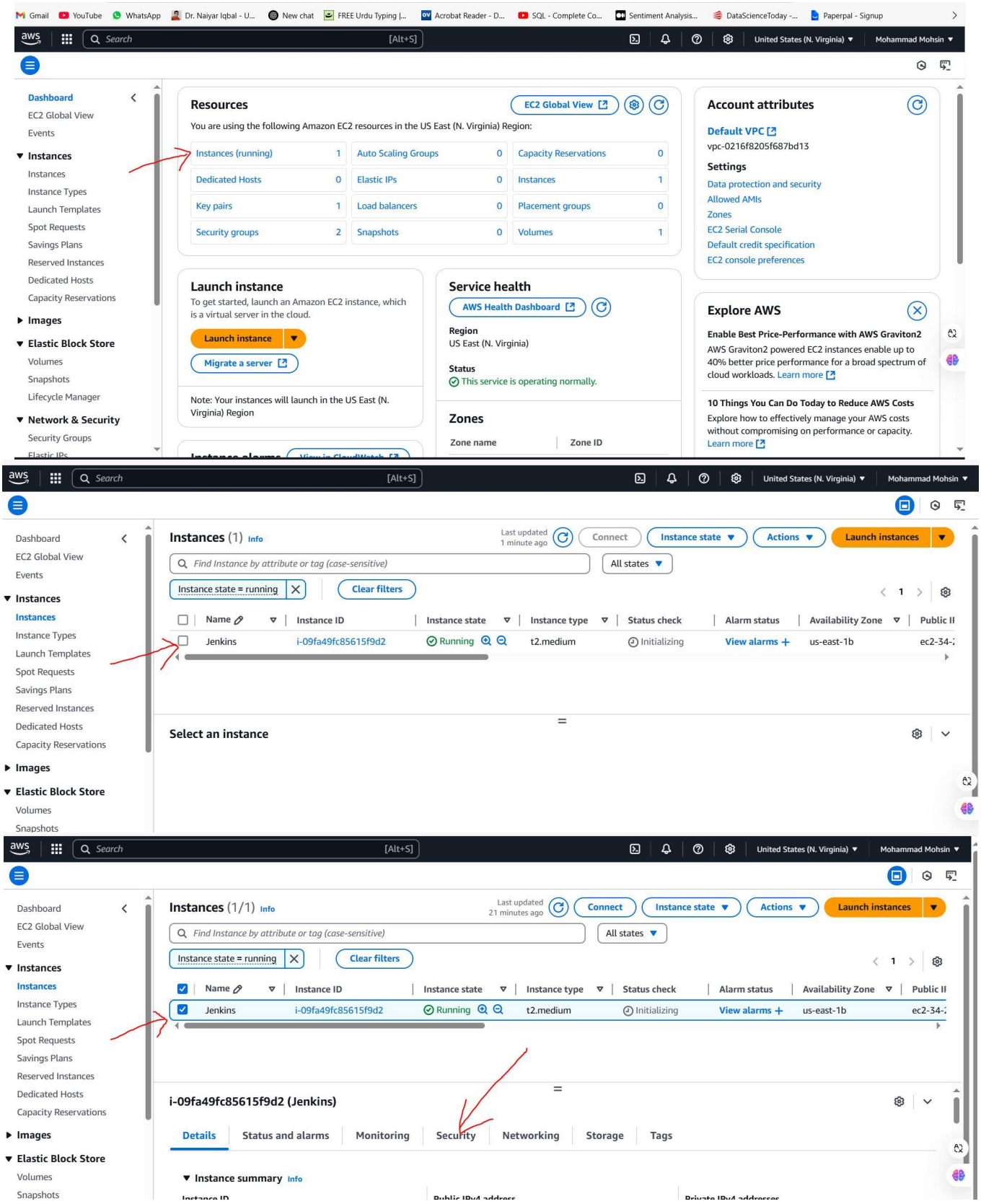




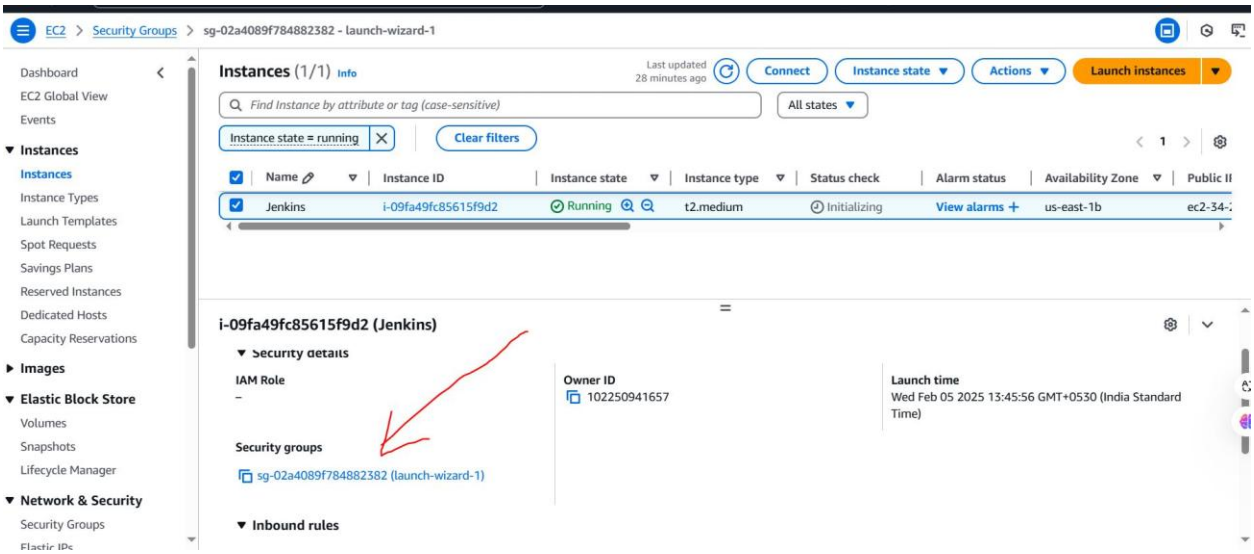
Step-5: After Click on Create Key Pair it will download aExp3.pem file ->After that in Right Side we have a Option Number of Instances Select 1 -> Click on Launch Instances (It will take some time and will create an instance).

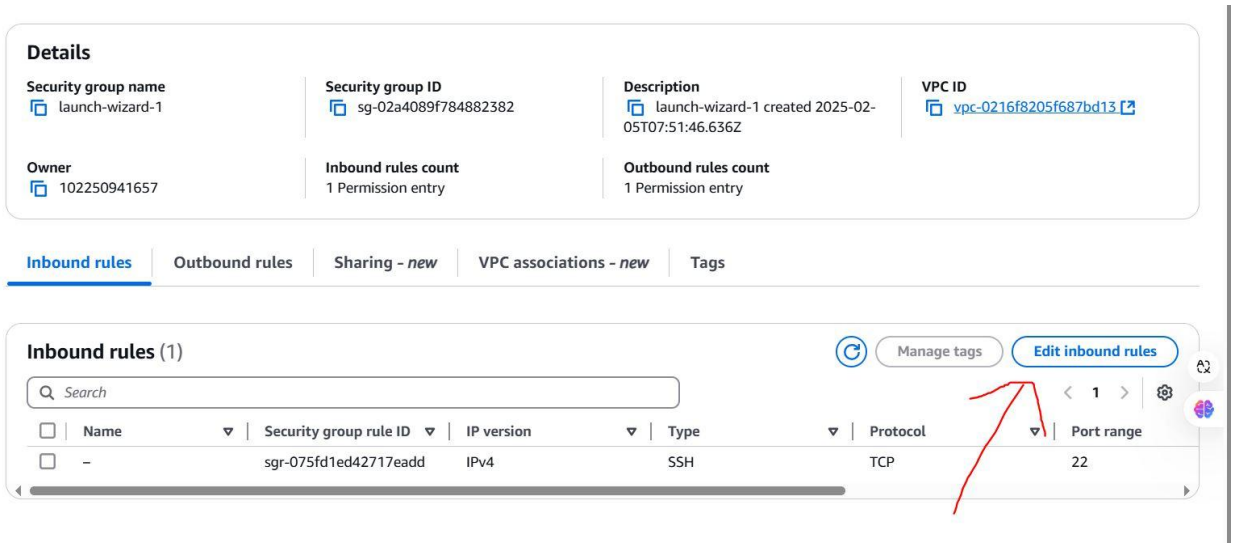


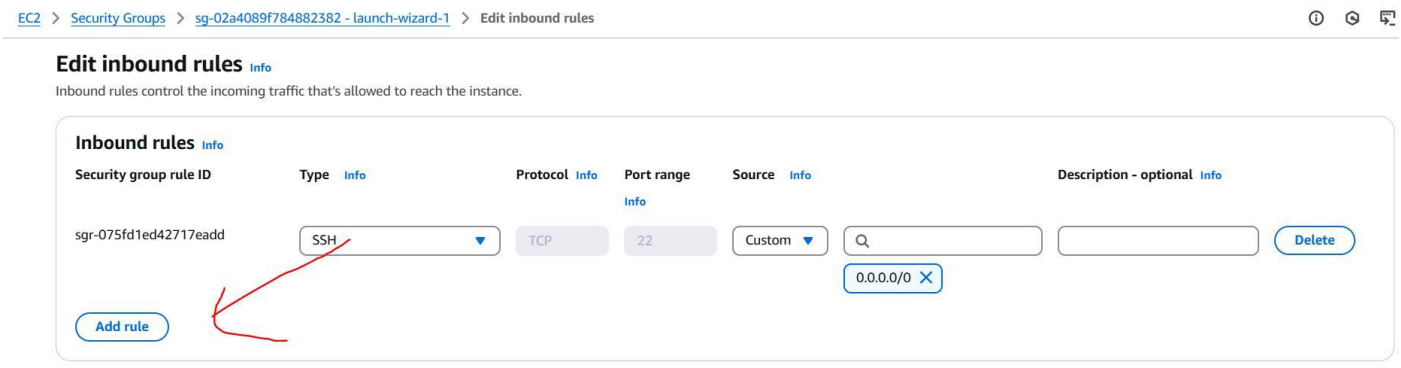
Step-6: After that Refresh the page -> Select the Created Instance -> Click on Security.


Resources
EC2 Global View
You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:
Instances (running) 1
Auto Scaling Groups 0
Capacity Reservations 0
Dedicated Hosts 0
Elastic IPs 0
Instances 1
Key pairs 1
Load balancers 0
Placement groups 0
Security groups 2
Snapshots 0
Volumes 1
Launch instance
To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.
Launch instance
Migrate a server
Note: Your instances will launch in the US East (N. Virginia) Region
Service health
AWS Health Dashboard
Region
US East (N. Virginia)
Status
This service is operating normally.
Zones
Zone name
Zone ID
Account attributes
Default VPC
vpc-0216f8205f687bd13
Settings
Data protection and security
Allowed AMIs
Zones
EC2 Serial Console
Default credit specification
EC2 console preferences
Explore AWS
Enable Best Price-Performance with AWS Graviton2
AWS Graviton2 powered EC2 instances enable up to 40% better price performance for a broad spectrum of cloud workloads. Learn more
10 Things You Can Do Today to Reduce AWS Costs
Explore how to effectively manage your AWS costs without compromising on performance or capacity.
Learn more
Instances (1) Info
Last updated 1 minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Instance state = running
Clear filters
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public II
Jenkins
i-09fa49fc85615f9d2
Running
t2.medium
Initializing
View alarms
us-east-1b
Select an instance
Instances (1/1) Info
Last updated 21 minutes ago
i-09fa49fc85615f9d2 (Jenkins)
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
Instance summary Info

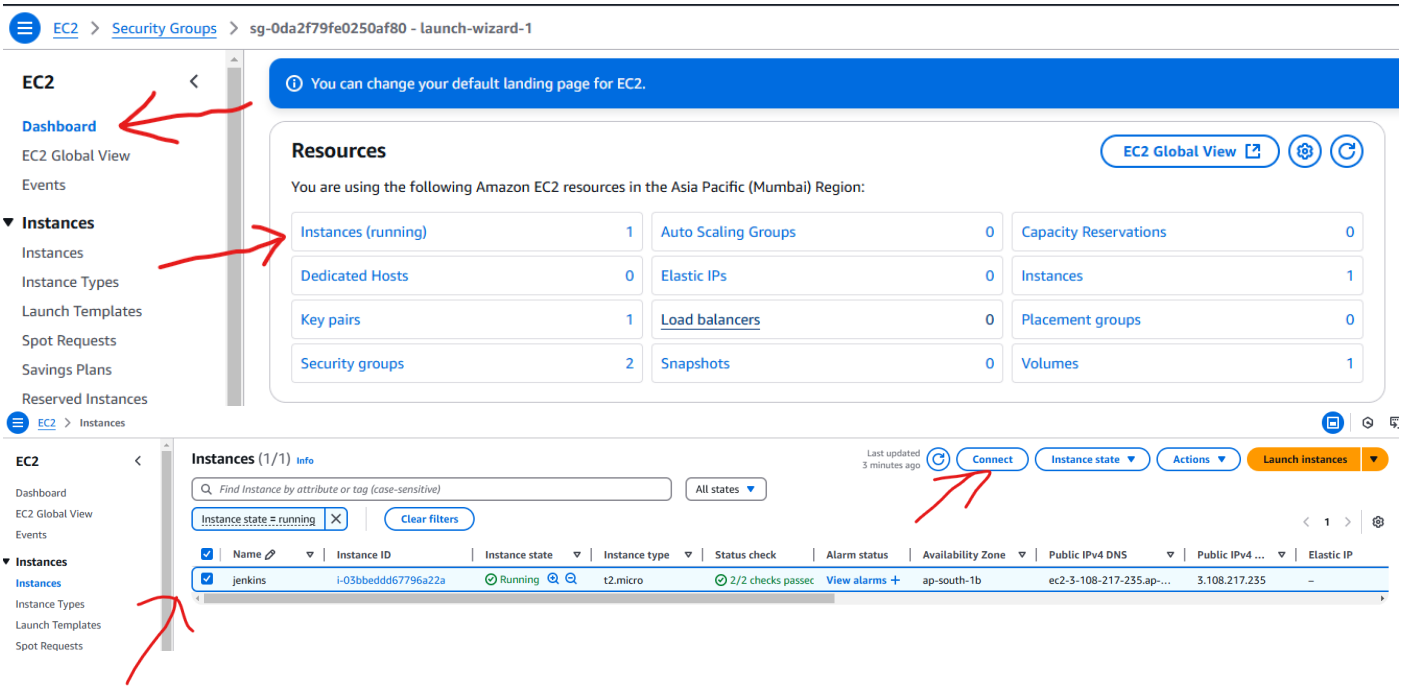
Step-7: After Clicking on Security -> It Will Show a Blue Link name as Security Group -> Click on that blue Link it will Open a Page -> Click On Edit Inbounds rule -> Click on Add Rule -> Add one Rule HTTP and Source type Anywhere IPV4 ->Addone More Rule Custom TCP, port range 8080 and Source Anywhere IPV4 -> Click on Save Rule



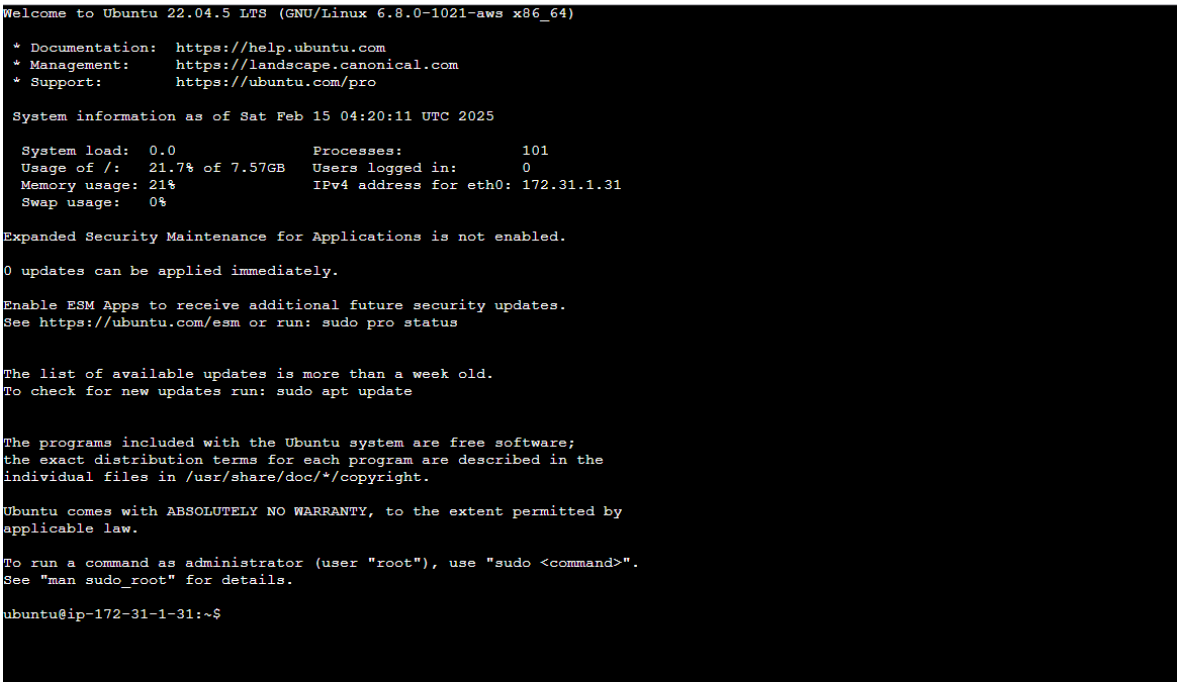




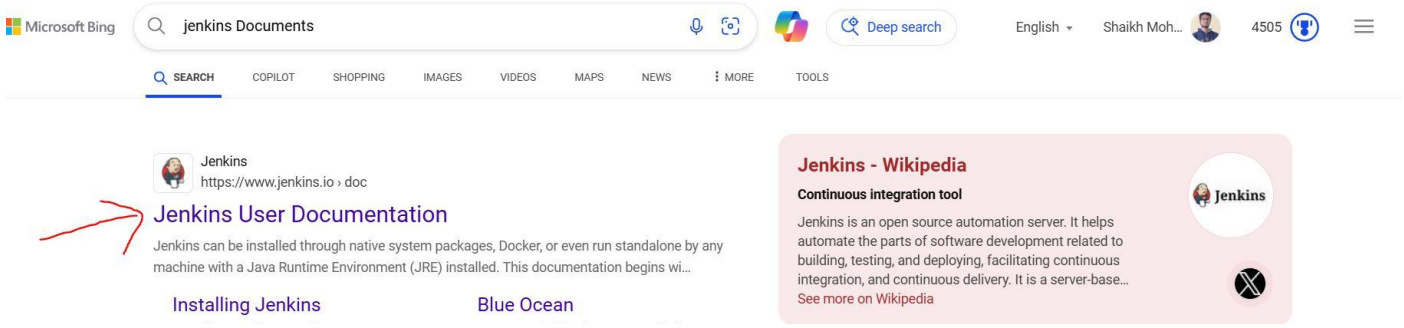
Step-7: After that click on Dashboard -> click on instance Running -> select Jenkins -> click on connect.

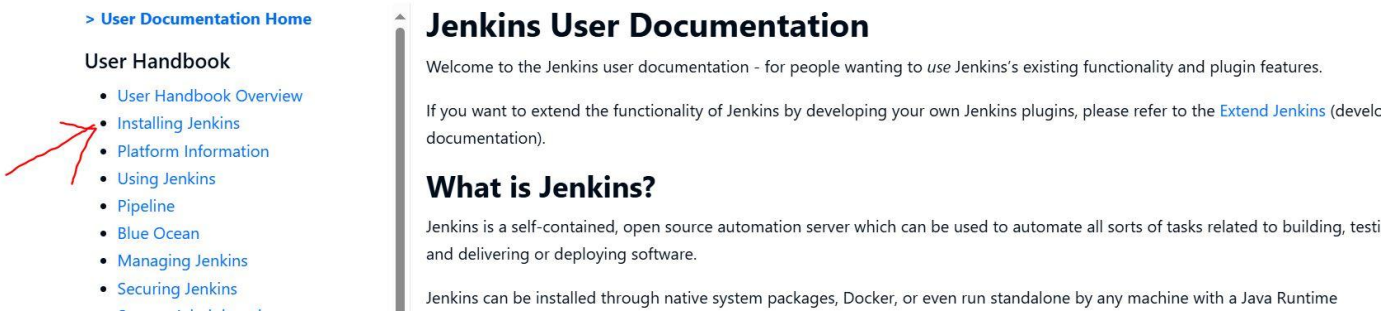


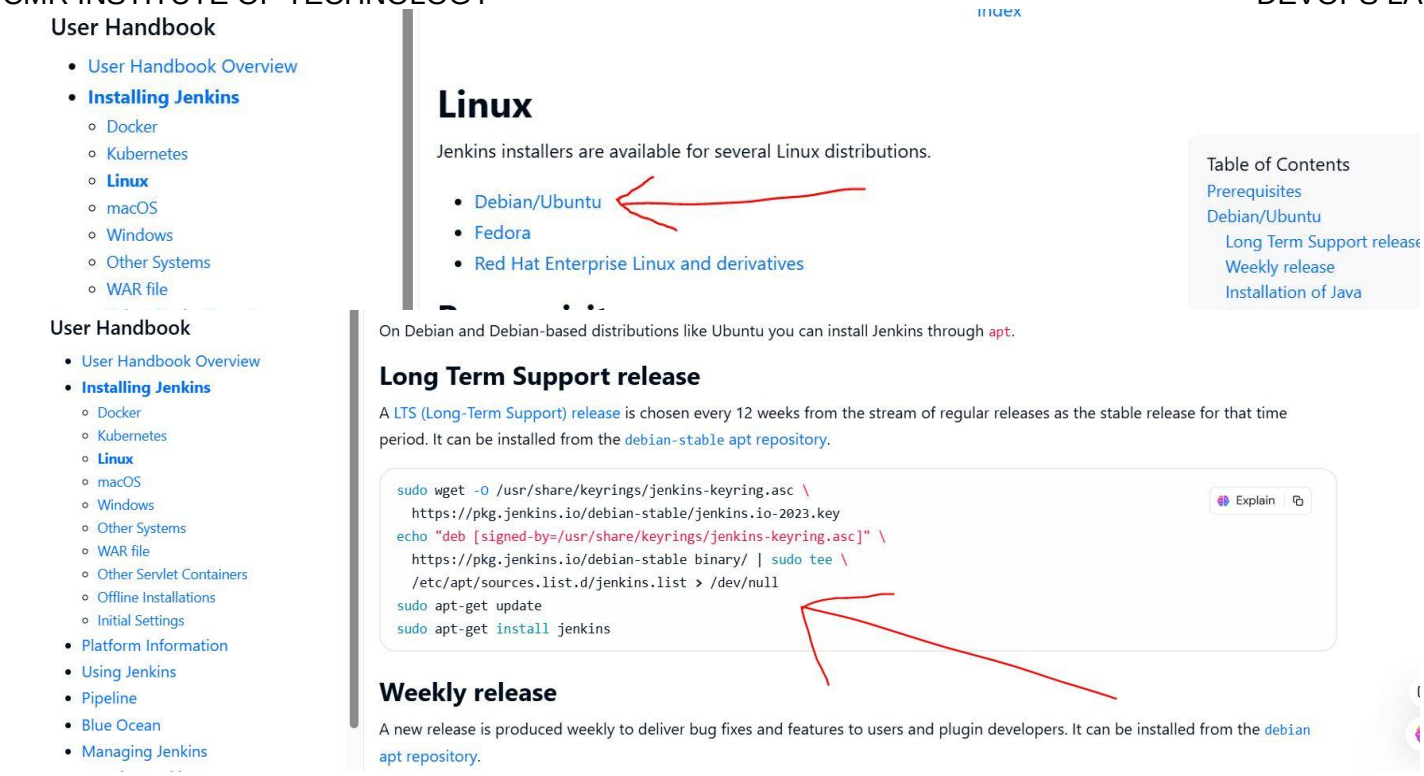
Step-8: After that click on connect it will open a Linux terminal -> just type clearcommand and follow the **setp-9** documents.



Step-9: Now You have to Setup Jenkins -> Search Jenkins Document in Any Browser ->Click on first Jenkins link -> Click on Installing Jenkins -> click on Linux -> Click on Debian/Ubuntu -> After that it will show the Linux Command







Step-10: Now Come on your MobaXtrem Application -> Type Clear and Hit Enter key ->it will clear your Command Screen -> Now copy the theLong Term Support release code till /dev/null -> Paste in your Linux Terminal and hit the Enter Key -> it will Download the Jenkins Support File

Code:

```
sudowget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]" \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list> /dev/null
```

Step-11: Clear your Screen -> Now Update your Project Using Given Code.

Code:

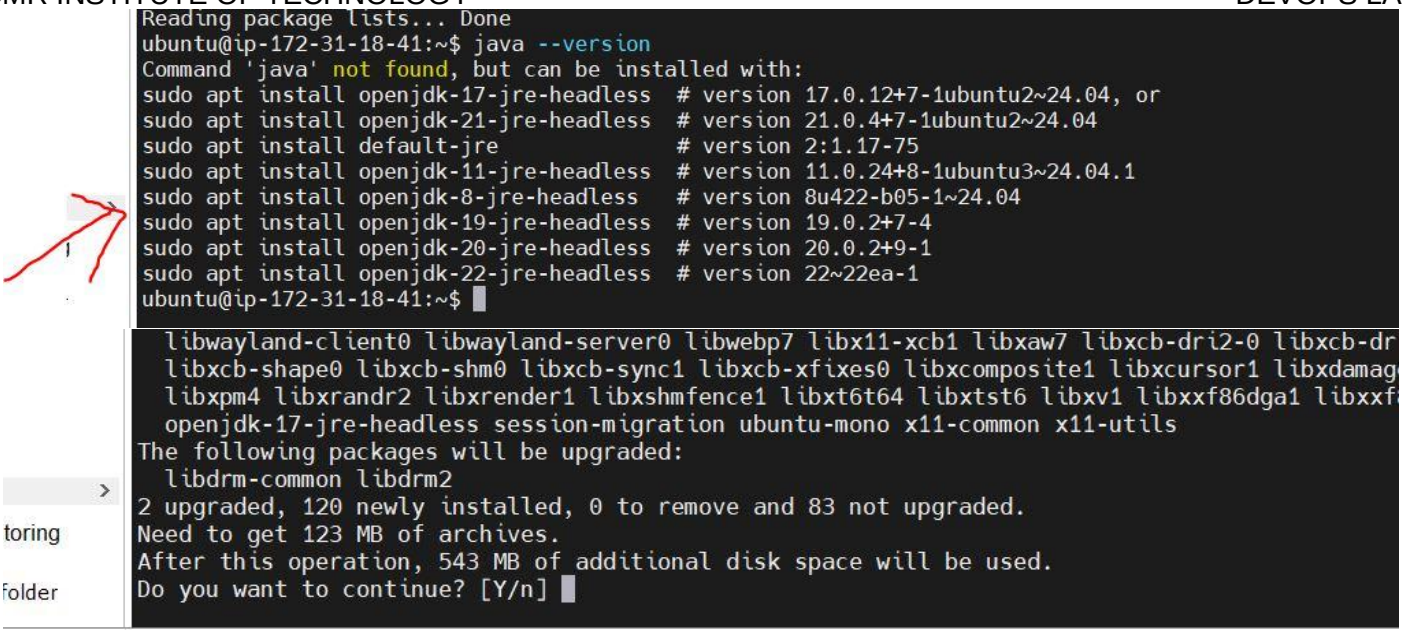
```
sudoapt-get update
```

Step-12: clear your screen ->Now Check Java version Using Command: java --version

Step-13: if It Show Java Not Found then it show the option install Java -> so install java using given Command -> it will ask Y/N just type Y and hit Enter -> It will take some time to download java.

Code:

```
sudoaptinstall fontconfig openjdk-17-jre
```



Step-14: After Downloading the Java, Clear your Screen using clear command -> Once again Update your Project Using Update Command (follow Step-14 command) -> now Install Jenkins Using Jenkins Command, i.e given code (It will ask again Y/N just type Y and Hit Enter) -> After Installing the Jenkins Once again Update your Project using Update Command Just Check Java and Jenkins Version Using (java –version and Jenkins –version Command)

Code: `Sudo apt-get install jenkins`

Step-15: Now Enable the Jenkins Server Using Given Command

Command: `Sudo systemctl enable jenkins`

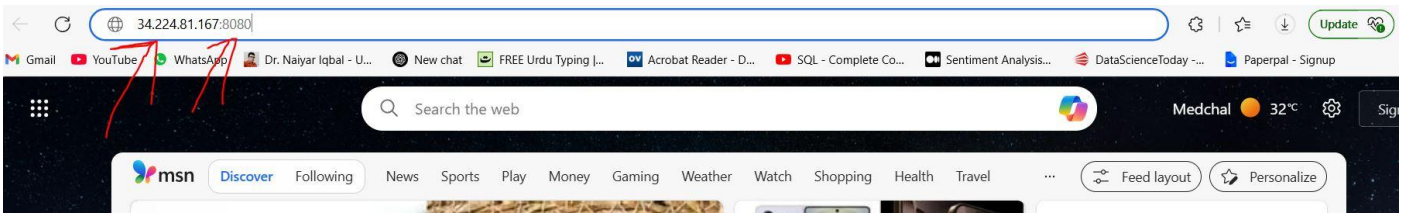
Step-16: After Enable the Jenkins Server Start Jenkins Server Using Given Command

Command: `Sudo systemctl start jenkins`

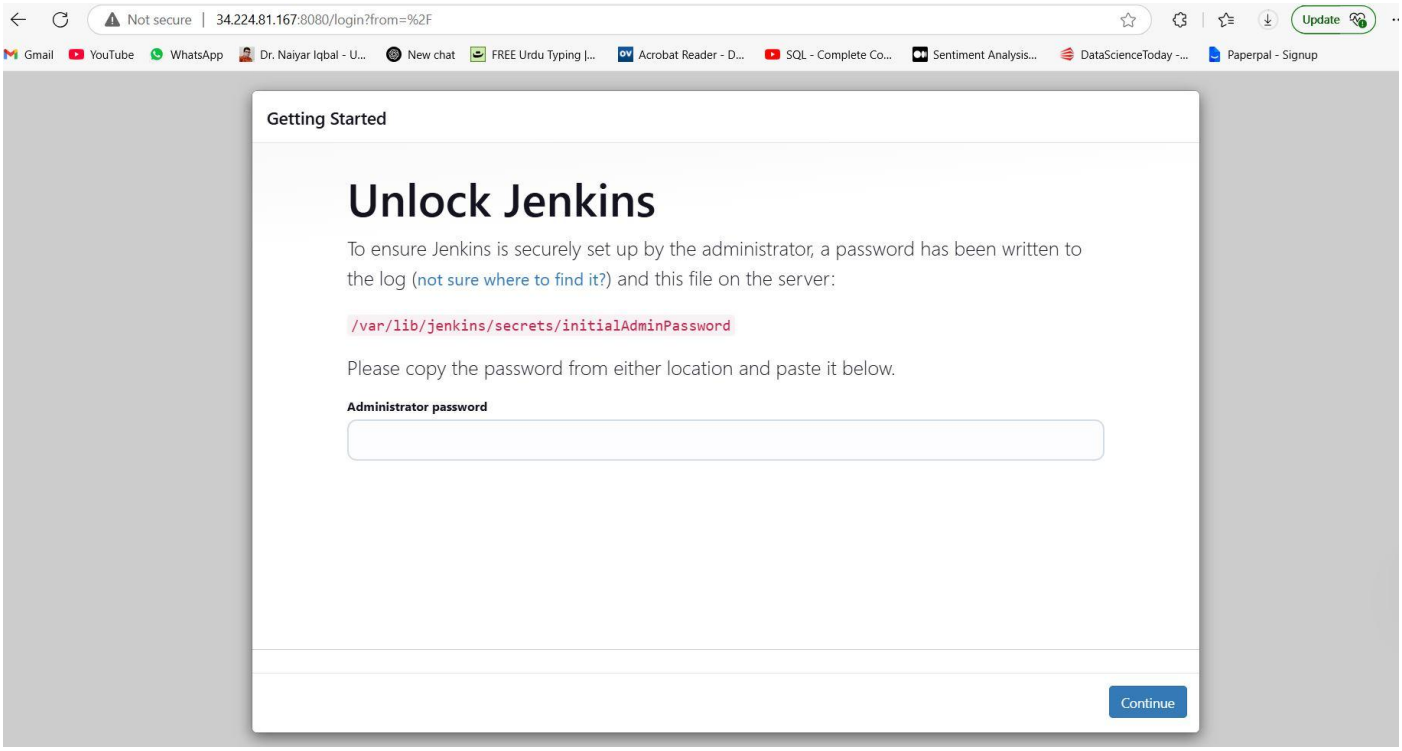
Step-17: After Starting the Jenkins Server Check Jenkins Server Status using Given Command. It will show the Status Active running ans show the status of memory, CPU etc.

Command: `Sudo systemctl status jenkins`

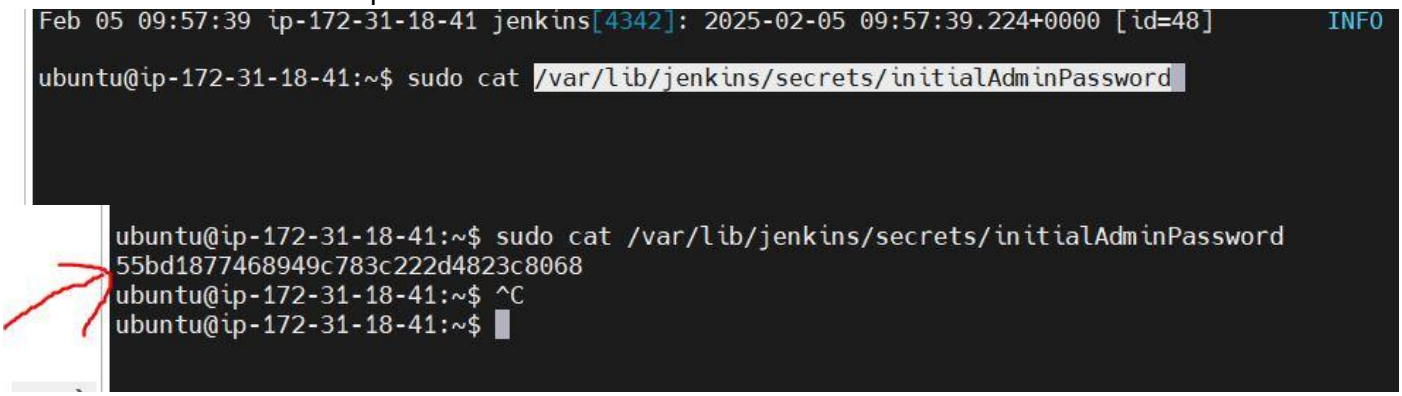
Step-18: Now Open your Any Browser and Search the Jenkins Server using Instance IP and Custom Port Number (Ip= <your instance ip> port is 8080)follow the given snap



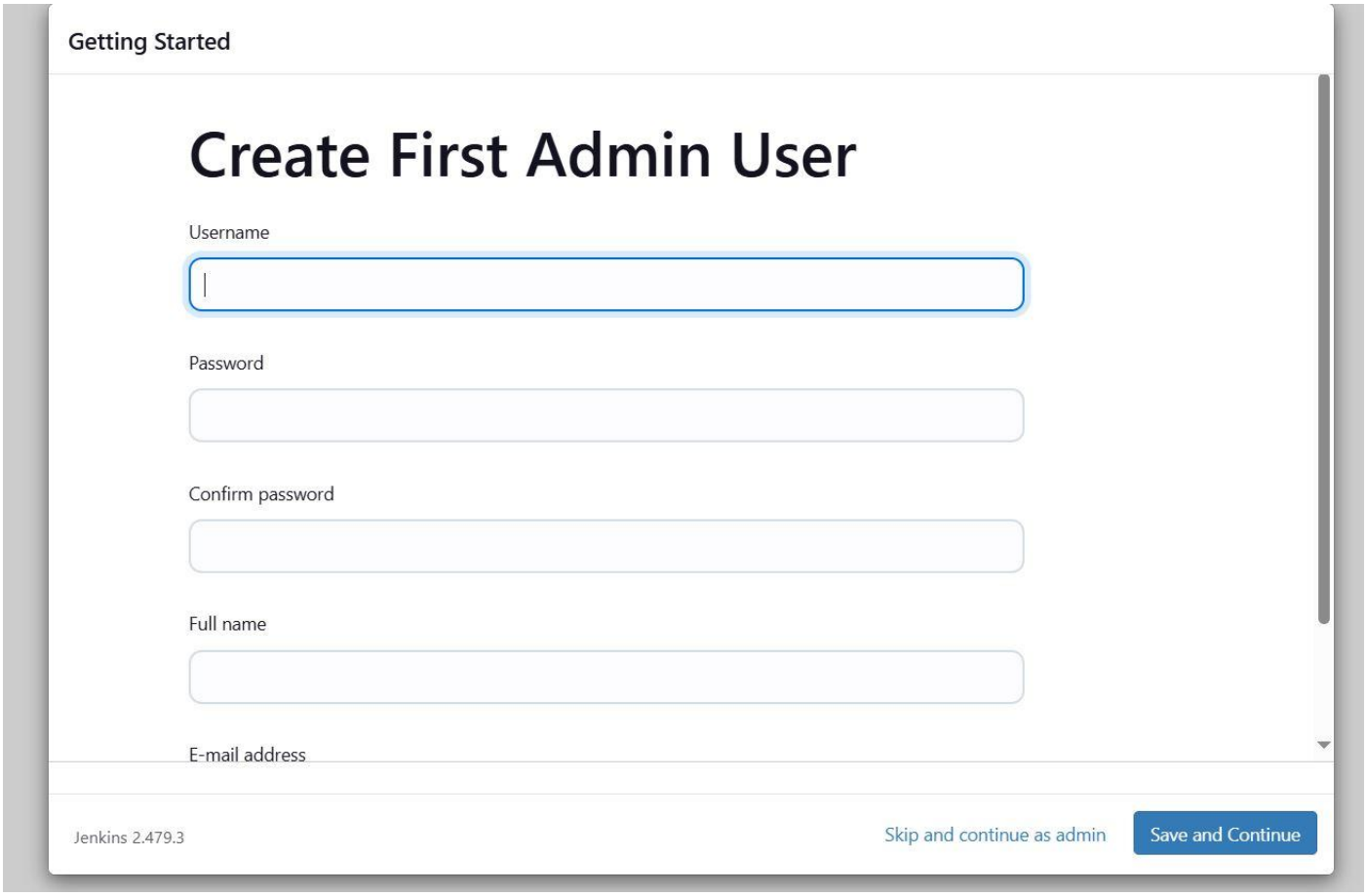
Step-19: It will start the Jenkins Server, show some path with red colorand Ask the Administrator Password like Given Image.



Step-20: Copy the RED color path and Paste in your Linux Terminal followed by sudo cat command and hit the Enter it will show 64-bit Alpha-Nemuric code -> Copy that code and paste in the place of password in your browser -> click on continue option.

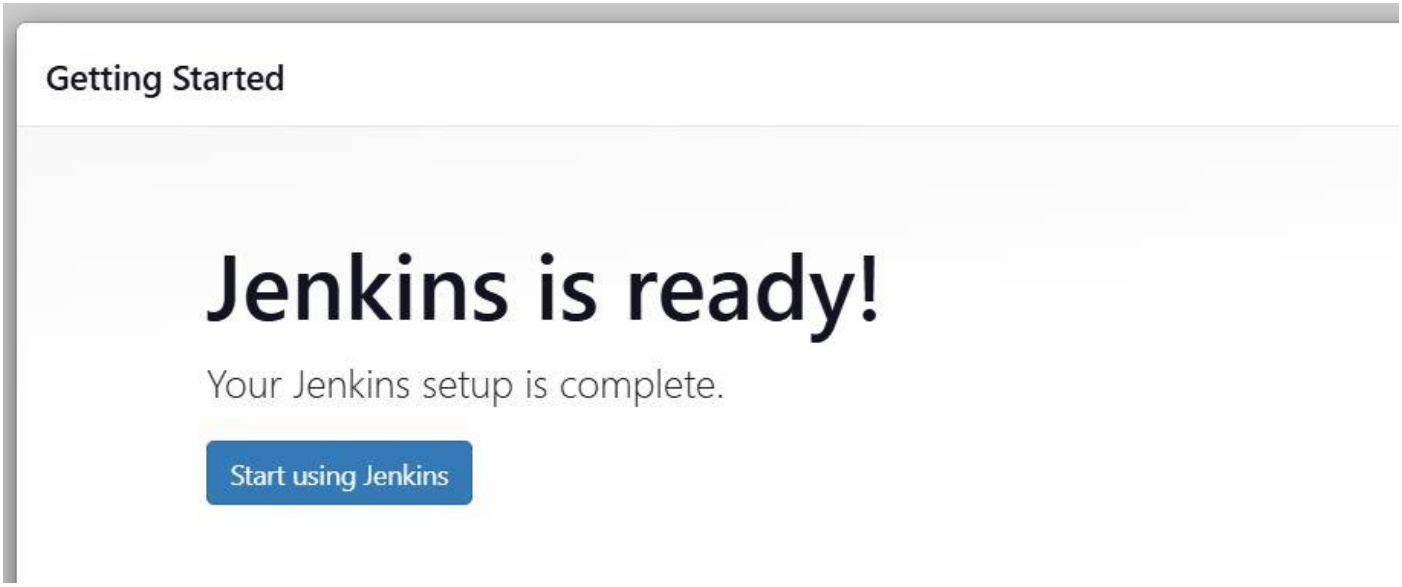


Step-21: After clicking on continue option it will show two option for installing the pluging-> Just click on installed suggested plugin -> it will take some time for install all plugins -> After installing all plugins, it will ask Creating an account usinguser ID and password so create an account using user id and password (fill all related field). -> Click on Save and Continue



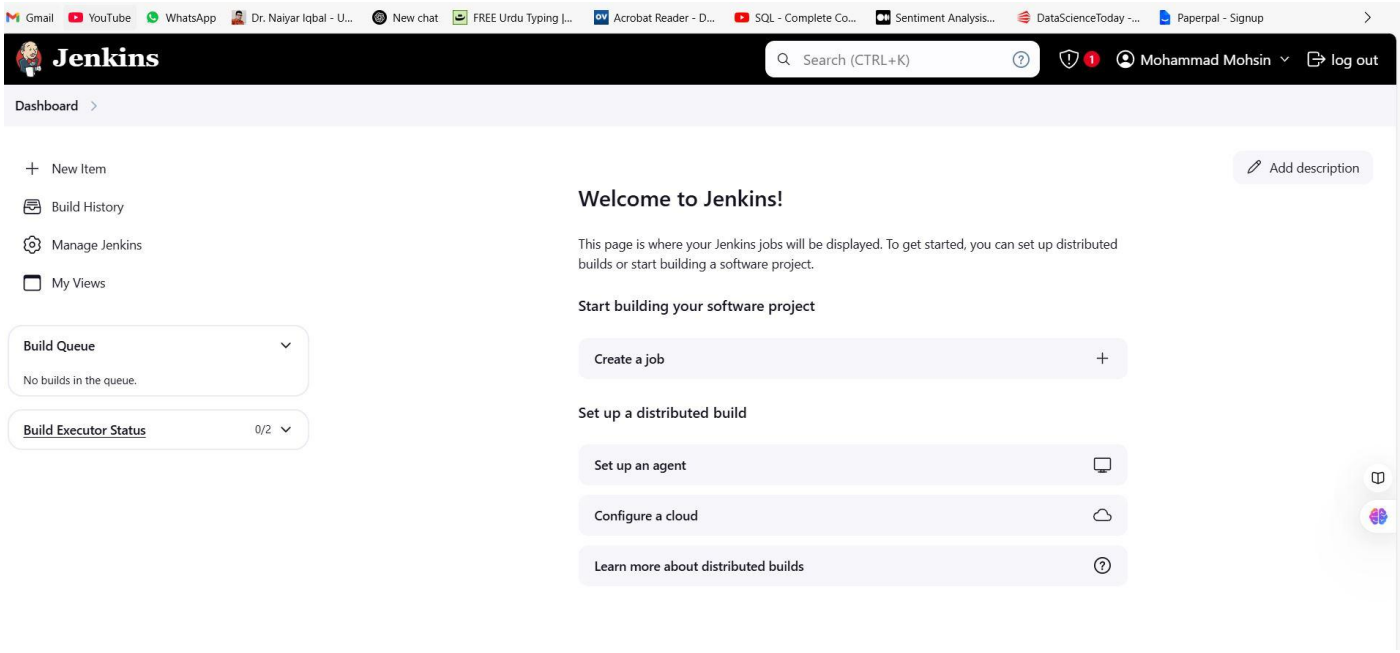
Step-22: After click on Save and continue -> it show some links and show the option Save & Finish -> Click on Save & Finish -> After that it show Jenkins in Ready and show a option Start using Jenkins -> just click on it -> It will open a Jenkins Dashboard.

Output:-



OUTPUT

Your Output is the Jenkins Dashboard



Experiment-4

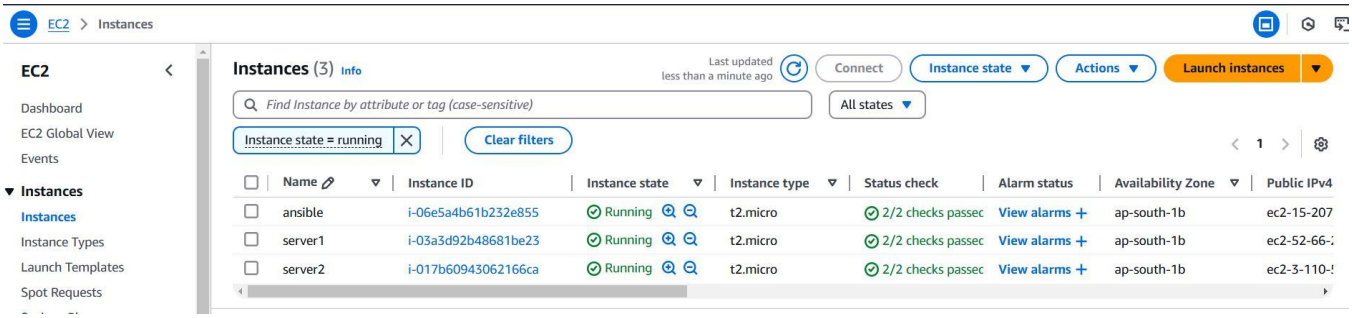
Aim:Ansible Setup and SSH key

(Note: All Blue Words is a command, just copy and paste**)**

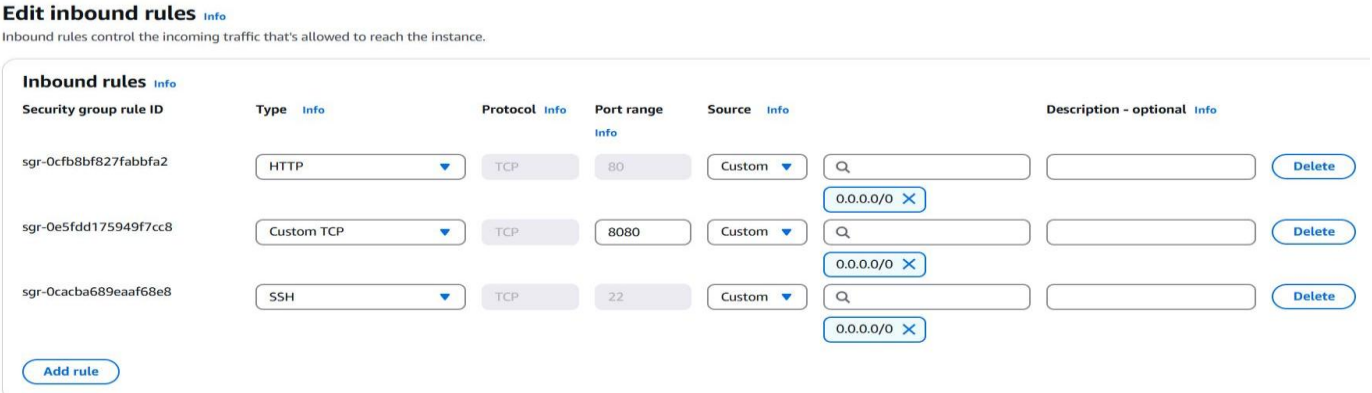
Require Software & Tools: AWS Account, Puttygen software, Wincp Software.

Procedure:

Step-1: Login AWS and Create three Instances on AWS account using ubuntu OS and save key pair also.



Step-2: change the 2nd and 3rd instance name as a server1 and server2 (you can named anything) -> Edit inbound rules of 1st instance (ansible). Edit inbound rules like given details.



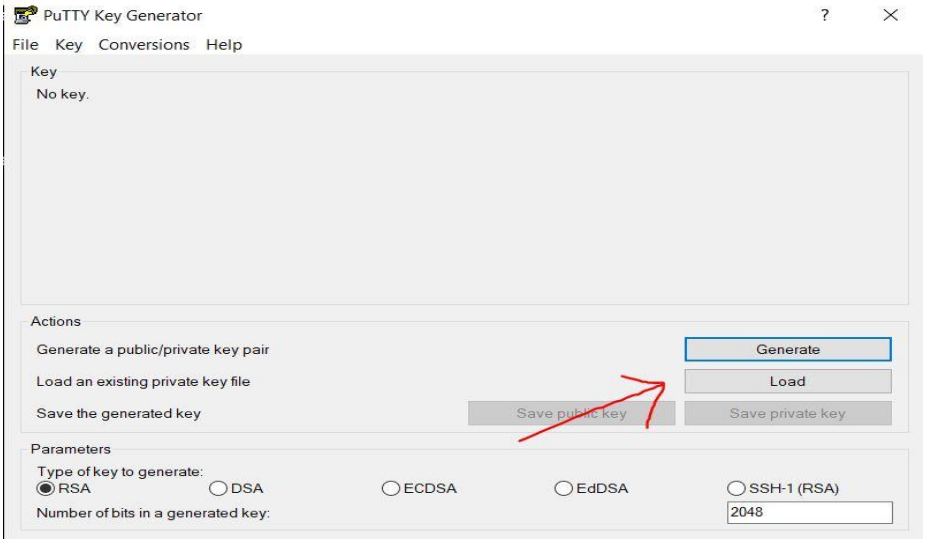
Step-3: Now come on instance and select 1st instance (ansible) and click on connect. It will open a linux terminal -> type Clear command.

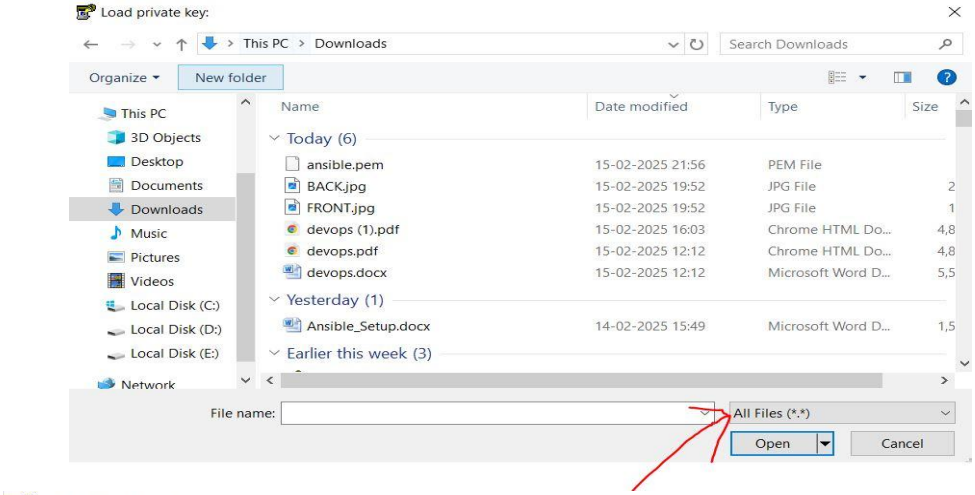
```
  Usage of /:   24.9% of 6.71GB   Users logged in:       0
  Memory usage: 20%               IPv4 address for enX0: 172.31.13.107
  Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-13-107:~$
```

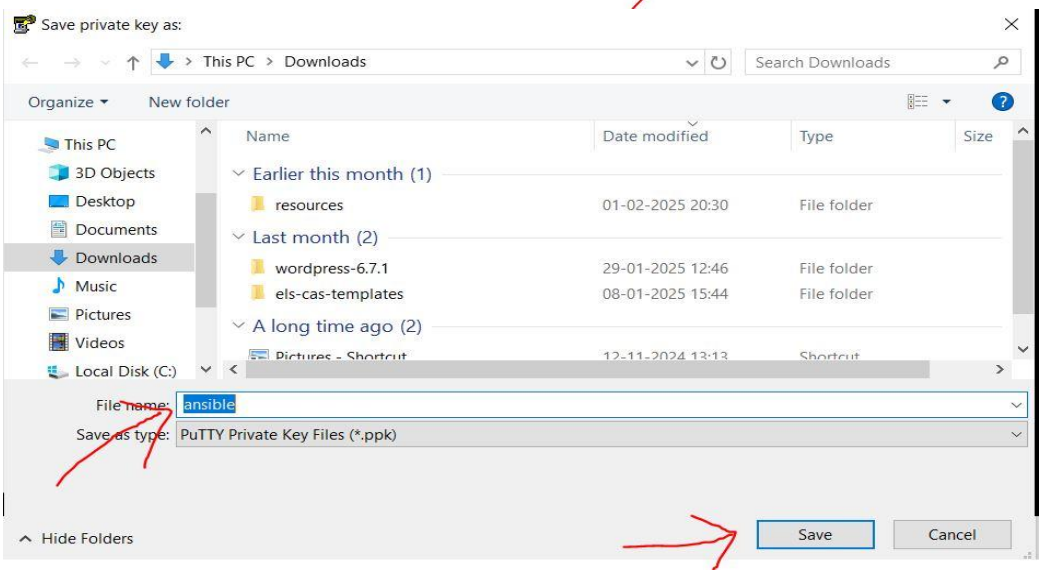
i-06e5a4b61b232e855 (ansible)

PublicIPs: 15.207.222.240 PrivateIPs: 172.31.13.107

Step-4: type command sudo apt update and hit enter.
Step-5: type command sudo apt install ansibleand hit enter -> it will ask yes/no type yes and hit enter.
Step-6: type command sudo apt install openssh-client and hit enter.
Step-7: type command sudo apt install openssh-server and hit enter.
Step-8: type command cd ~/.ssh/ and hit enter.
Step-9: type command ls and hit enter.
Step-10: type command cd and hit enter.
Step-11: type command cd - and hit enter. (it will show ssh path)
Step-12: now againtype command cd and hit enter.
Step-13: open puttygen software -> click on load -> select as all files -> select ansible.pem(your key pair) -> click on save and -> click on save private key and save the file with .ppk extension.

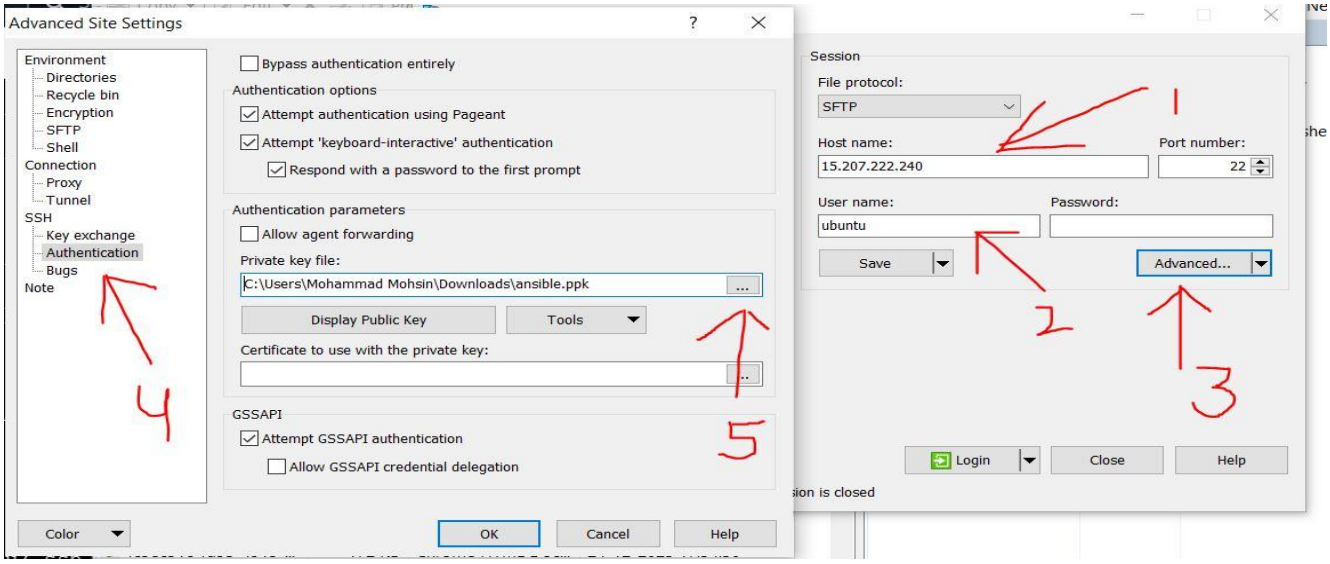






Step-14: Now open winCP software -> it will ask for host name just copy and paste your ansibleinstance Ip-> In the place of user name type Ubuntu -> click on advance -> select authentication -> in the place of private key select your downloaded .ppk file - > click on Ok -> click on Login. (it will connect to your server and show a Ubuntu wincp window)

Note: follow 1 -> 2 -> 3 -> 4 -> 5 arrow.



Step-15: after connecting to your server it will show two directory (one is your local disk, another is ssh directory) -> right click in ssh directory -> click on new -> select directory -> create a folder name as key -> now select your .pemfile from left side local disk directory and drag in your key folder.

Step-16: Now come on in your terminal -> type cd command and hit enter -> type lscommand hit enter, you will see key.

Step-17: Now type cd key/ and hit enter, you will see ansible.pem

Step-18: Now type cpansible.pem ~/.ssh/ command and hit enter -> after that type cd hit enter -> after that ls ~/.ssh/ and hit enter, you will see ansible.pem and authorized_key

Step-19: Now create one more directory using mkdiransible-script command and hit enter-> select directory using cd ansible-script/ command and hit enter.

Step-20: Now write vi inventory.ini command and hit enter -> it will open your Vim Editor -> copy the given command and paste in your Vim editor -> after that in the place of [server1-ip] copy and paste server1 instance public ip and in the place of [server2-ip] copy and paste server2 instance public ip -> after that save this vim editor using :wq! Command and hit enter

Command:

```
[webservers]
server1 ansible_host=[server1-ip] ansible_user=ubuntuansible_ssh_private_key_file=
/home/ubuntu/.ssh/ansible.pem
server2 ansible_host=[server2-ip] ansible_user=ubuntuansible_ssh_private_key_file=
/home/ubuntu/.ssh/ansible.pem
```

Step-21: Now write the command vi playbook.ymland create a yml file -> it will again open your Vim editor -> copy and paste the given command in your vim editor after save and exit using command :wq! and hit enter.

Command:

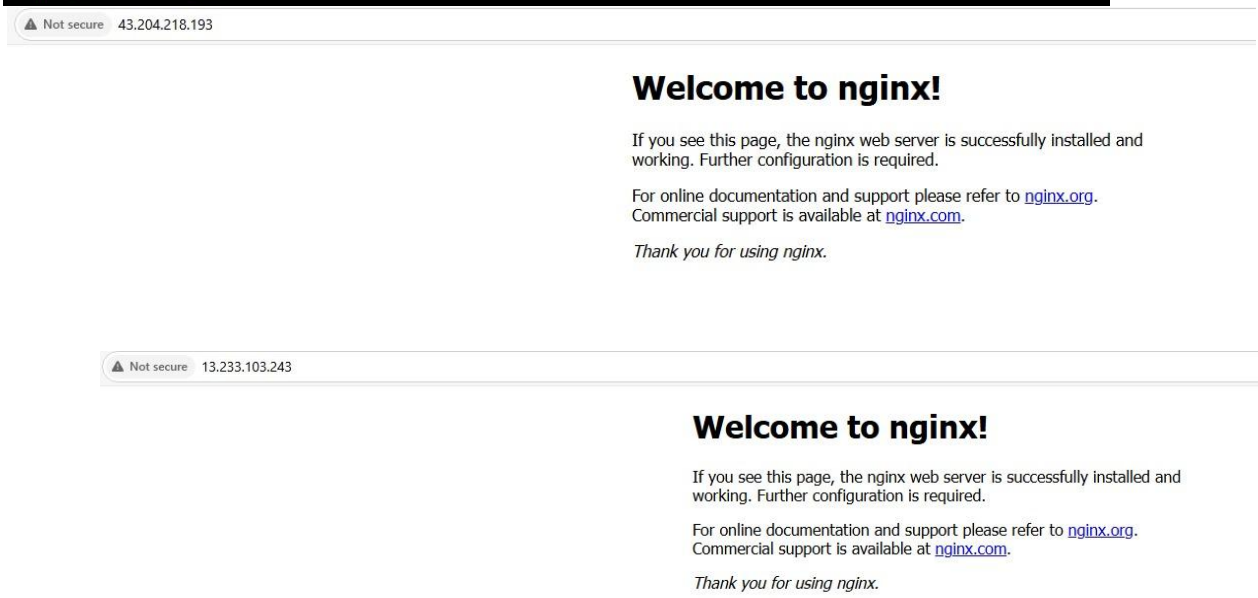
```
-- name: Install Nginx on AWS EC2
hosts: webservers
become: yes
tasks:
  - name: Install Nginx
apt:
name: nginx
state: present
when: ansible_os_family == "Debian"

  - name: start and enable nginx server
systemd:
name: nginx
state: started
```

Step-22: Now you can check your .ini file and .yml file using cat inventory.ini command and cat playbook.ymlcommand.
Step-23: Now type ansible-playbook –i playbook.ymlcommand and hit enter.
Step-24: Now type ansible-playbook –i inventory.ini playbook.ymlcommand and hit enter -> it will ask for type yes and again yes and again yes or may be it will show server Unreachable.
Step-25: Now type cd and hit enter -> after that cd ~/.ssh/ hit enter, you will see ansible.pemauthorized_key and known_hosts.
Step-26: Now again run the command ansible-playbook –i inventory.ini playbook.yml. it will run your server or may be it will show again an error server unreachable.
Step-27: If server is reachable is then check your server using server ip otherwise -> write command chmod 400 ~/.ssh/ansible.pemhit enter -> after that ls –l ~/.ssh/ and hit enter, it will show Ubuntu file.
Step-28: Now again run the command ansible-playbook –i inventory.ini playbook.yml. nowit will run your server properly. After that you can check your server in any browser using server ip.

OUTPUT:-

```
ubuntu@ip-172-31-4-180:~$ sudo apt-get install -y ansible
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

```
ubuntu@ip-172-31-4-180:~$ ansible-playbook playbook1.yml --syntax-check

playbook: playbook1.yml
ubuntu@ip-172-31-4-180:~$ vim playbook1.yml
ubuntu@ip-172-31-4-180:~$ ansible-playbook playbook1.yml --syntax-check

playbook: playbook1.yml
ubuntu@ip-172-31-4-180:~$ ansible-playbook playbook1.yml -b

PLAY [Configure tomcat9] ***********************************************************************************************************************************************************

TASK [Gathering Facts] *************************************************************************************************************************************************************
[WARNING]: Platform linux on host 172.31.7.139 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.7.139]
[WARNING]: Platform linux on host 172.31.5.200 is using the discovered Python interpreter at /usr/bin/python3.10, but future installation of another Python interpreter
could change the meaning of that path. See https://docs.ansible.com/ansible-core/2.17/reference_appendices/interpreter_discovery.html for more information.
ok: [172.31.5.200]

TASK [Install tomcat9] *************************************************************************************************************************************************************
ok: [172.31.7.139]
ok: [172.31.5.200]

TASK [Change port no of tomcat 8080 to 9090] ***************************************************************************************************************************************
ok: [172.31.7.139]
ok: [172.31.5.200]

PLAY RECAP *************************************************************************************************************************************************************************
172.31.5.200               : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
172.31.7.139               : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```



Experiment-5

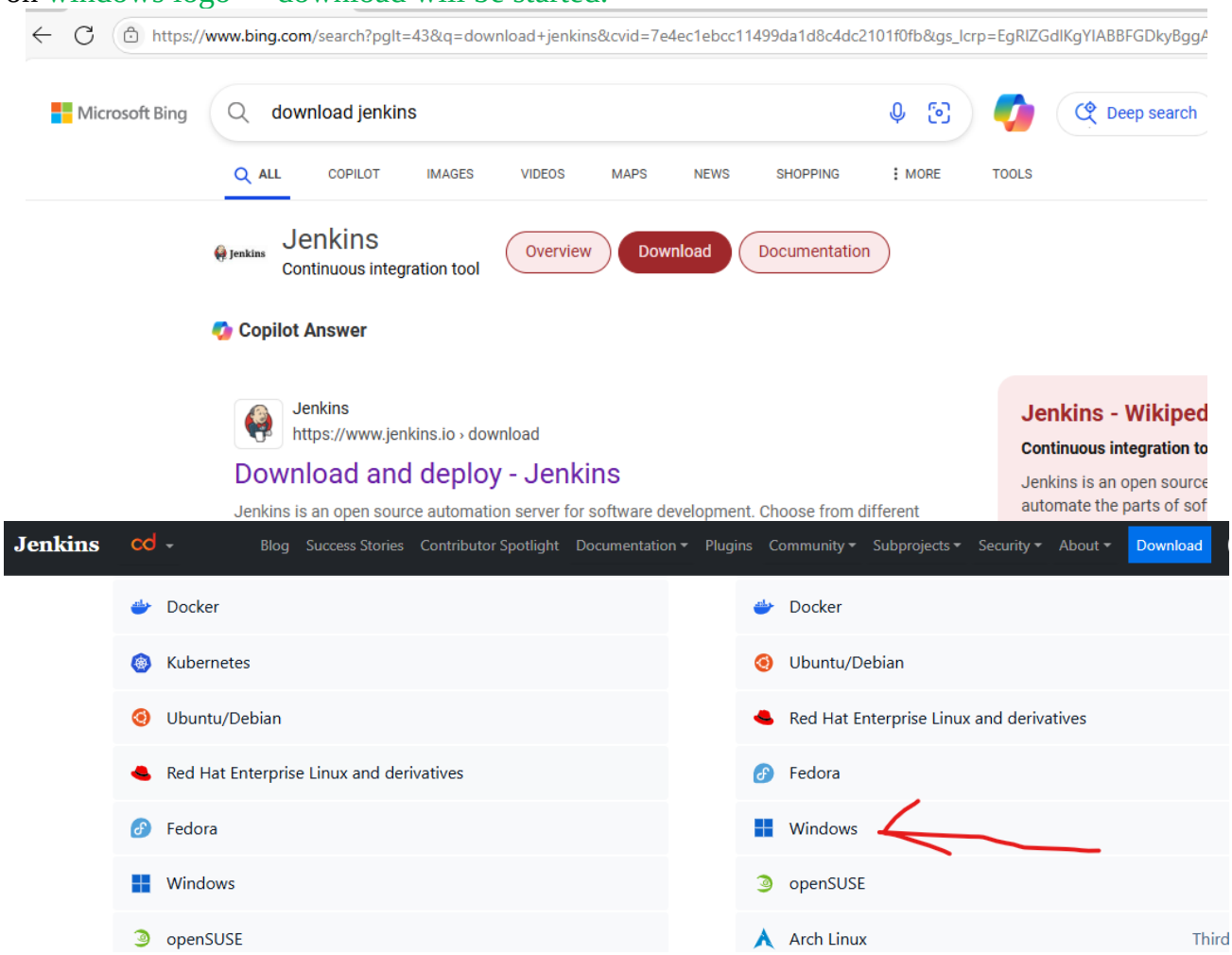
(Note: All Blue Words is a command, just copy and paste**)**

Aim: Build War file in Devops

Require Software & Tools: Jenkins, Jdk-17 or jdk-21, Git bash.

Procedure:

Step-1: First open any browser and Search download Jenkins -> click on first link -> scroll down and click on windows logo -> download will be started.

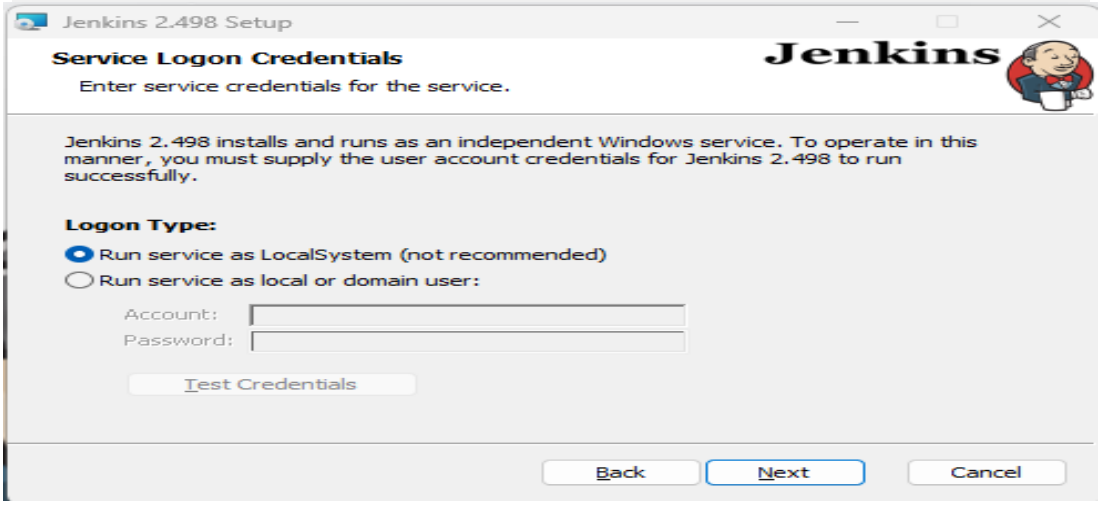


Step2: First check java jdk in your system, if java is available check the java version using cmd. otherwise download and install jdk-17.

```
C:\Users\student>java --version
java 17.0.12 2024-07-16 LTS
Java(TM) SE Runtime Environment (build 17.0.12+8-LTS-286)
Java HotSpot(TM) 64-Bit Server VM (build 17.0.12+8-LTS-286, mixed mode, sharing)

C:\Users\student>
```

Step-3: Download Git Bash 64-bit Standalone Installer, and install git bash in your system. After installation set the git.exe path in your runtime environment.

Step-4: Now install Jenkins in your system -> click on next and again next -> select run service as a local system -> click on next and click on Test port -> click on next and click on change and set the java jdk path -> click on next and again next and click on install.

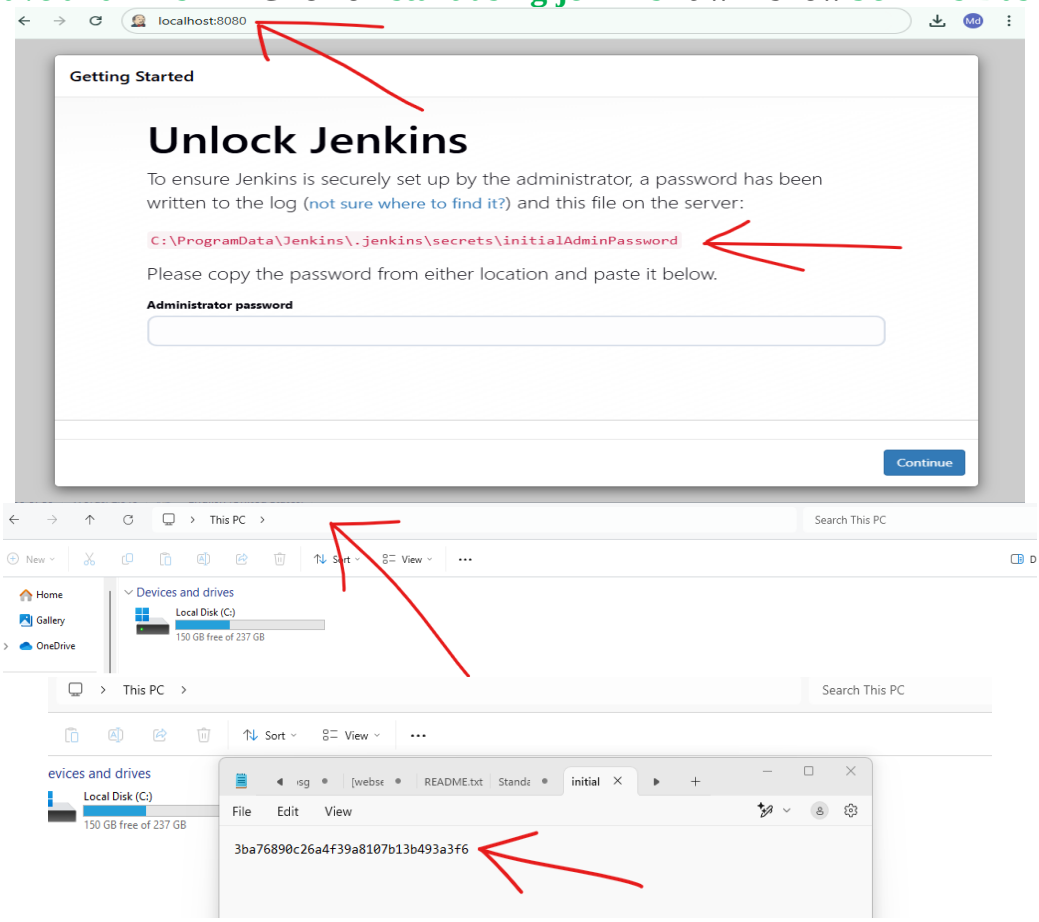


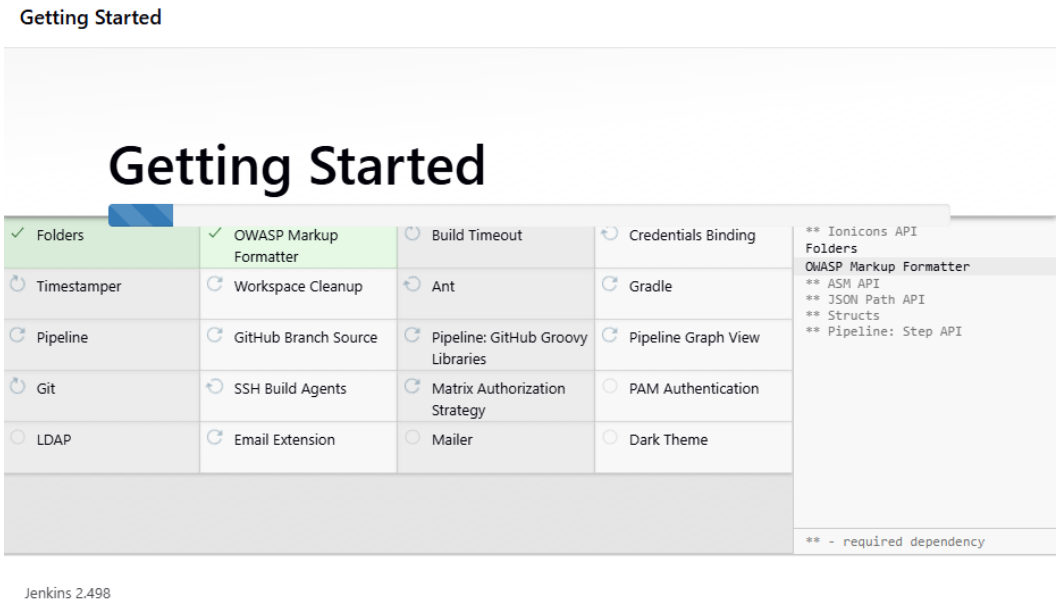
Step-5: After that install Git Bash in your system (no need to change anything just click on next next and next till last).

Step-6: Now open a browser -> search localhost:8080

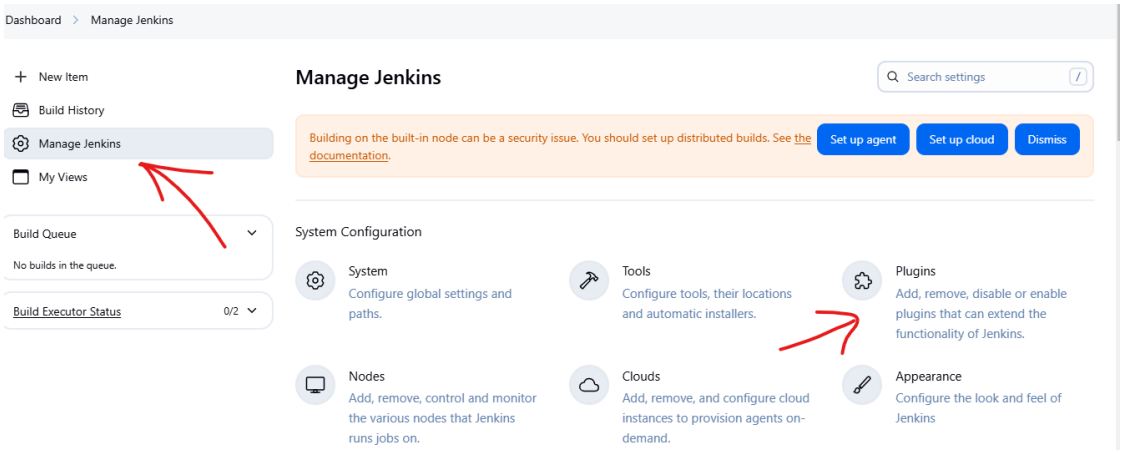
Step-7: It will open your Jenkins server -> Copy red line location and search it to in your File manager.

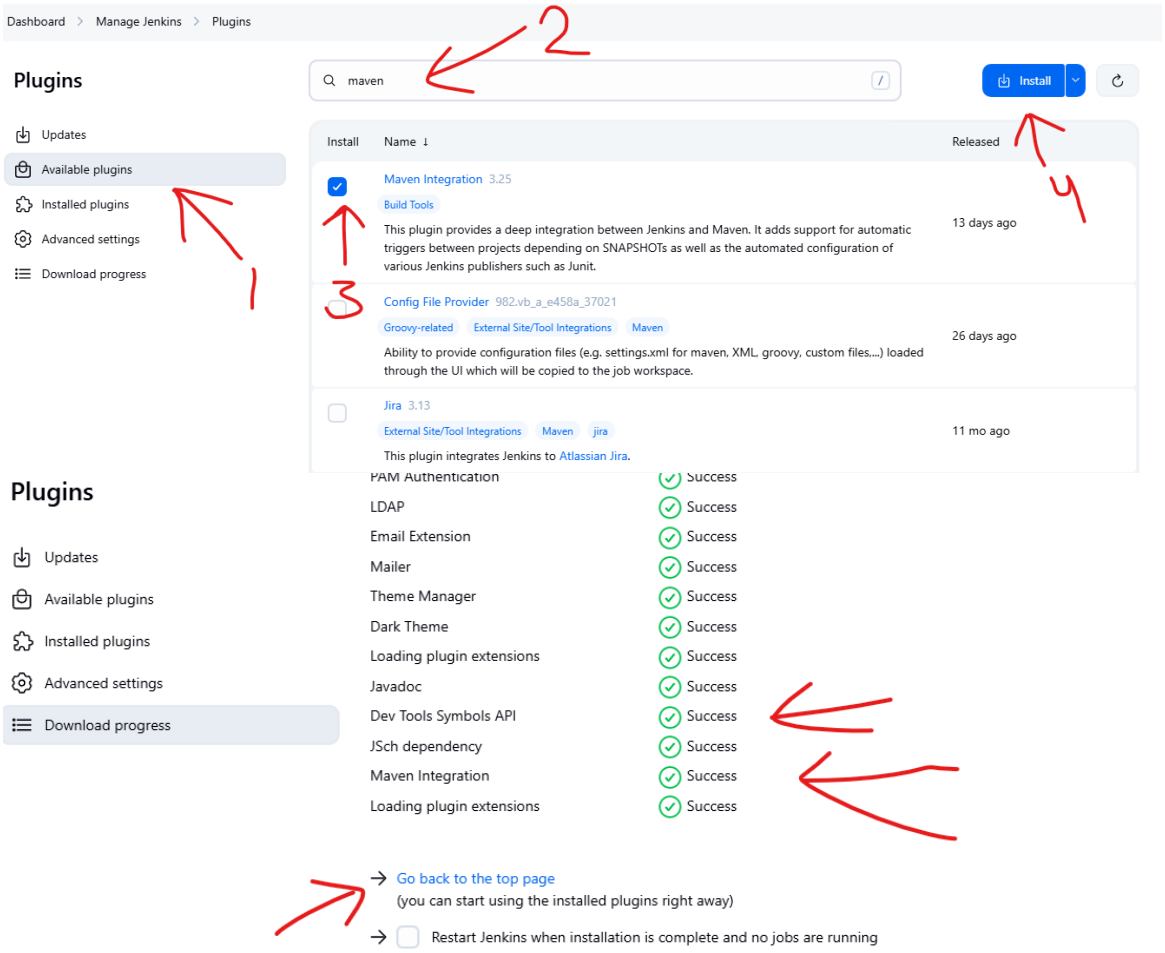
Step-7: It will show open with option just select notepad -> after that copy the password and paste in Jenkins server -> click on continue -> click on suggested plugin -> it will take some time for installation -> create admin user using given details and click on save and continue -> after that click on save and finish -> Click on start using jenkins It will show Jenkins Dashboard.



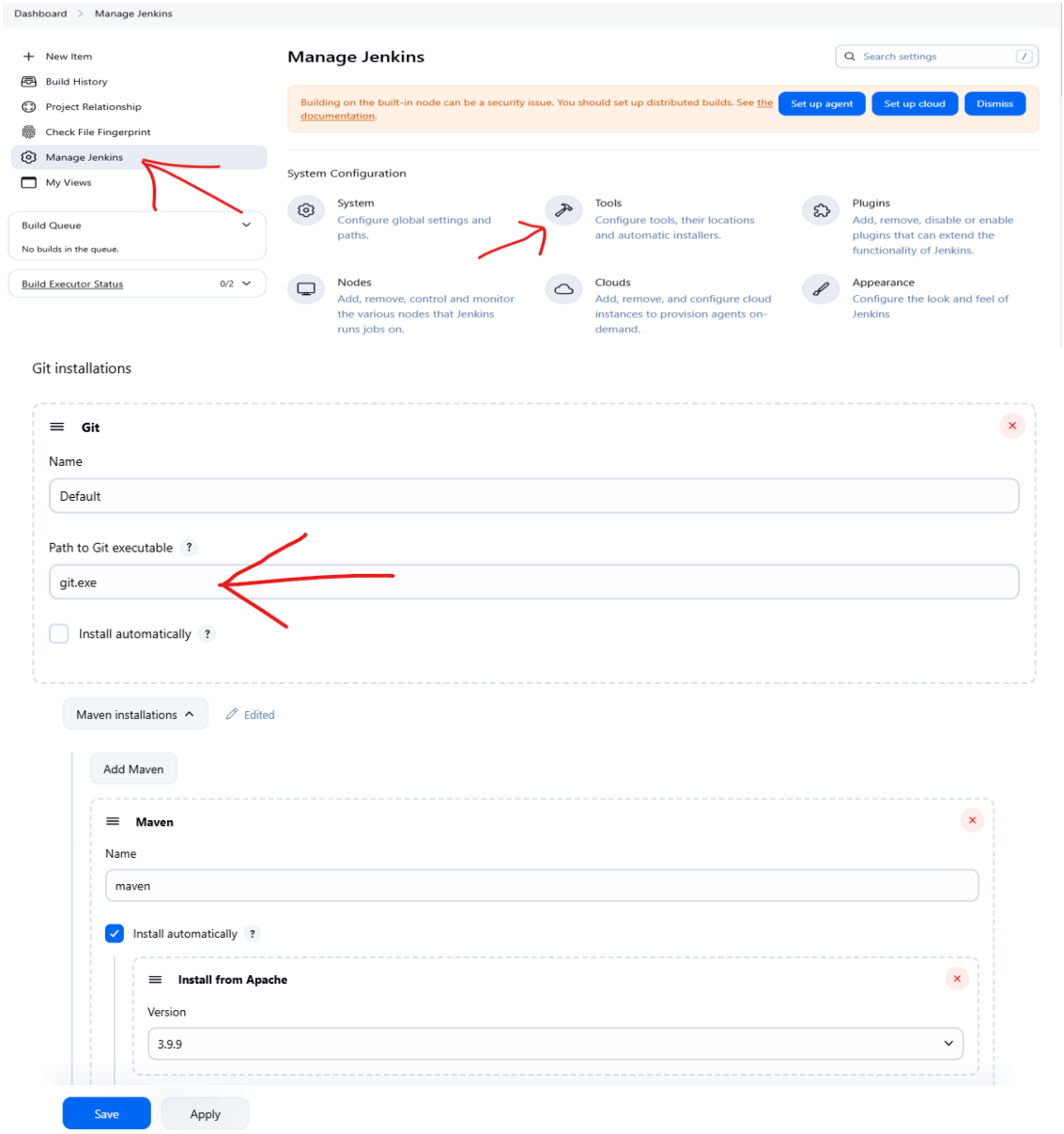


Step-8: After that click on manage Jenkins -> click on plugin -> click on available plugin -> search maven -> select maven integration -> click on install -> scroll down and check maven integration and and loading plugin is green and success or not -> After success click on go back to the top page

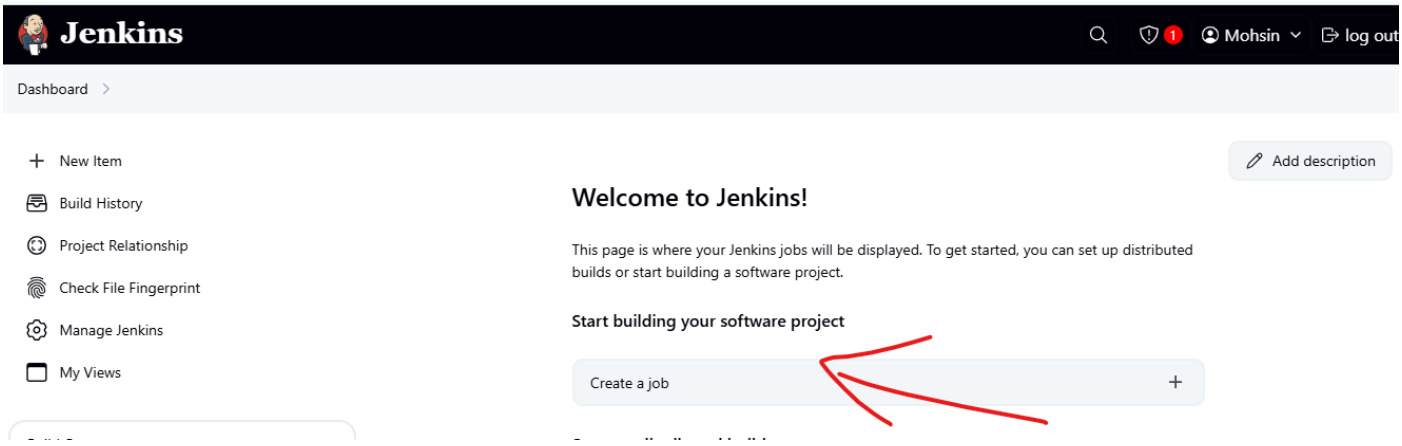


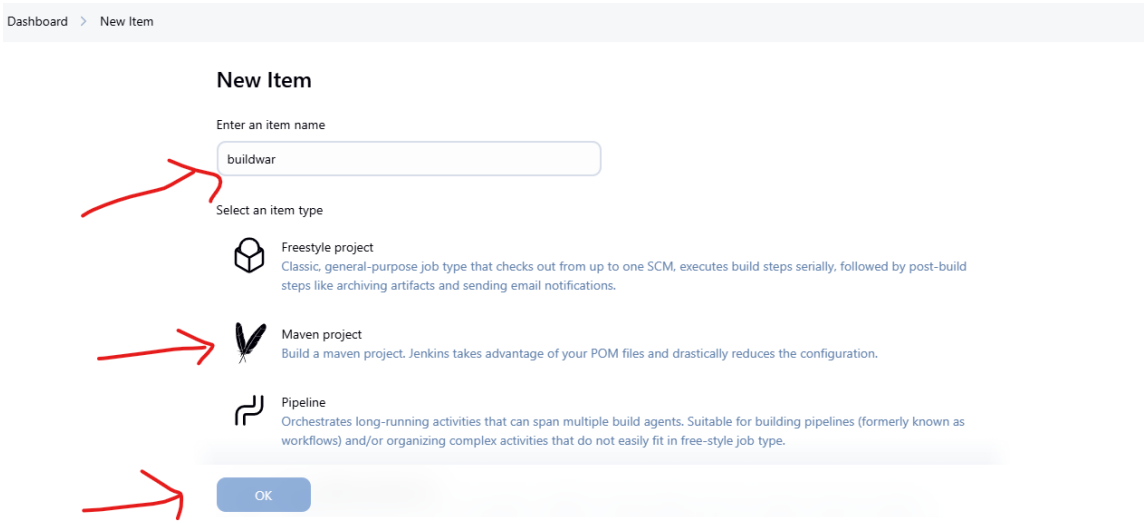


Step-9: Now again click on Manage Jenkins -> click on tools -> scroll down and check Git path -> after that scroll down and in a Maven installation section -> click on add maven -> write maven name and click on apply -> click on save.

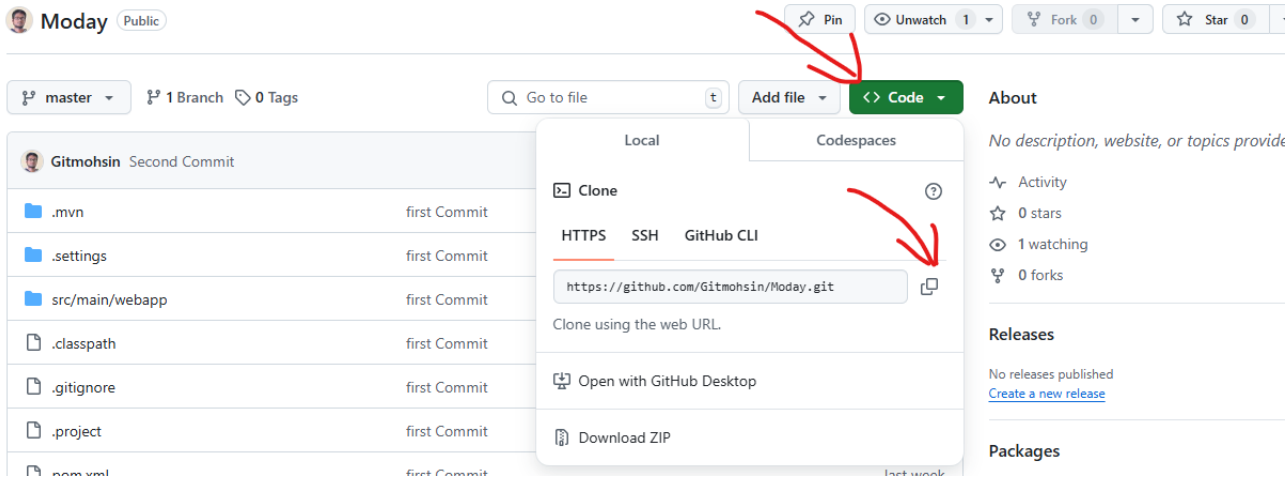


Step-10: now click on dashboard -> click on create a job -> type your buildwar name (i.e. myWar) -> select Maven Project -> click on OK

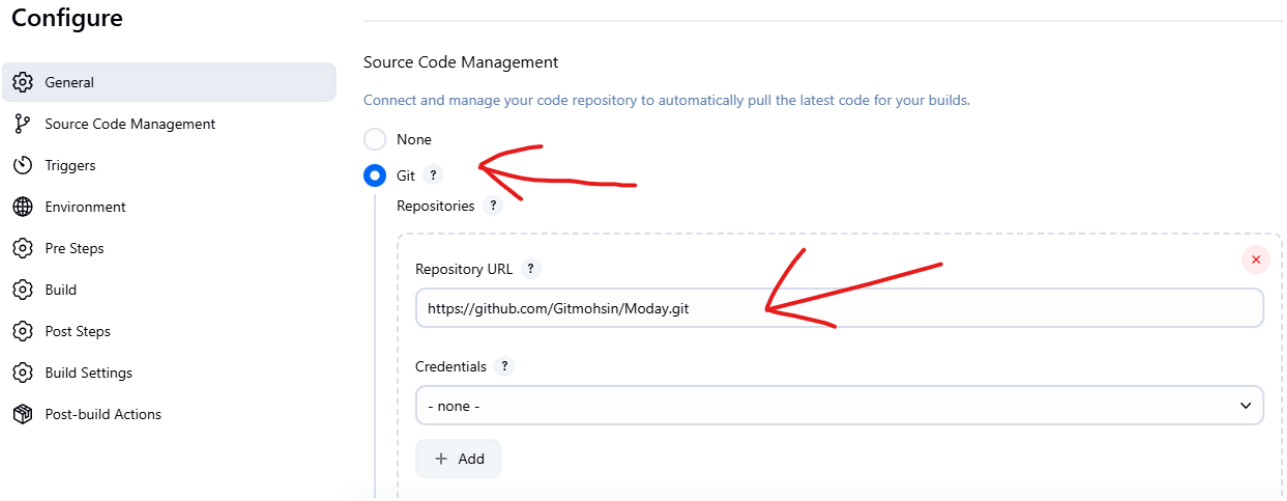


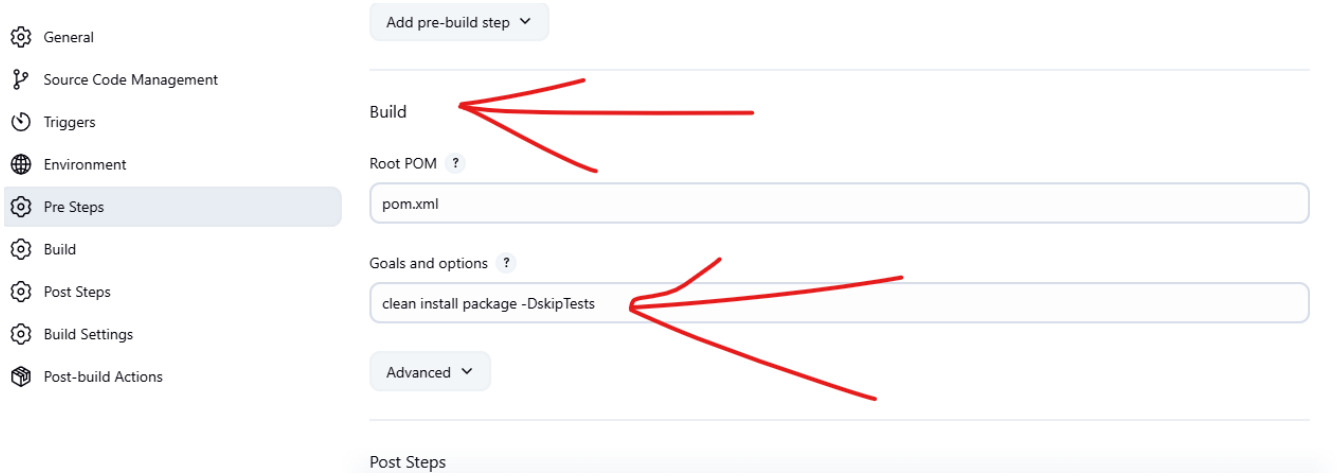


Step-10: Now take a new page -> login your GitHub -> check second experiment repository like Devops_pipeline -> copy the git link of second experiment.

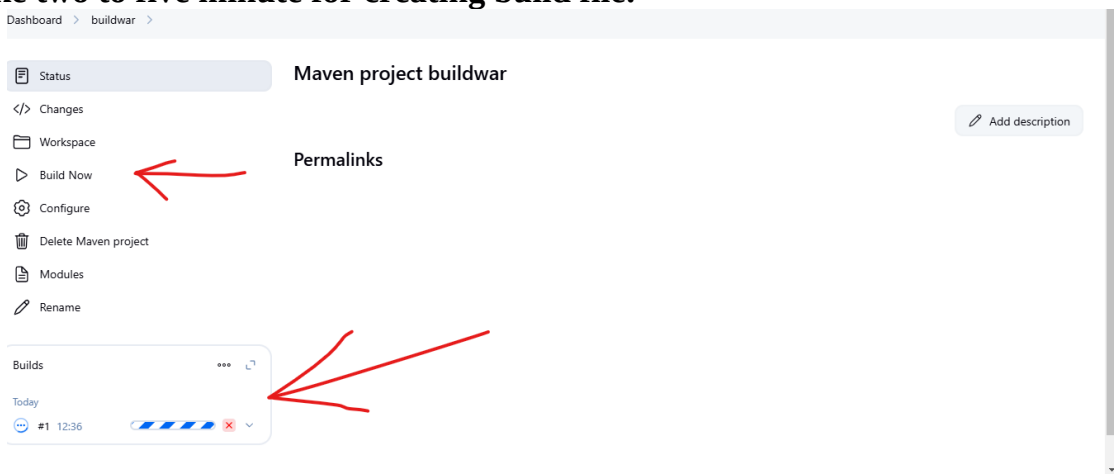


Step-11: scroll down and go to Source code management section -> select git -> paste git link -> scroll down go to build option and type clean install package in goals option -> click on apply -> click on save.

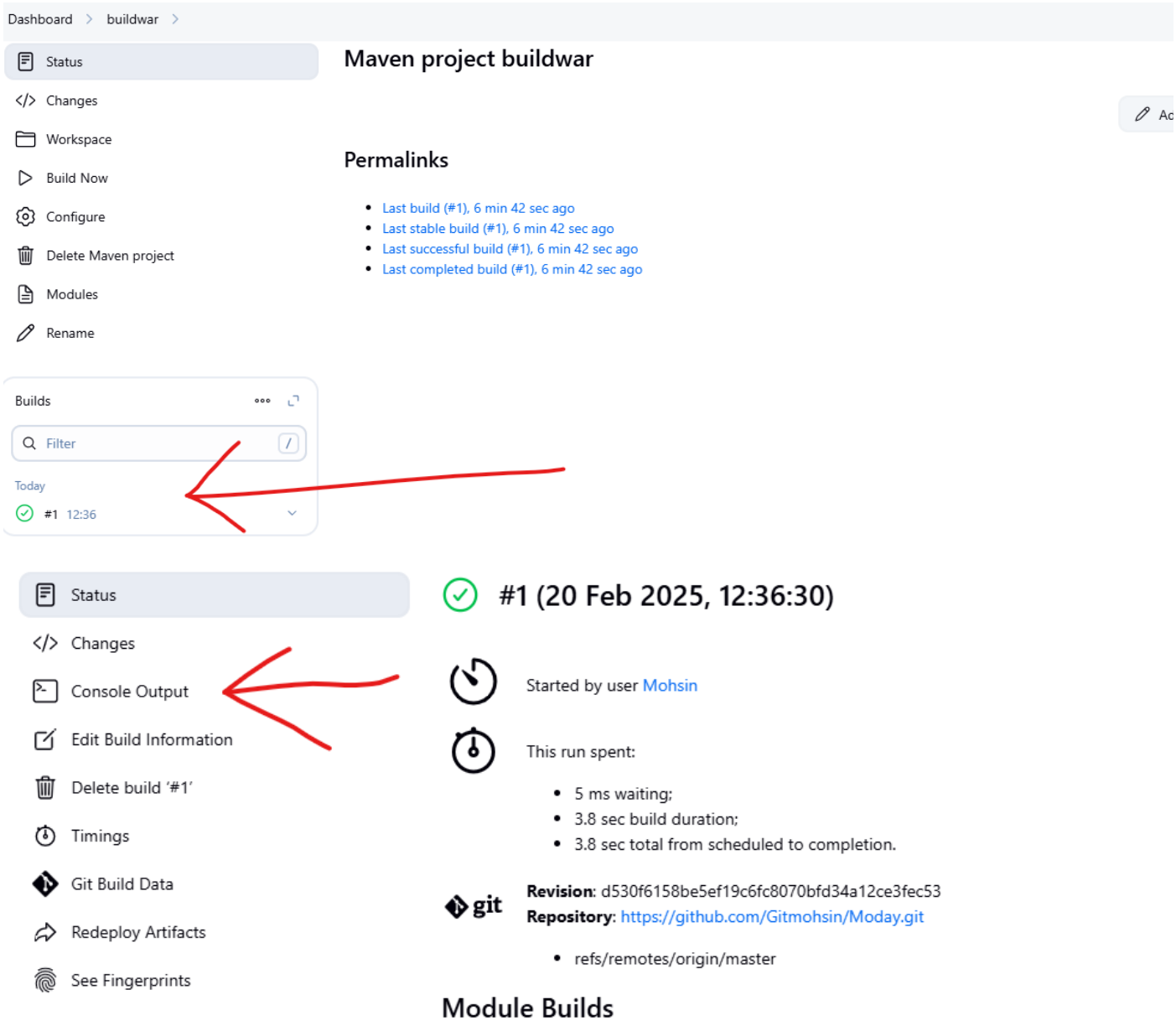




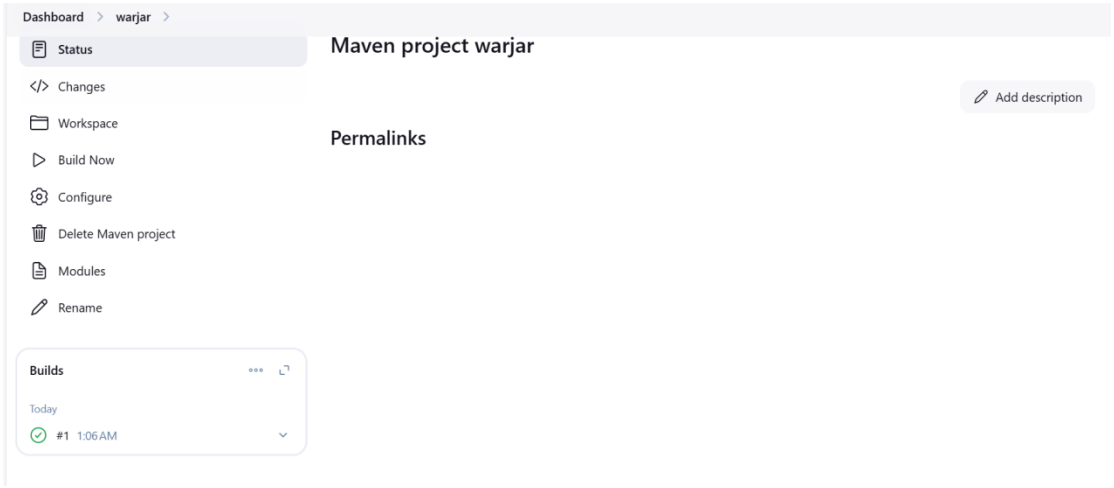
Step-12: After save the file -> it will show an option in left side build now -> click on build now -> It will take two to five minute for creating build file.



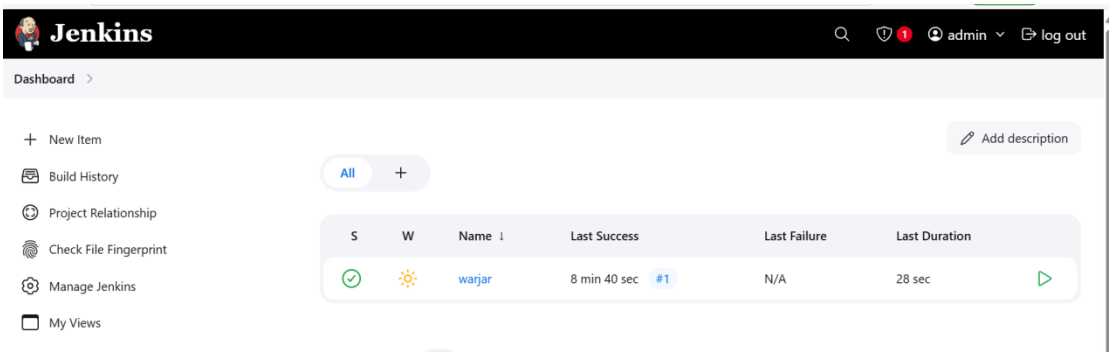
Step-12: After building it will show success with green mark -> click on that section -> it will open new section -> click on console output -> scroll down and check status, build success or not.


Dashboard > buildwar >
Status
Changes
Workspace
Build Now
Configure
Delete Maven project
Modules
Rename
Maven project buildwar
Permalinks
Last build (#1), 6 min 42 sec ago
Last stable build (#1), 6 min 42 sec ago
Last successful build (#1), 6 min 42 sec ago
Last completed build (#1), 6 min 42 sec ago
Builds
Filter
Today
#1 12:36
Status
Changes
Console Output
Edit Build Information
Delete build '#1'
Timings
Git Build Data
Redeploy Artifacts
See Fingerprints
#1 (20 Feb 2025, 12:36:30)
Started by user Mohsin
This run spent:
5 ms waiting;
3.8 sec build duration;
3.8 sec total from scheduled to completion.
Revision: d530f6158be5ef19c6fc8070bfd34a12ce3fec53
Repository: https://github.com/Gitmohsin/Moday.git
refs/remotes/origin/master
Module Builds

Output:-




```
utils/4.0.1/plexus-utils-4.0.1.jar (193 kB at 10 MB/s)
[INFO] Installing /home/ubuntu/.jenkins/workspace/warjar/pom.xml to
/home/ubuntu/.m2/repository/DevOpsCourse/MyDevPipeline/0.0.1-SNAPSHOT/MyDevPipeline-0.0.1-SNAPSHOT.pom
[INFO] Installing /home/ubuntu/.jenkins/workspace/warjar/target/MyDevPipeline.war to
/home/ubuntu/.m2/repository/DevOpsCourse/MyDevPipeline/0.0.1-SNAPSHOT/MyDevPipeline-0.0.1-SNAPSHOT.war
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  13.732 s
[INFO] Finished at: 2025-02-15T01:07:19Z
[INFO] ------------------------------------------------------------------------
Waiting for Jenkins to finish collecting data
[JENKINS] Archiving /home/ubuntu/.jenkins/workspace/warjar/pom.xml to DevOpsCourse/MyDevPipeline/0.0.1-
SNAPSHOT/MyDevPipeline-0.0.1-SNAPSHOT.pom
[JENKINS] Archiving /home/ubuntu/.jenkins/workspace/warjar/target/MyDevPipeline.war to
DevOpsCourse/MyDevPipeline/0.0.1-SNAPSHOT/MyDevPipeline-0.0.1-SNAPSHOT.war
channel stopped
Finished: SUCCESS
```



Experiment-6

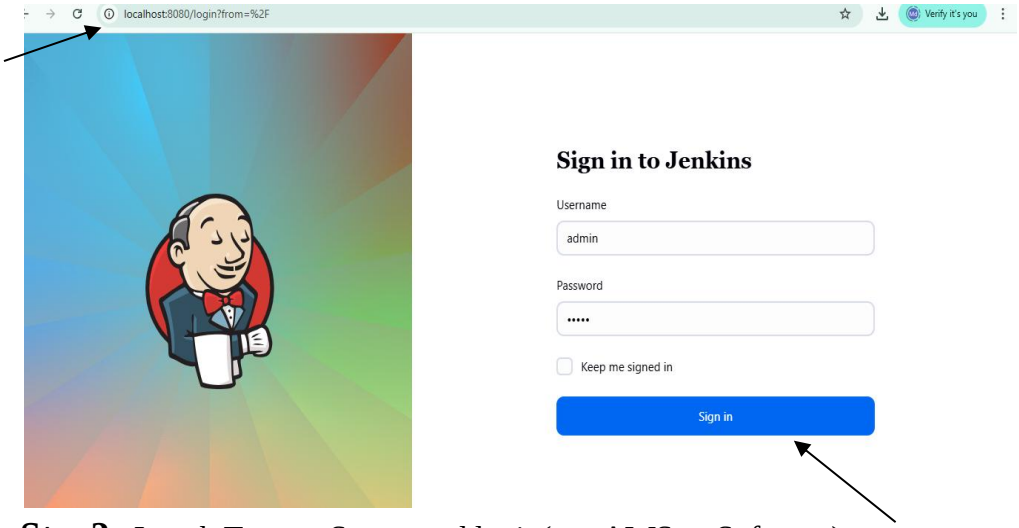
AIM:-Deploy the artifact on the Test Server

Softwares:Jenkins(port:8080),JDk 17 or 21,Tomcat 9 (port:9090),Gitbash

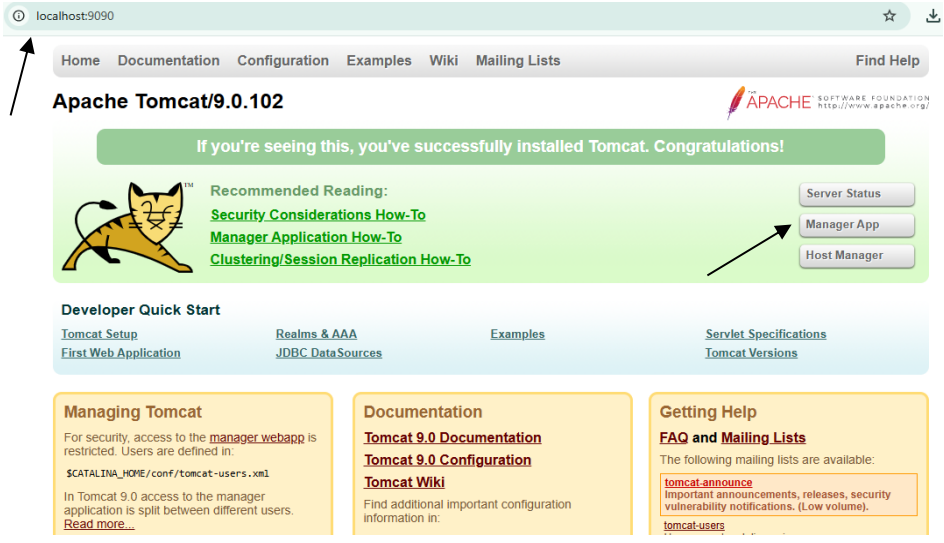
(Here we are creating one artifact war file. That war file we are deploy to test server(Tomcat server) using Jenkins Server)

(**Note:**-Images are purpose of understanding only don't paste it in records but output images paste it in output area)

Step1:-Lunch Jenkins and Login(Use AWS or Software)



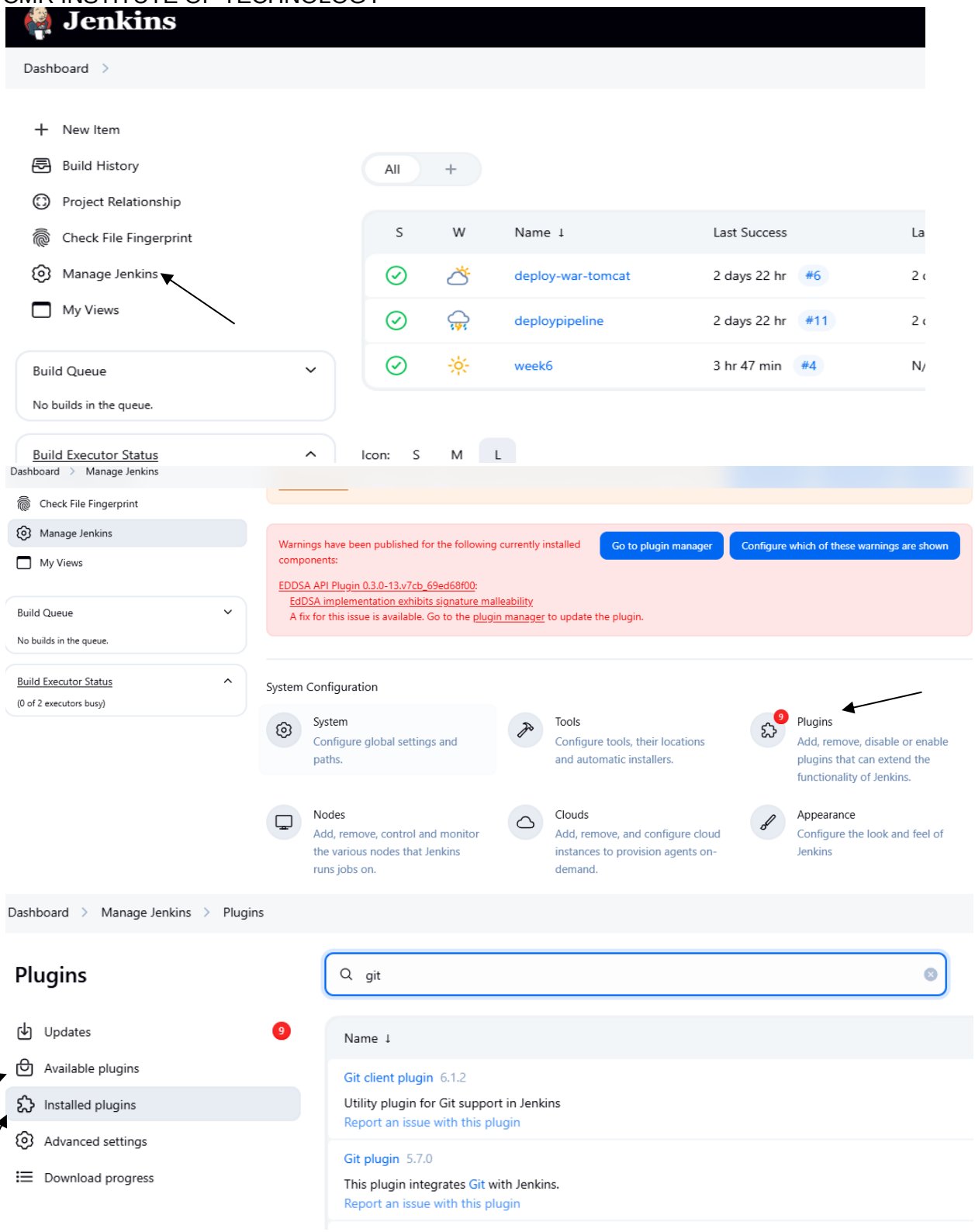
Step2:-Lunch Tomcat Server and login(use AWS or Software)



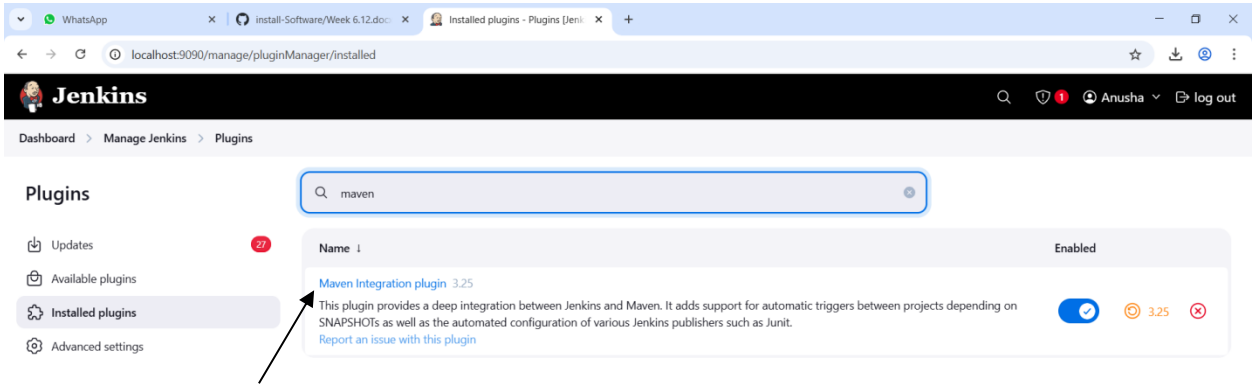
Open Jenkins do following steps

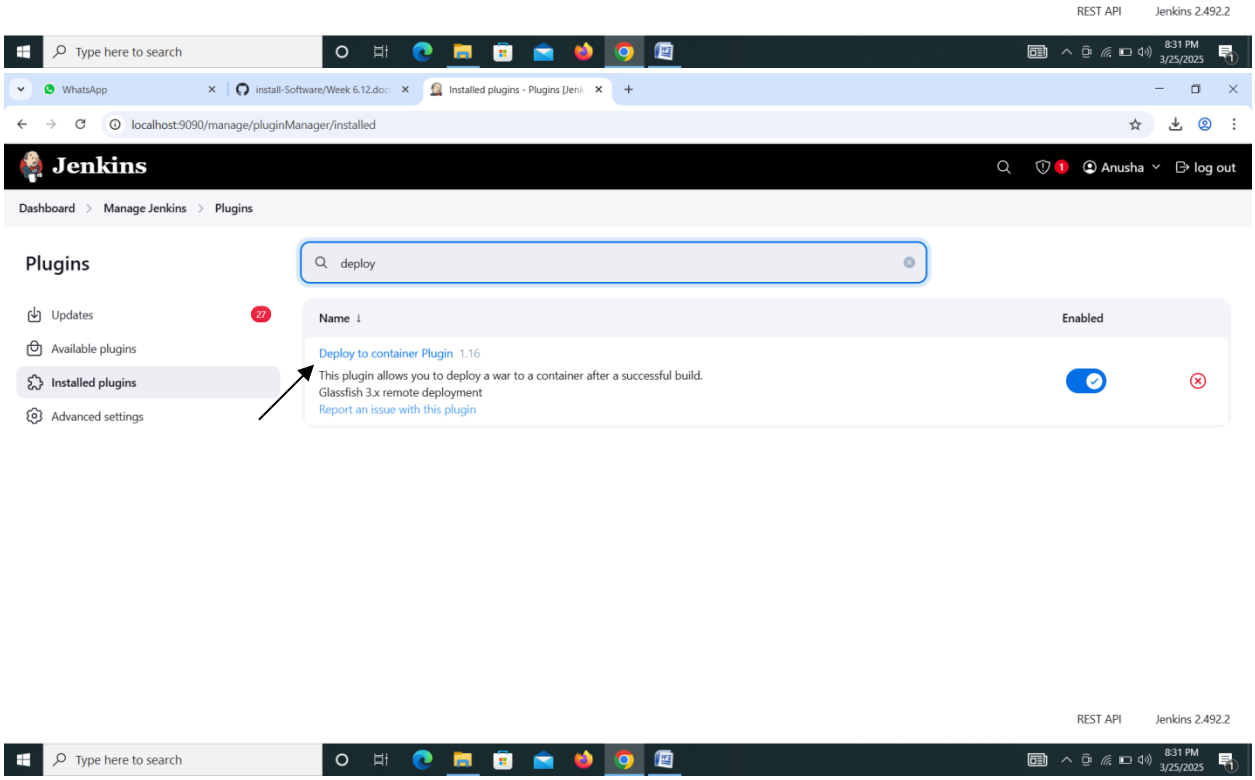
Step 3:-Install plugins

Go to Manage Jenkins→Plugins→Install Plugin select verify Git→Go to Available plugins install Maven integration and Deploy to container install.



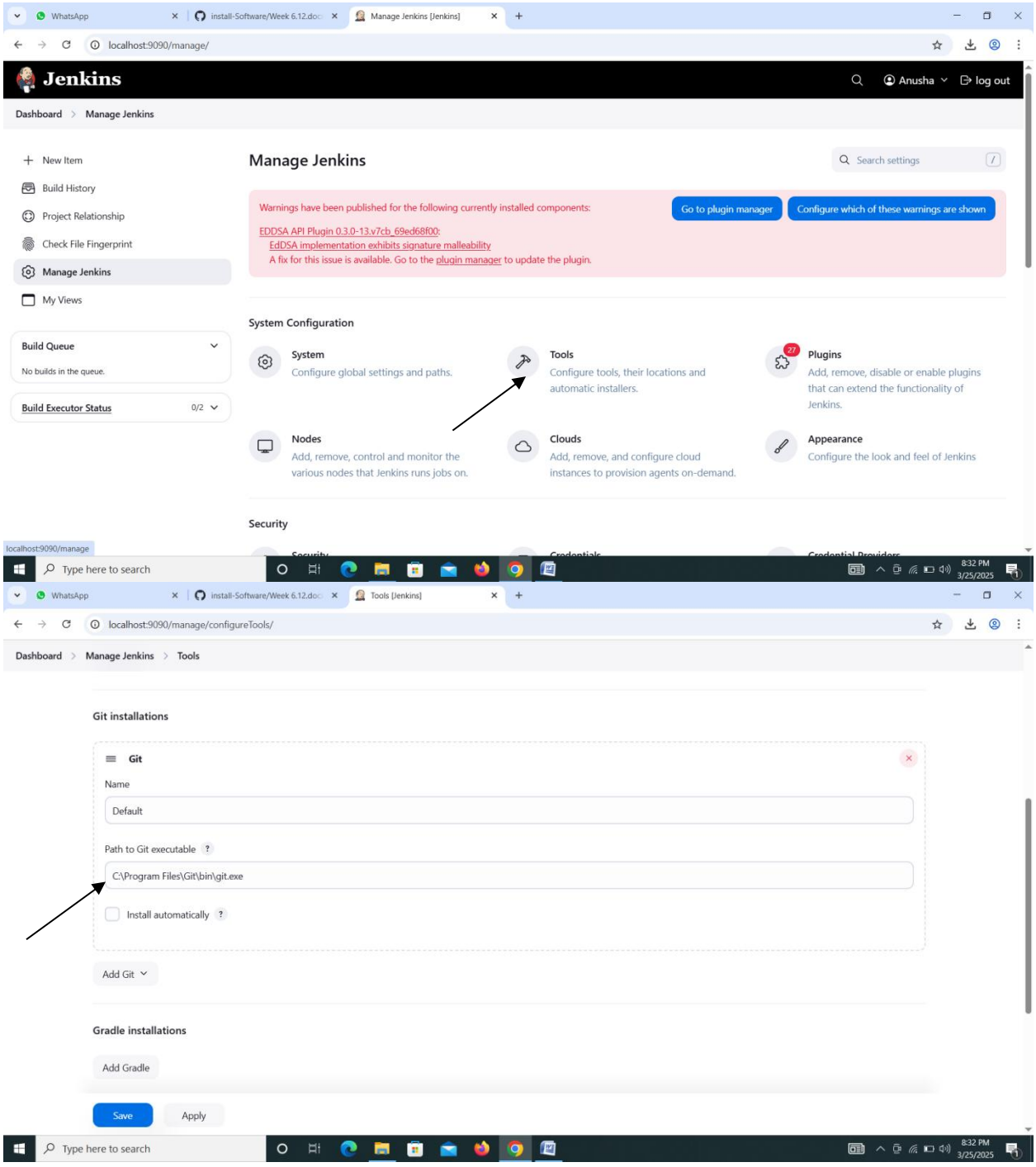
Above picture three plugins are installed , If not showing please go to available plugins install it.

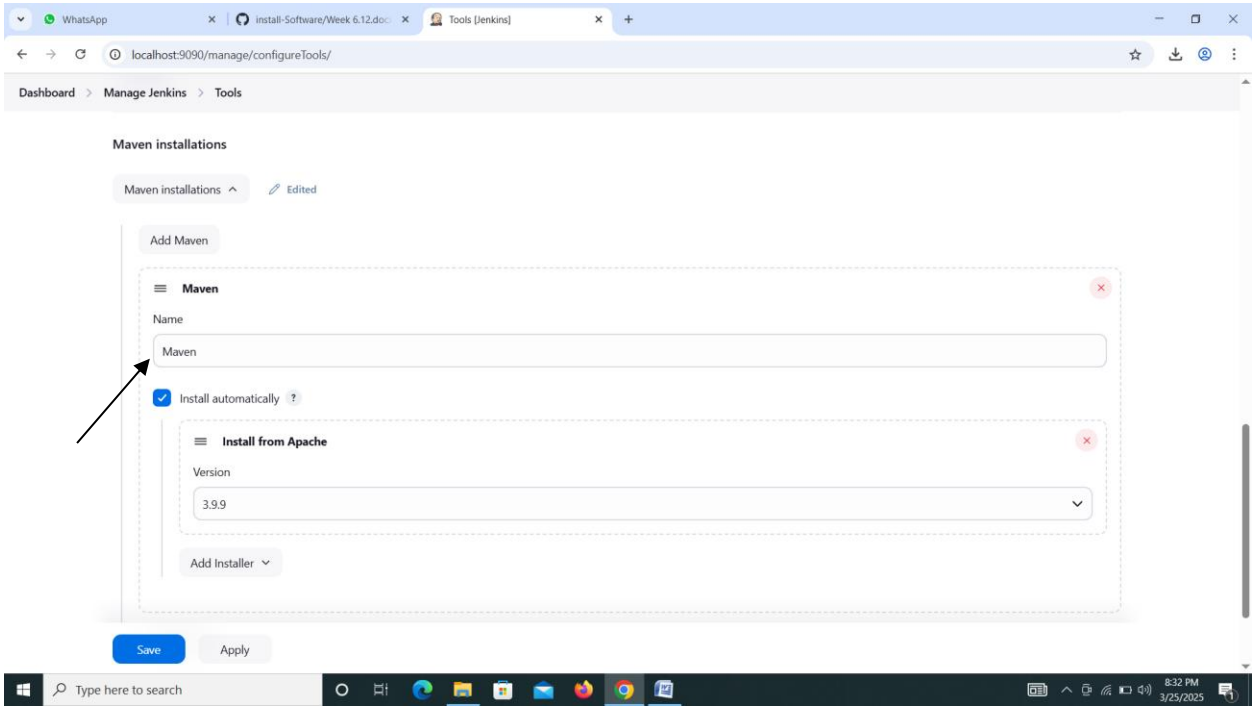




Step 4:-set up git path and maven installation in Tools

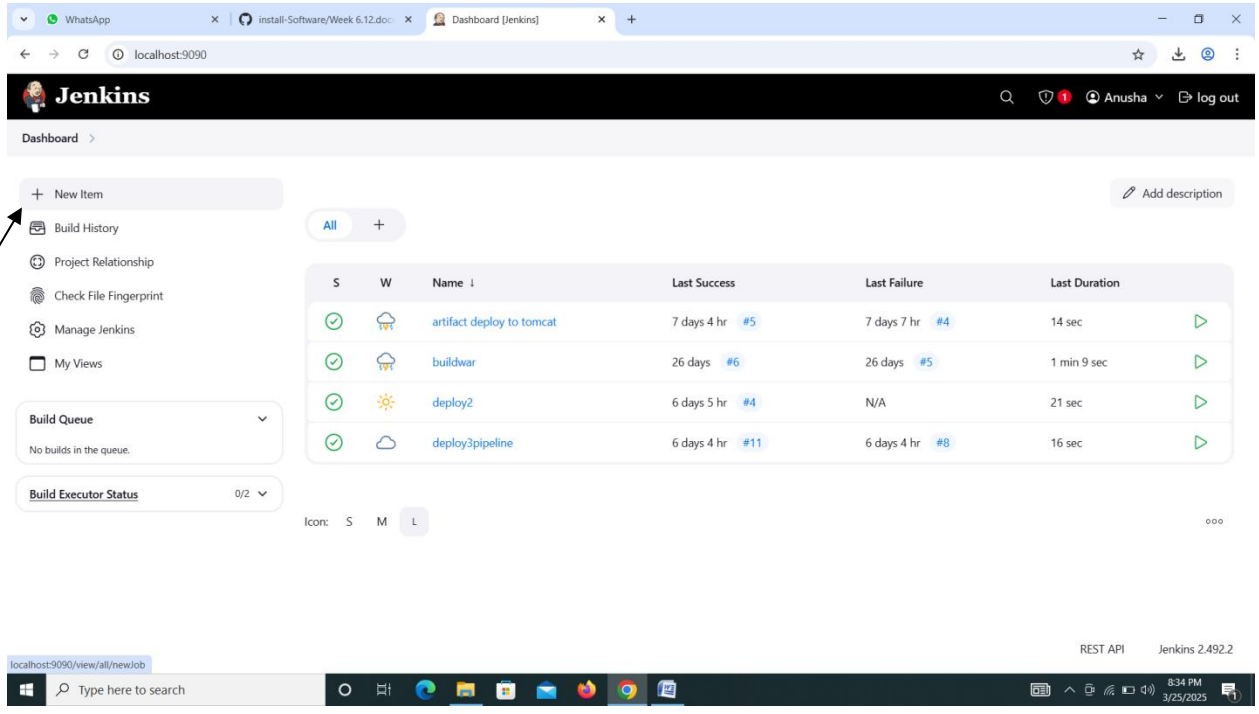
Go to manage Jenkins→Tools→In git installation select path(Git bash) if your using Jenkins software or AWS leave it →In maven Enter name Maven and default installation→Apply and Save.

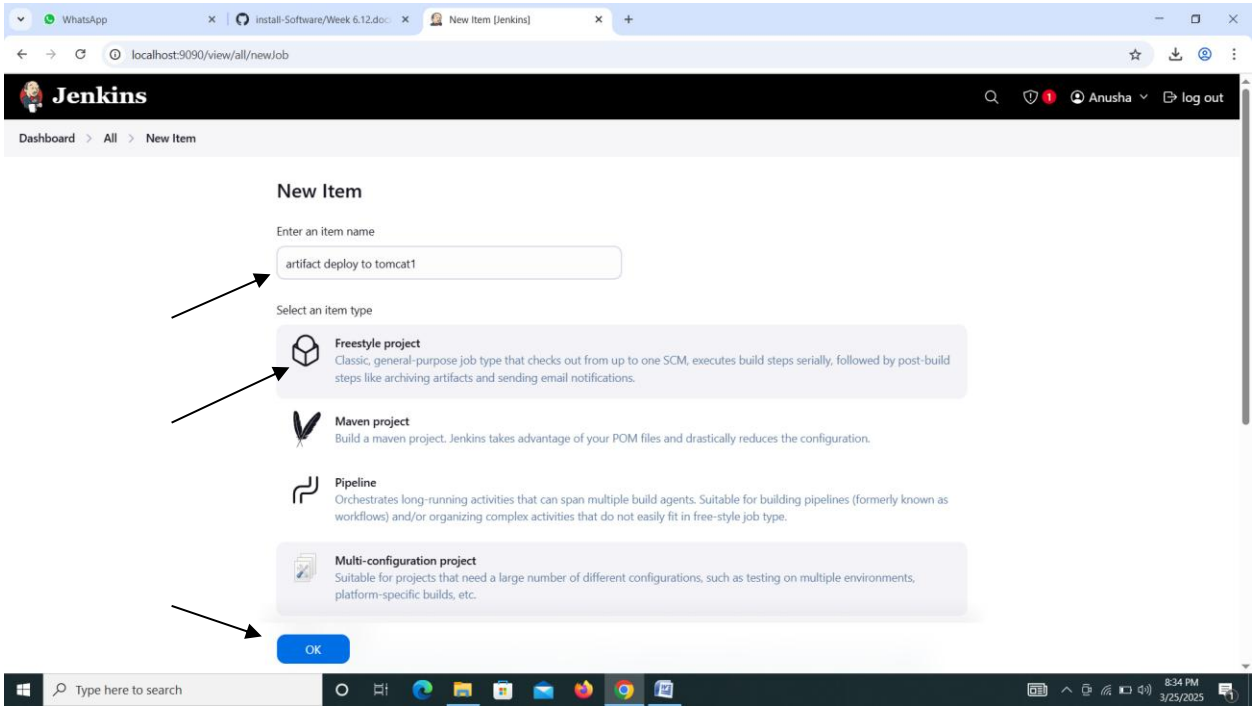

Jenkins
Anusha
log out
Dashboard
Manage Jenkins
New Item
Build History
Project Relationship
Check File Fingerprint
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status
0/2
Manage Jenkins
Search settings
Warnings have been published for the following currently installed components:
Go to plugin manager
Configure which of these warnings are shown
EDDSA API Plugin 0.3.0-13.v7cb_69ed68f00:
EdDSA implementation exhibits signature malleability
A fix for this issue is available. Go to the plugin manager to update the plugin.
System Configuration
System
Configure global settings and paths.
Tools
Configure tools, their locations and automatic installers.
Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.
Nodes
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.
Clouds
Add, remove, and configure cloud instances to provision agents on-demand.
Appearance
Configure the look and feel of Jenkins
Security
Type here to search
8:32 PM
3/25/2025
Tools [Jenkins]
localhost:9090/manage/configureTools/
Dashboard
Manage Jenkins
Tools
Git installations
Git
Name
Default
Path to Git executable
C:\Program Files\Git\bin\git.exe
Install automatically
Add Git
Gradle installations
Add Gradle
Save
Apply



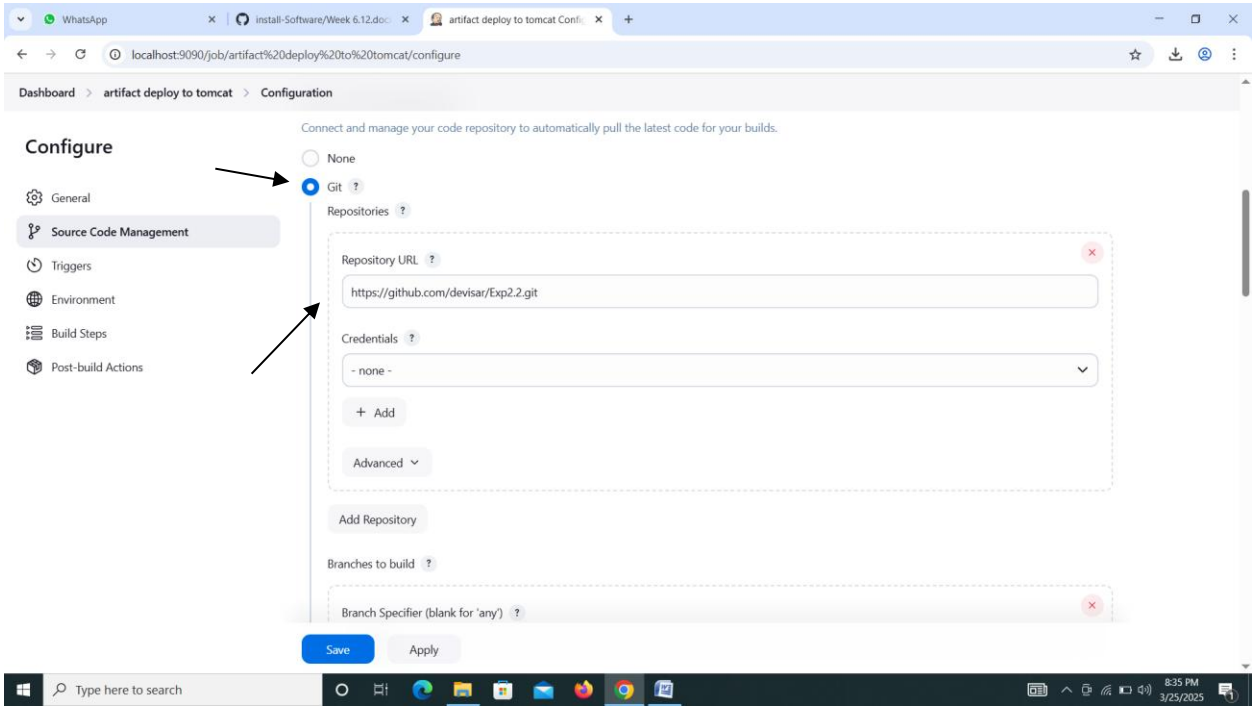
Step 5:-Creating New Job for deploy artifact in tomcat test server

1. Create New Item→ Enter name DeploytoTestServer →select freestyle project→click ok

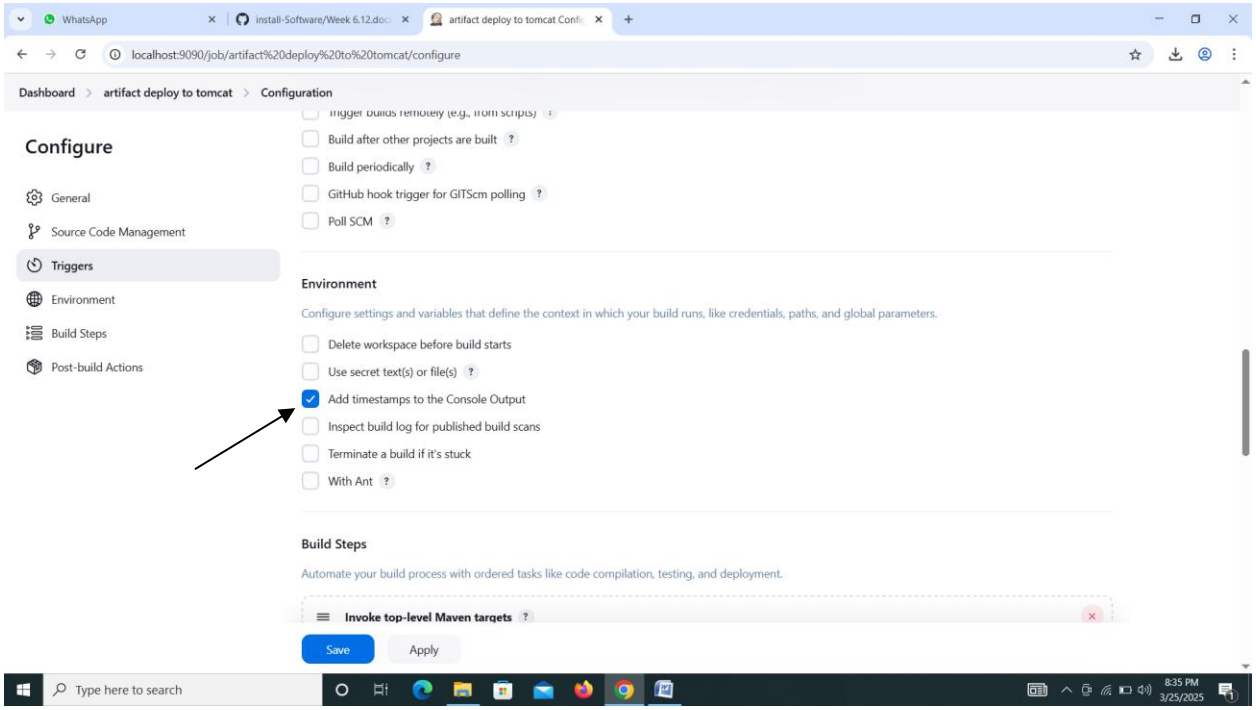




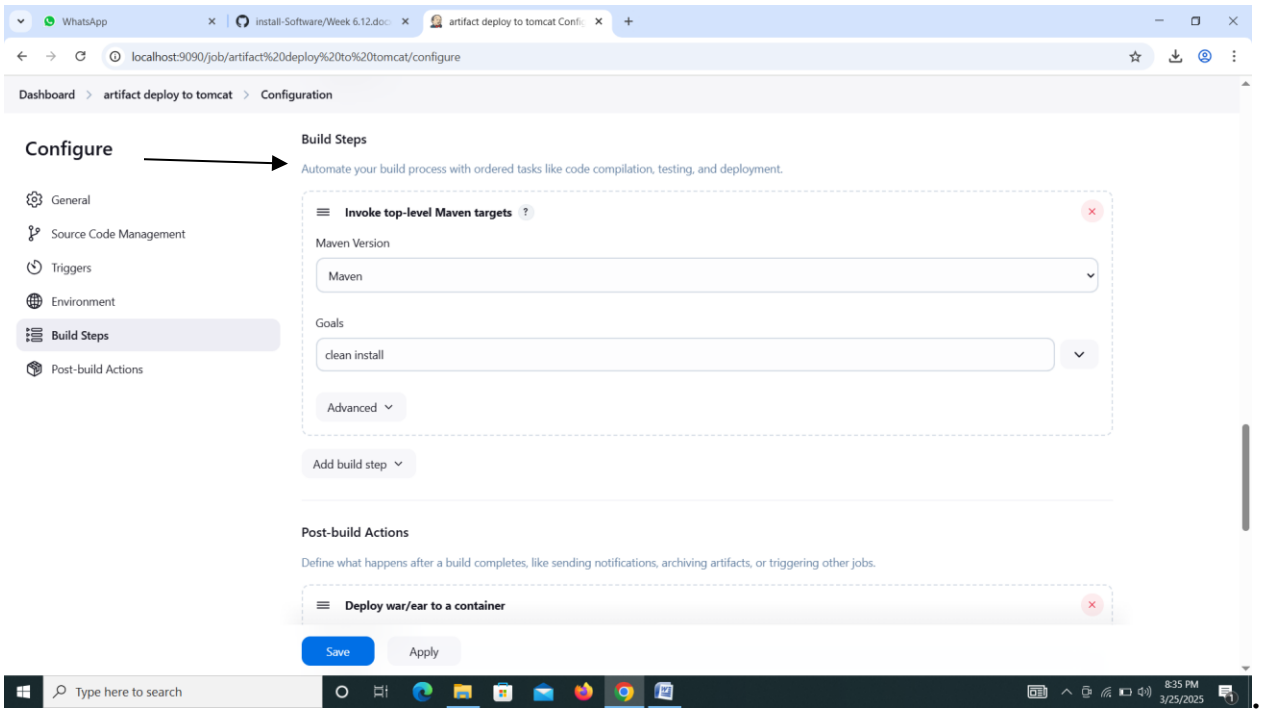
2. Select git →paste maven project url form Github→Must and should match branches



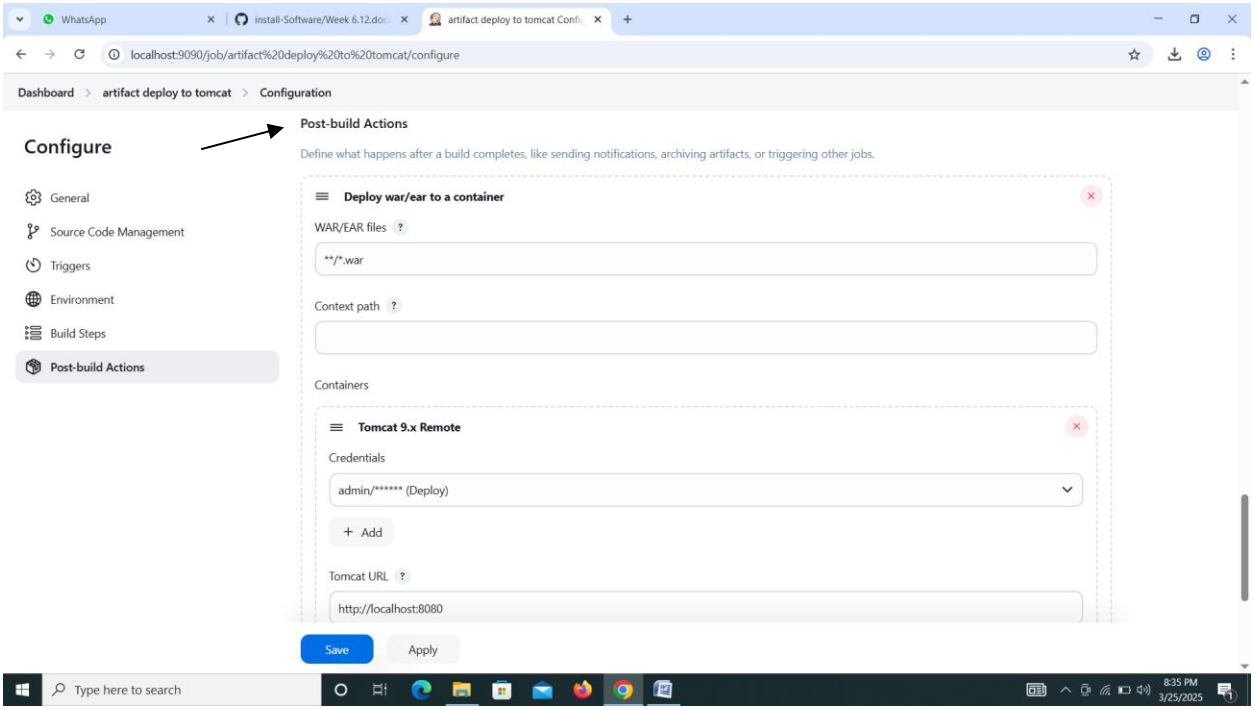
3. Go to Environment →Select Add timestamps to the Console Output

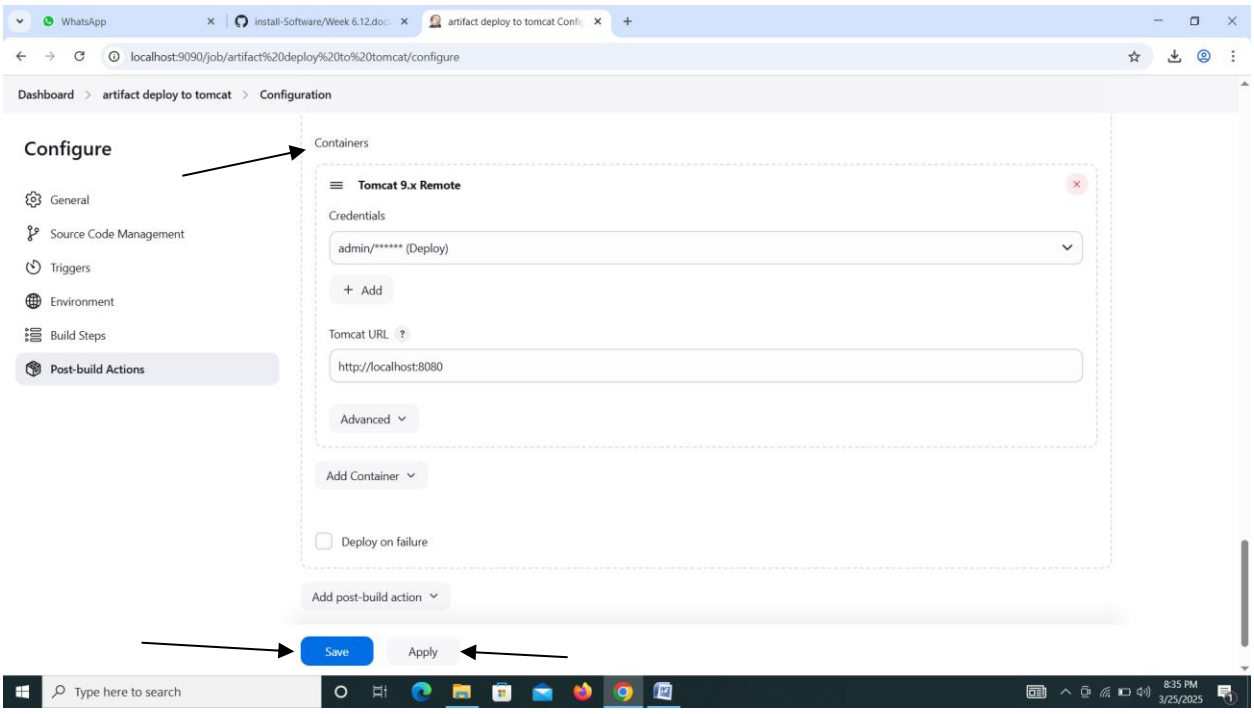


4. Go to Build Setups→Select **Invoke top-level Maven targets→Maven Version enter maven →Goals clean install**



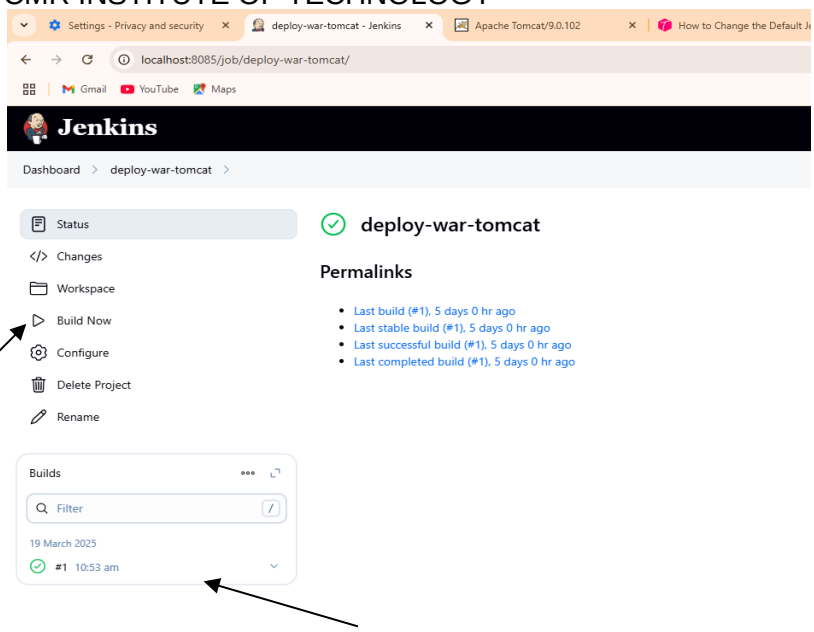
5. **Go to** Post-build Actions→Select **Deploy war/ear to a container→**WAR/EAR files enter **/*.war→select Containers **Tomcat 9.x Remote→Add credentials like username, password, Id and description.-->Tomcat URL http://localhost:9090 →Apply and save.**

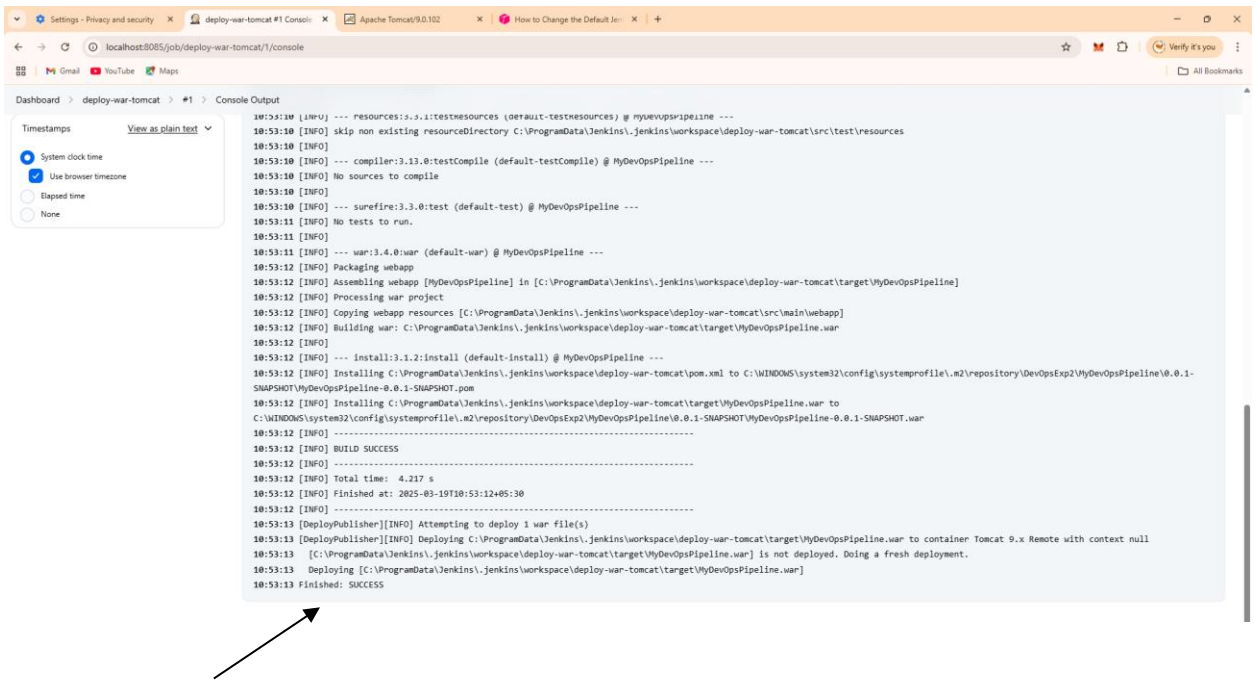




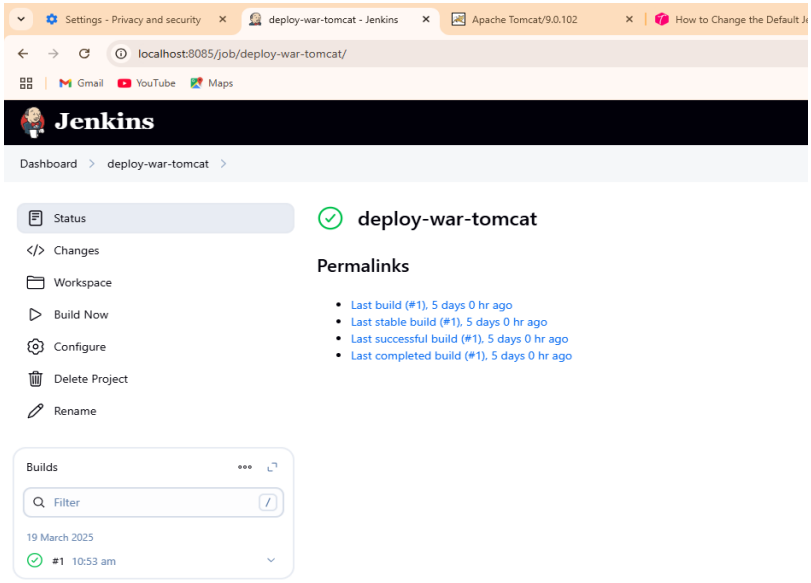
Step 6:- Build war File

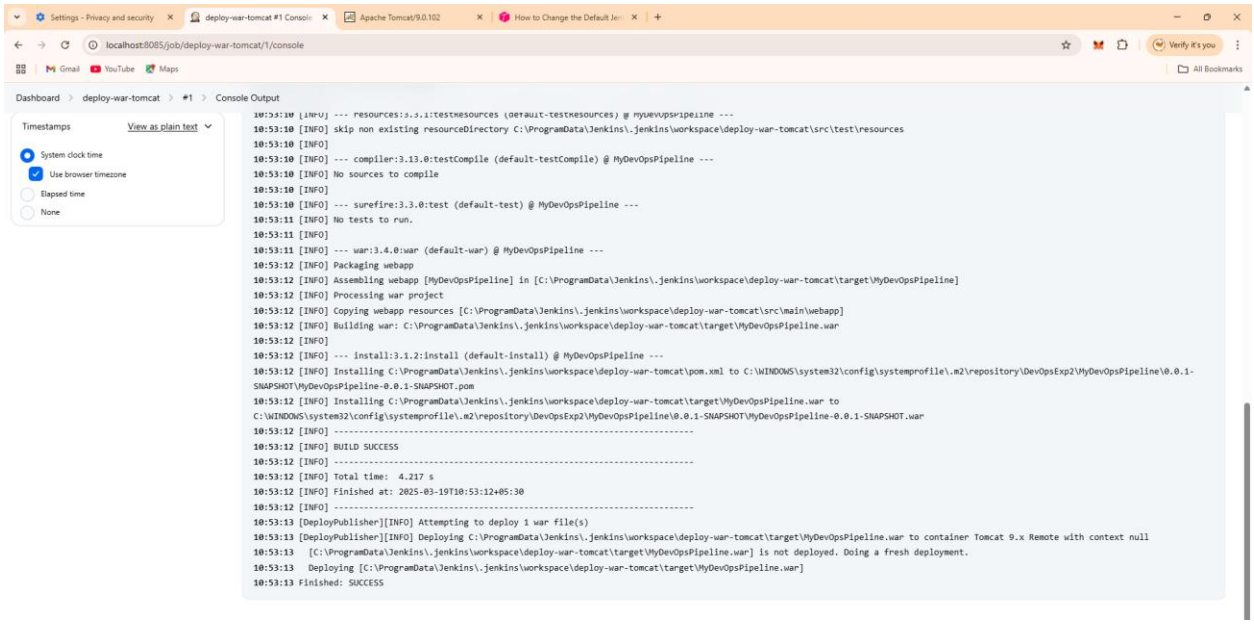
1. Click Build now →Go to Build select console output now you got Successfully Finish.

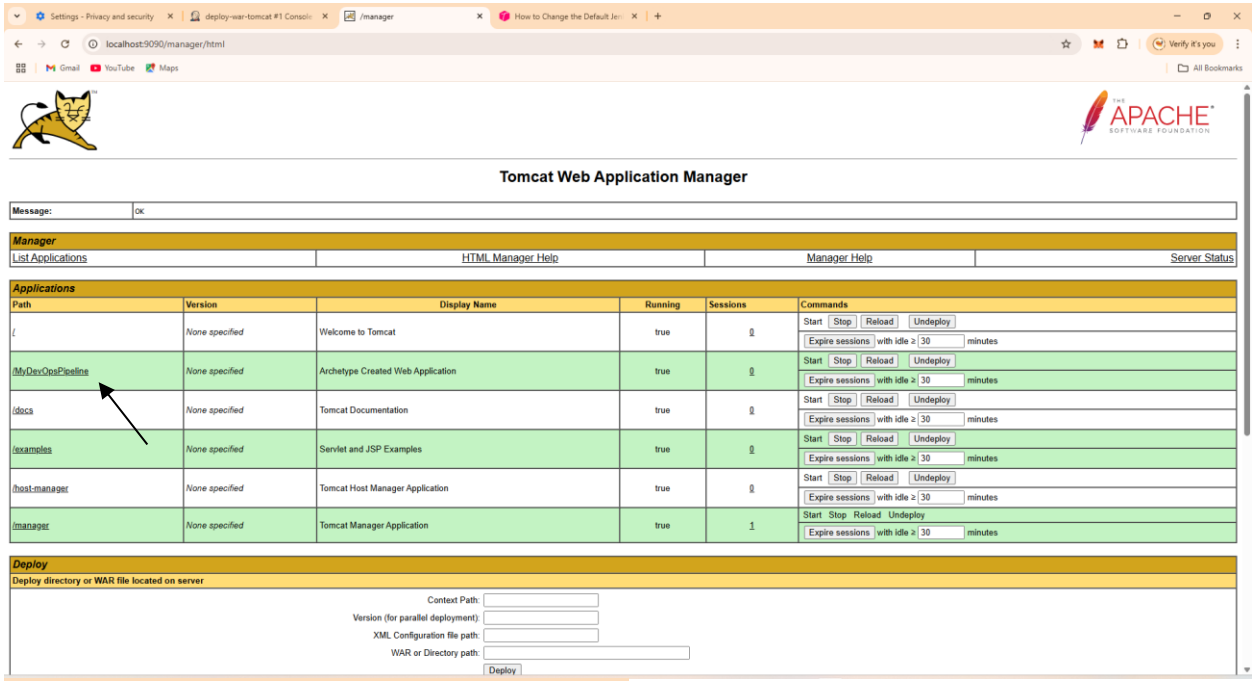

Settings - Privacy and security
deploy-war-tomcat - Jenkins
Apache Tomcat/9.0.102
How to Change the Default J
localhost:8085/job/deploy-war-tomcat/
Gmail
YouTube
Maps
Jenkins
Dashboard
deploy-war-tomcat
Status
Changes
Workspace
Build Now
Configure
Delete Project
Rename
deploy-war-tomcat
Permalinks
Last build (#1), 5 days 0 hr ago
Last stable build (#1), 5 days 0 hr ago
Last successful build (#1), 5 days 0 hr ago
Last completed build (#1), 5 days 0 hr ago
Builds
Filter
19 March 2025
#1 10:53 am

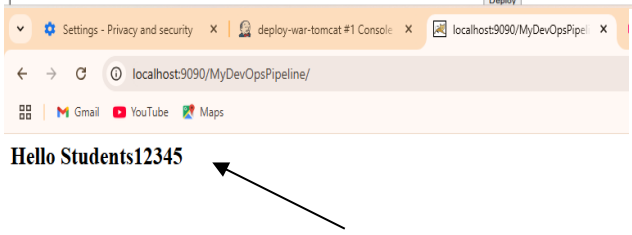

localhost:8085/job/deploy-war-tomcat/1/console
Dashboard
deploy-war-tomcat
#1
Console Output
Timestamps
View as plain text
System clock time
Use browser timezone
Elapsed time
None
10:53:10 [INFO] skip non existing resourceDirectory C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\src\test\resources
10:53:10 [INFO] No sources to compile
10:53:10 [INFO] No tests to run.
10:53:11 [INFO] Packaging webapp
10:53:12 [INFO] Assembling webapp [MyDevOpsPipeline] in [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline]
10:53:12 [INFO] Processing war project
10:53:12 [INFO] Copying webapp resources [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\src\main\webapp]
10:53:12 [INFO] Building war: C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war
10:53:12 [INFO] BUILD SUCCESS
10:53:12 [INFO] Total time: 4.217 s
10:53:12 [INFO] Finished at: 2025-03-19T10:53:12+05:30
10:53:13 [DeployPublisher][INFO] Attempting to deploy 1 war file(s)
10:53:13 [DeployPublisher][INFO] Deploying C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war to container Tomcat 9.x Remote with context null
10:53:13 [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war] is not deployed. Doing a fresh deployment.
10:53:13 Deploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war]
10:53:13 Finished: SUCCESS

Output:-


Settings - Privacy and security
deploy-war-tomcat - Jenkins
Apache Tomcat/9.0.102
How to Change the Default J
localhost:8085/job/deploy-war-tomcat/
Gmail
YouTube
Maps
Jenkins
Dashboard
deploy-war-tomcat
Status
Changes
Workspace
Build Now
Configure
Delete Project
Rename
deploy-war-tomcat
Permalinks
Last build (#1), 5 days 0 hr ago
Last stable build (#1), 5 days 0 hr ago
Last successful build (#1), 5 days 0 hr ago
Last completed build (#1), 5 days 0 hr ago
Builds
Filter
19 March 2025
#1 10:53 am


Settings - Privacy and security
deploy-war-tomcat #1 Console
Apache Tomcat/9.0.102
How to Change the Default Je
localhost:8085/job/deploy-war-tomcat/1/console
Verify it's you
Gmail
YouTube
Maps
All Bookmarks
Dashboard
deploy-war-tomcat
#1
Console Output
Timestamps
View as plain text
System clock time
Use browser timezone
Elapsed time
None
10:53:10 [INFO] --- resources:3.3.1:testResources (default-testResources) @ MyDevOpsPipeline ---
10:53:10 [INFO] skip non existing resourceDirectory C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\src\test\resources
10:53:10 [INFO]
10:53:10 [INFO] --- compiler:3.13.0:testCompile (default-testCompile) @ MyDevOpsPipeline ---
10:53:10 [INFO] No sources to compile
10:53:10 [INFO]
10:53:10 [INFO] --- surefire:3.3.0:test (default-test) @ MyDevOpsPipeline ---
10:53:11 [INFO] No tests to run.
10:53:11 [INFO]
10:53:11 [INFO] --- war:3.4.0:war (default-war) @ MyDevOpsPipeline ---
10:53:12 [INFO] Packaging webapp
10:53:12 [INFO] Assembling webapp [MyDevOpsPipeline] in [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline]
10:53:12 [INFO] Processing war project
10:53:12 [INFO] Copying webapp resources [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\src\main\webapp]
10:53:12 [INFO] Building war: C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war
10:53:12 [INFO]
10:53:12 [INFO] --- install:3.1.2:install (default-install) @ MyDevOpsPipeline ---
10:53:12 [INFO] Installing C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\pom.xml to C:\WINDOWS\system32\config\systemprofile\.m2\repository\DevOpsExp2\MyDevOpsPipeline\0.0.1-SNAPSHOT\MyDevOpsPipeline-0.0.1-SNAPSHOT.pom
10:53:12 [INFO] Installing C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war to C:\WINDOWS\system32\config\systemprofile\.m2\repository\DevOpsExp2\MyDevOpsPipeline\0.0.1-SNAPSHOT\MyDevOpsPipeline-0.0.1-SNAPSHOT.war
10:53:12 [INFO] --
10:53:12 [INFO] BUILD SUCCESS
10:53:12 [INFO] --
10:53:12 [INFO] Total time: 4.217 s
10:53:12 [INFO] Finished at: 2025-03-19T10:53:12+05:30
10:53:12 [INFO] --
10:53:13 [DeployPublisher][INFO] Attempting to deploy 1 war file(s)
10:53:13 [DeployPublisher][INFO] Deploying C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war to container Tomcat 9.x Remote with context null
10:53:13 [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war] is not deployed. Doing a fresh deployment.
10:53:13 Deploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy-war-tomcat\target\MyDevOpsPipeline.war]
10:53:13 Finished: SUCCESS


localhost:9090/manager/html
Tomcat Web Application Manager
Message: OK
Manager
List Applications HTML Manager Help Manager Help Server Status
Applications
Path Version Display Name Running Sessions Commands
/ None specified Welcome to Tomcat true 0
/MyDevOpsPipeline None specified Archetype Created Web Application true 0
/docs None specified Tomcat Documentation true 0
/examples None specified Servlet and JSP Examples true 0
/host-manager None specified Tomcat Host Manager Application true 0
/manager None specified Tomcat Manager Application true 1
Deploy
Deploy directory or WAR file located on server
Context Path:
Version (for parallel deployment):
XML Configuration file path:
WAR or Directory path:
Deploy


localhost:9090/MyDevOpsPipeline/
Gmail
YouTube
Maps
Hello Students12345

Experiment-7

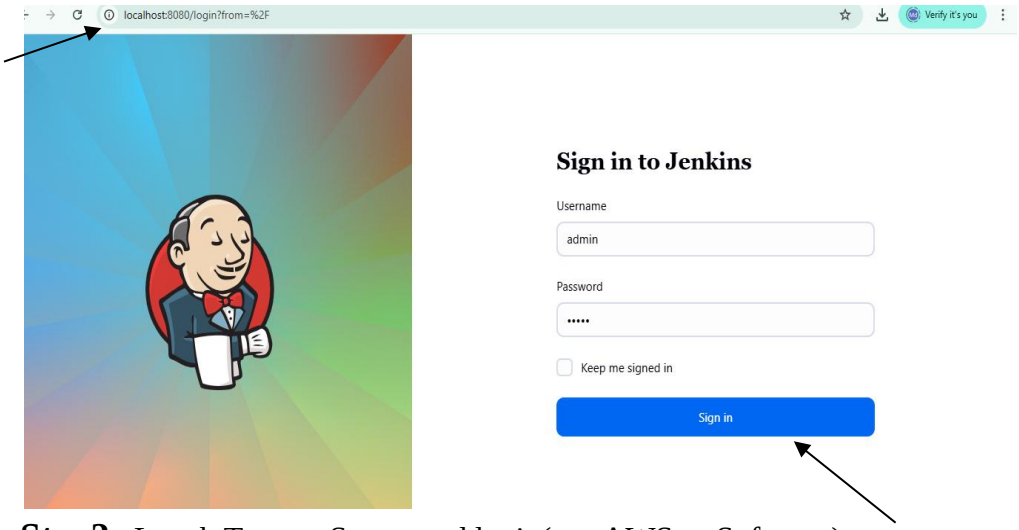
AIM:-Perform Automation using Jenkins.

Softwares:Jenkins(port:8080),JDk 17 or 21,Tomcat 9 (port:9090),Gitbash

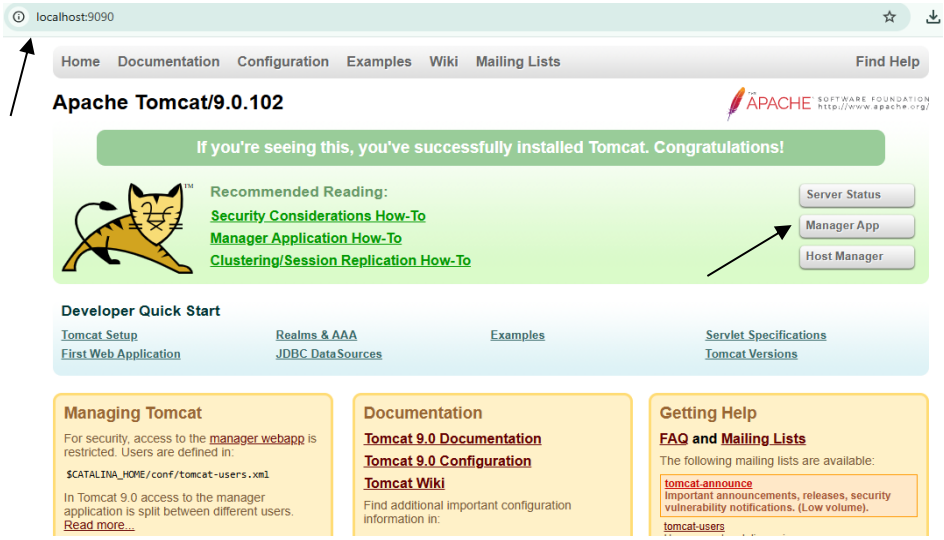
(Here we are creating one artifact war file. That war file we are deploy to test server(Tomcat server) using Jenkins Server)

(**Note:**-Images are purpose of understanding only don't paste it in records but output images paste it in output area)

Step1:-Lunch Jenkins and Login(Use AWS or Software)



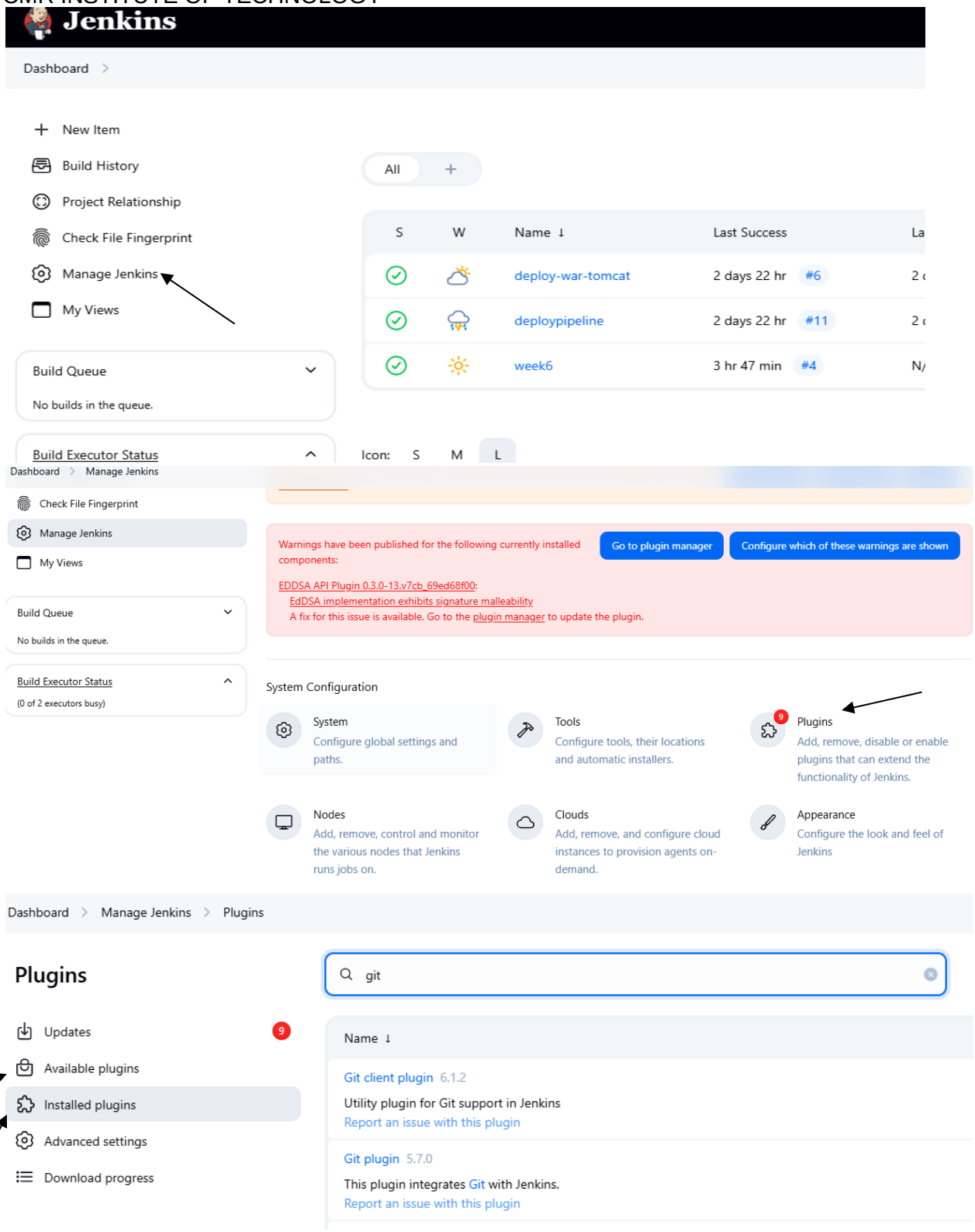
Step2:-Lunch Tomcat Server and login(use AWS or Software)



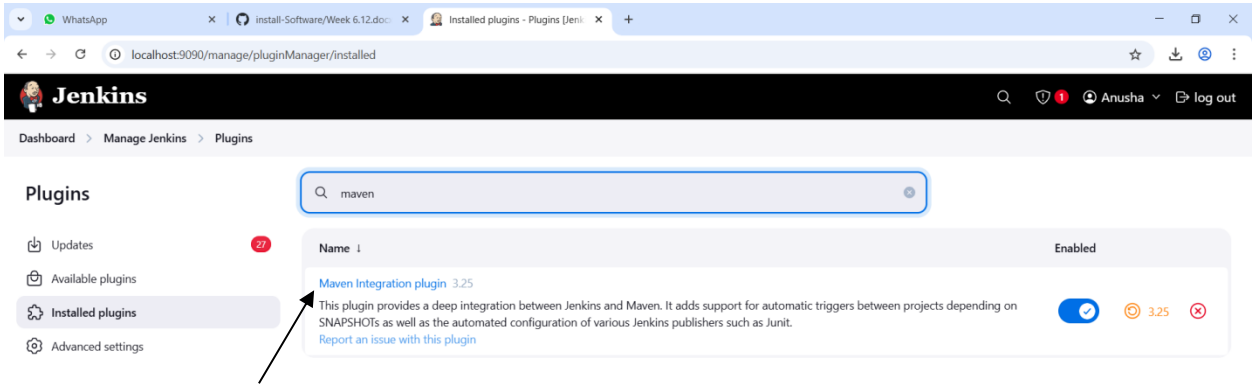
Open Jenkins do following steps

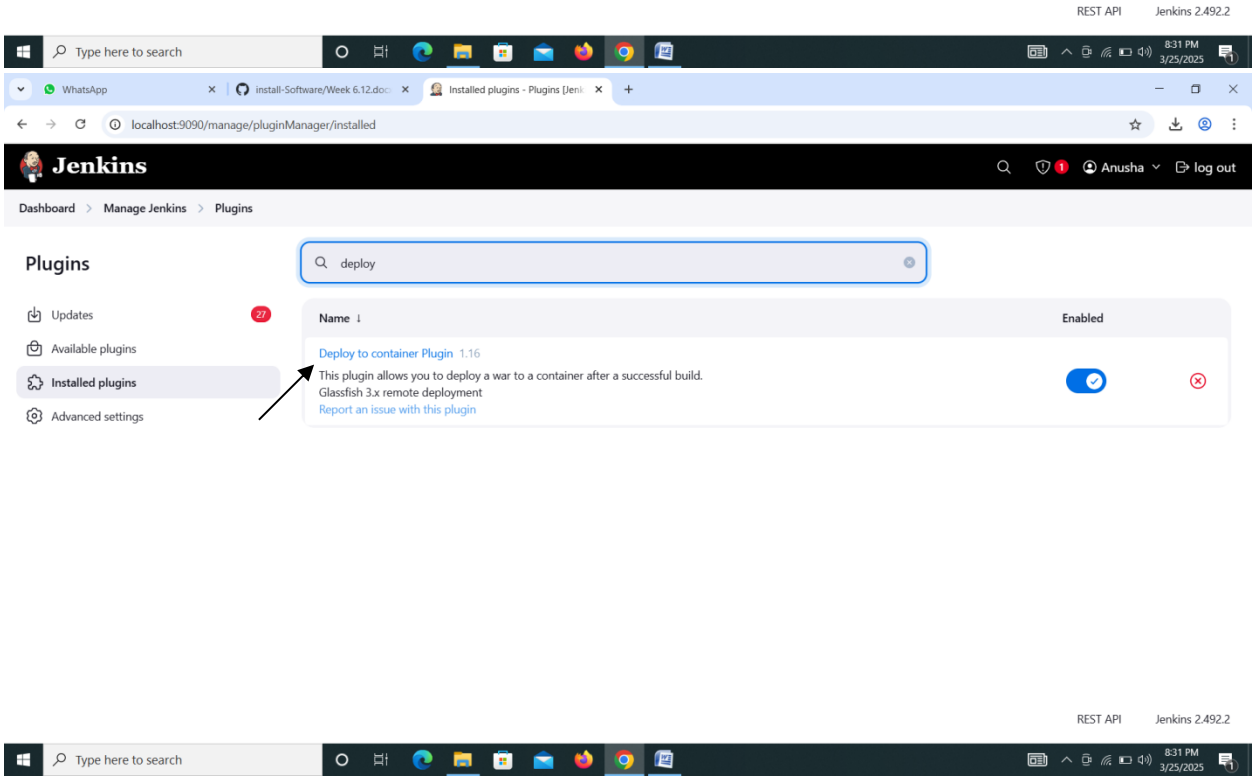
Step 3:-Install plugins

Go to Manage Jenkins→Plugins→Install Plugin select verify Git→Go to Available plugins install Maven integration and Deploy to container install.



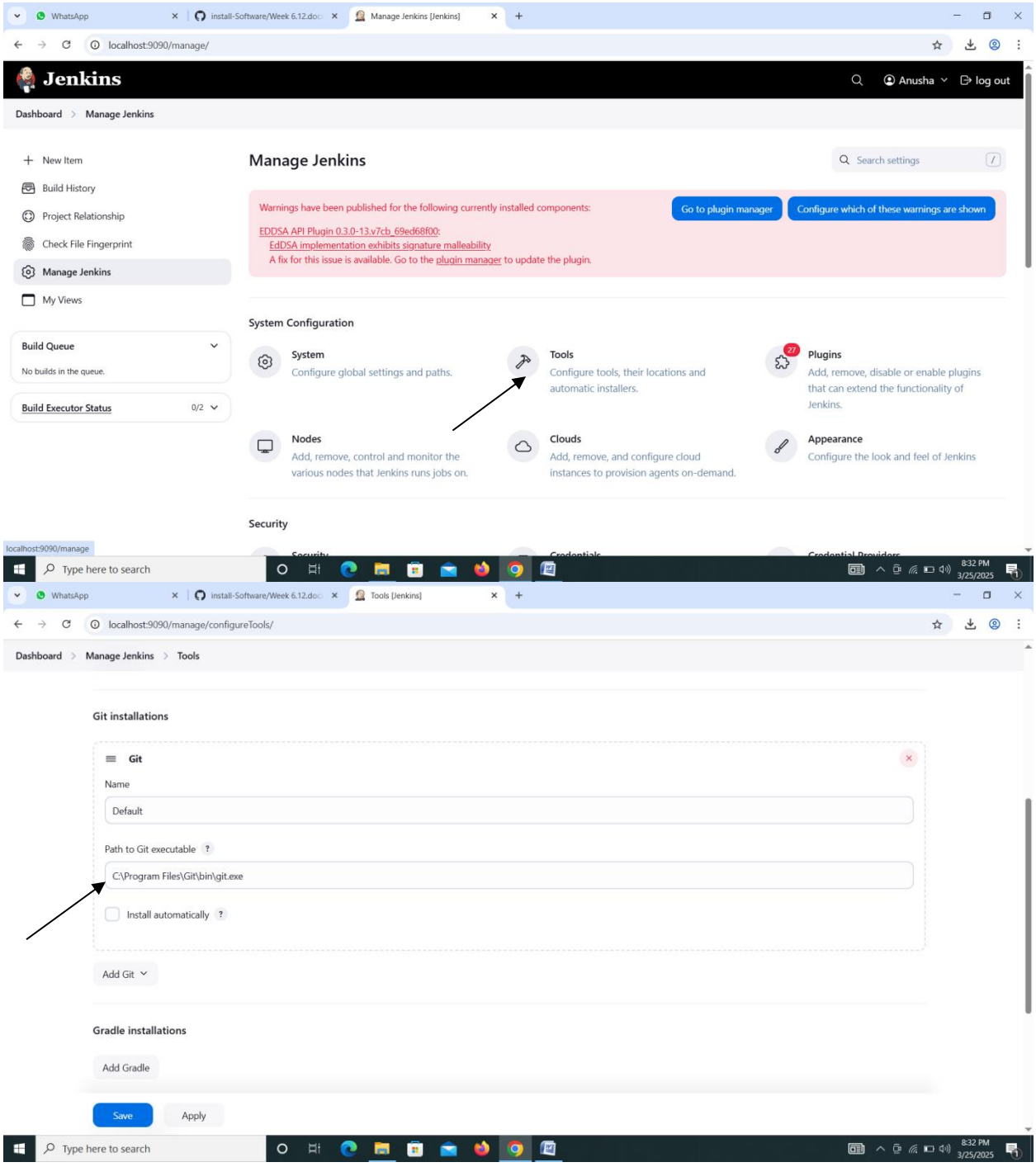
Above picture three plugins are installed , If not showing please go to available plugins install

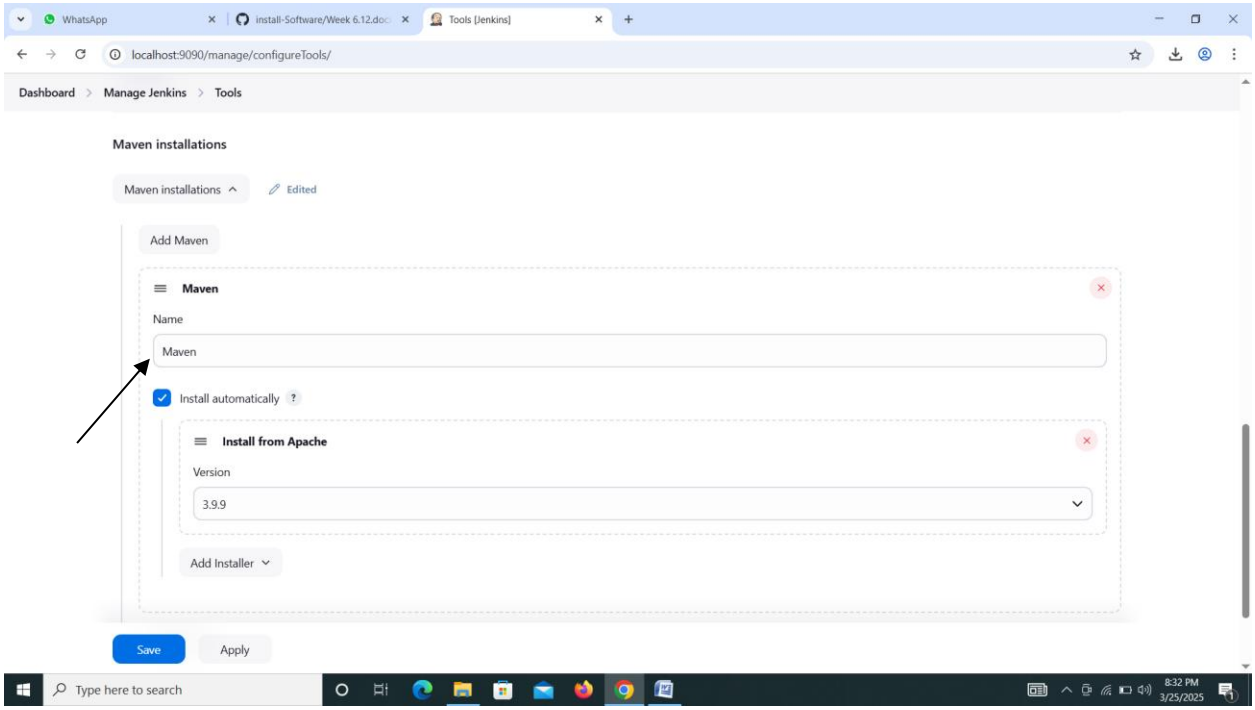




Step 4:-set up git path and maven installation in Tools

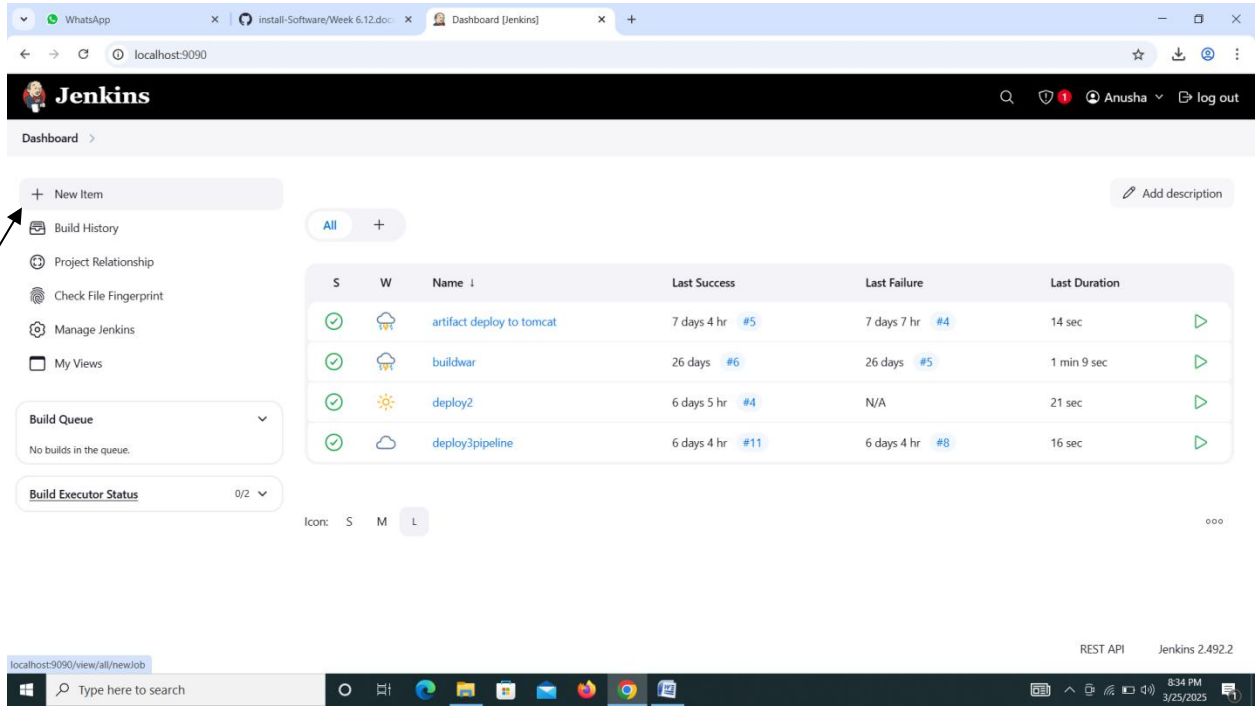
Go to manage Jenkins→Tools→In git installation select path(Git bash) if your using Jenkins software or AWS leave it →In maven Enter name Maven and default installation→Apply and Save.

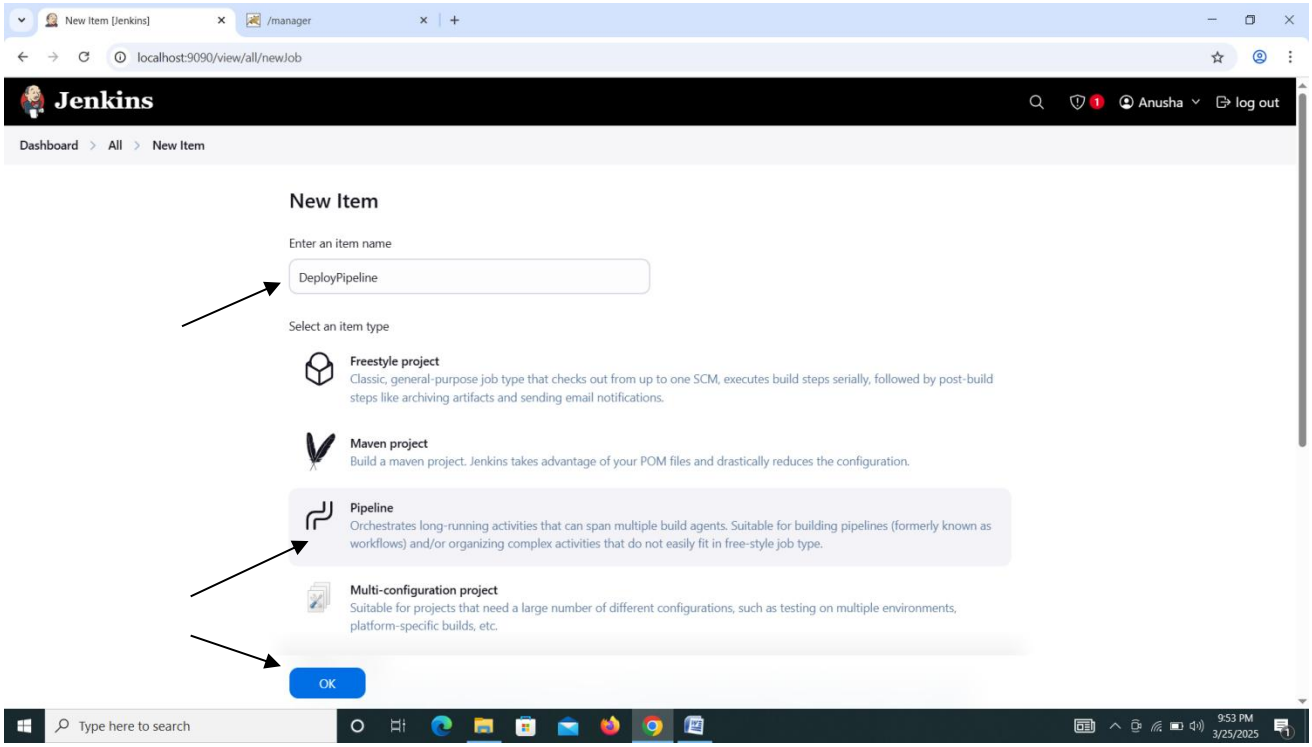

Jenkins
Anusha
log out
Dashboard
Manage Jenkins
New Item
Build History
Project Relationship
Check File Fingerprint
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status
0/2
Manage Jenkins
Search settings
Warnings have been published for the following currently installed components:
Go to plugin manager
Configure which of these warnings are shown
EDDSA API Plugin 0.3.0-13.v7cb_69ed68f00:
EdDSA implementation exhibits signature malleability
A fix for this issue is available. Go to the plugin manager to update the plugin.
System Configuration
System
Configure global settings and paths.
Tools
Configure tools, their locations and automatic installers.
Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins.
Nodes
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.
Clouds
Add, remove, and configure cloud instances to provision agents on-demand.
Appearance
Configure the look and feel of Jenkins
Security
Dashboard
Manage Jenkins
Tools
Git installations
Git
Name
Default
Path to Git executable
C:\Program Files\Git\bin\git.exe
Install automatically
Add Git
Gradle installations
Add Gradle
Save
Apply



Step 5:-Creating New Job for deploy artifact in tomcat test server

6. Create New Item→ Enter name DeployPipeline →select pipeline project→click ok

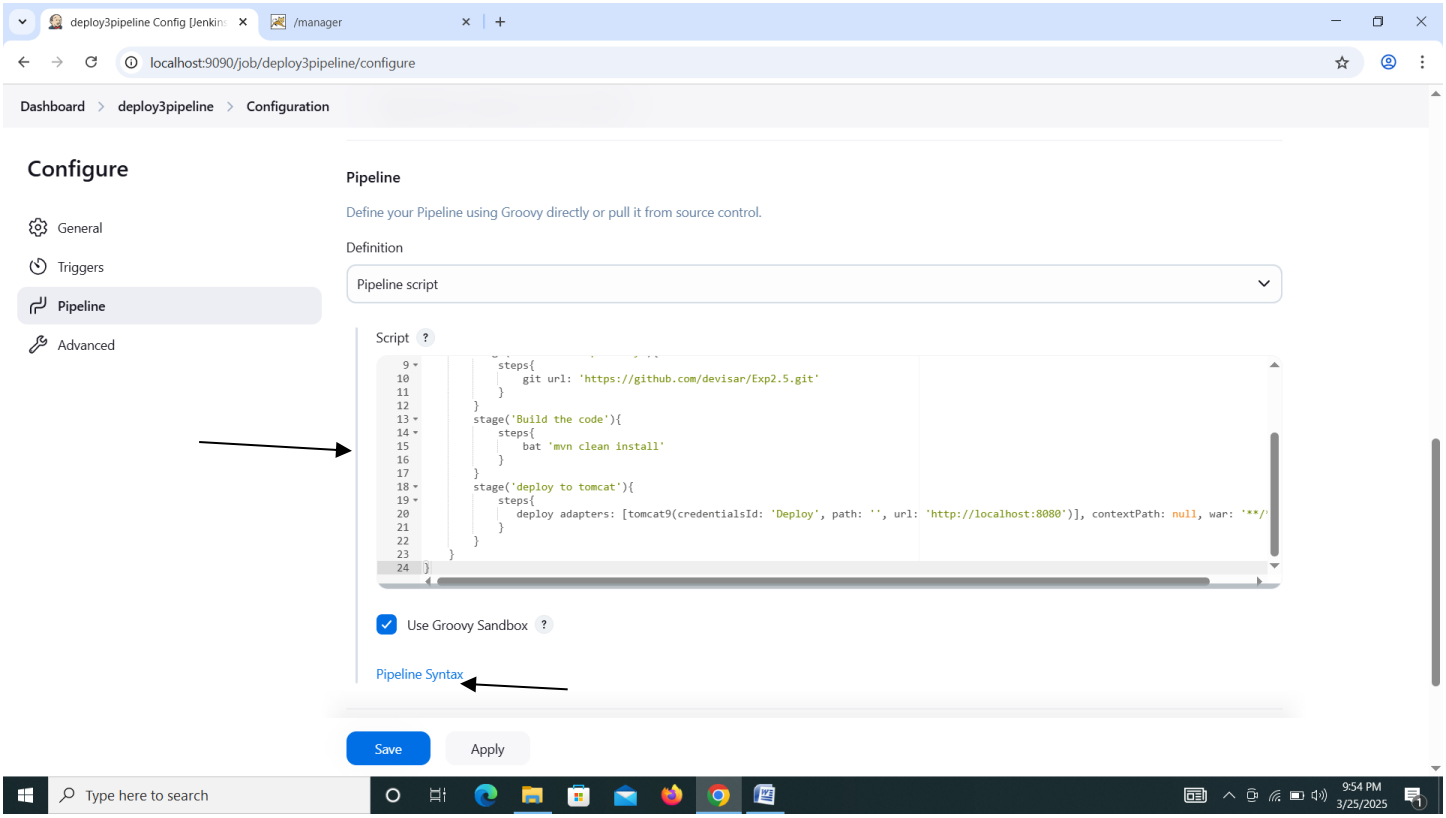




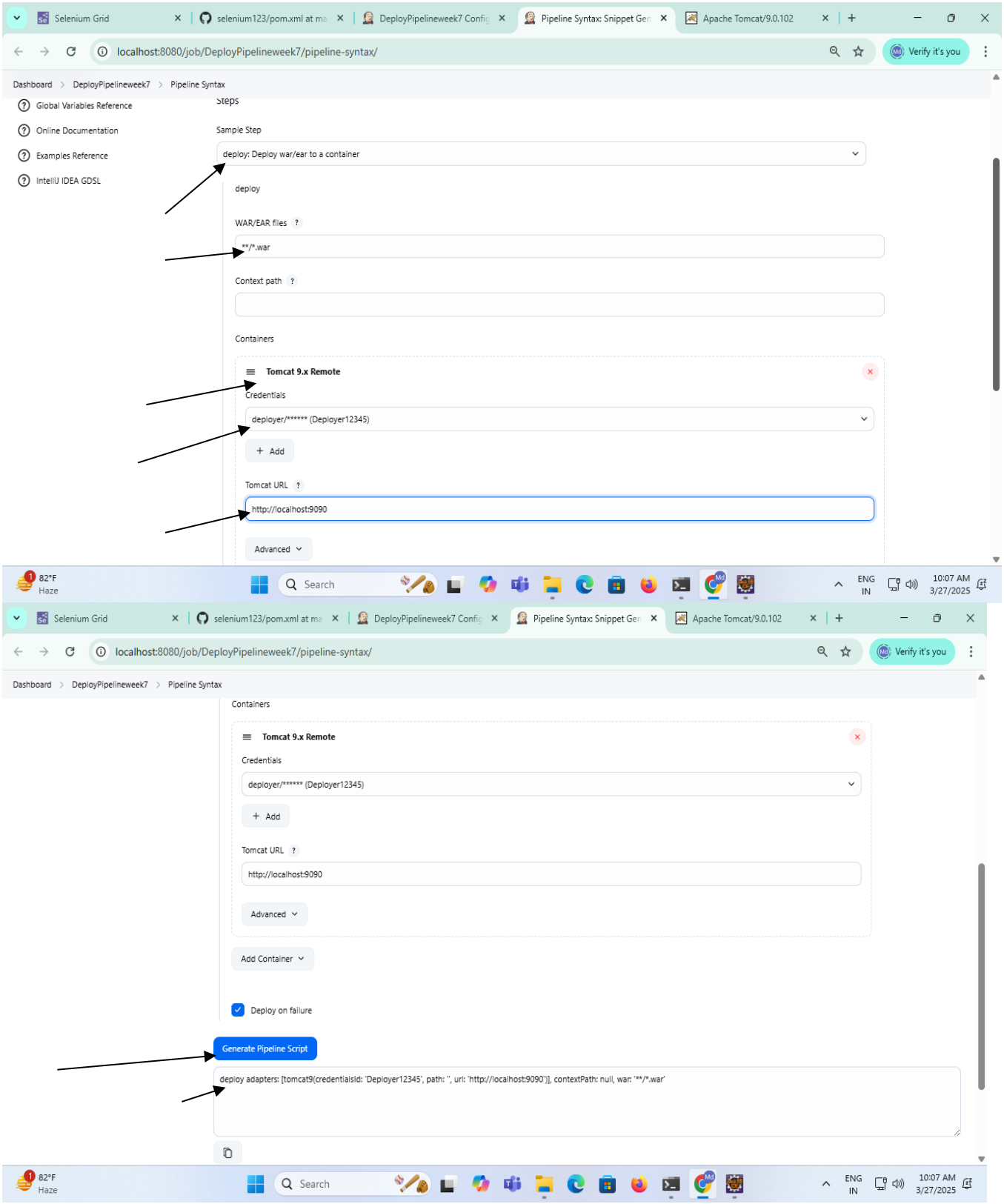
Step 2:-Copy paste below commands pipeline script

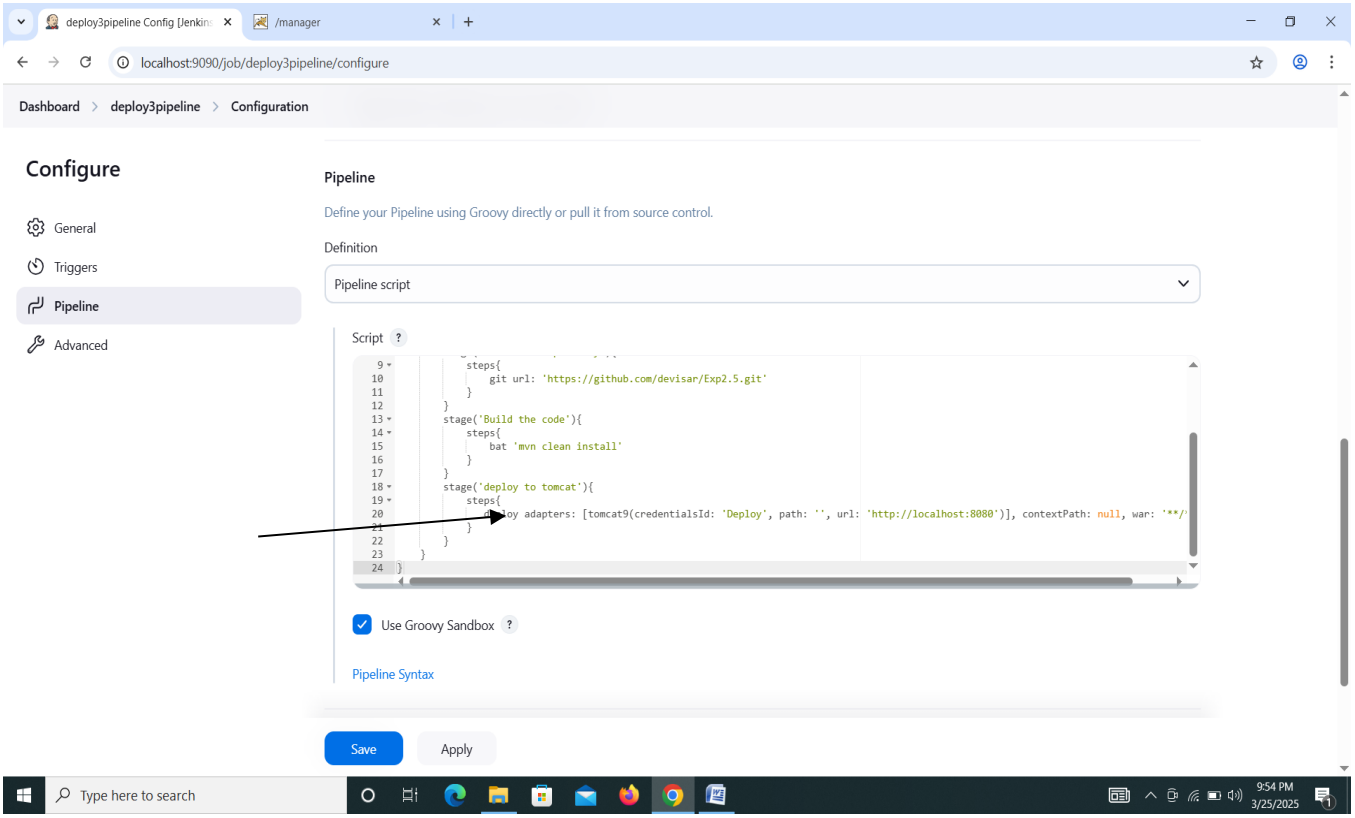
```
pipeline{
    agent any
    tools{
        maven 'Maven'

    }
    stages{
        stage('clone the repository'){
            steps{
                git url: 'https://github.com/devisar/Exp2.5.git'
            }
        }
        stage('Build the code'){
            steps{
                bat 'mvn clean install'
            }
        }
        stage('deploy to tomcat'){
            steps{
                deploy adapters: [tomcat9(credentialsId: 'Deploy', path: '', url: 'http://localhost:8080')],
contextPath: null, war: '**/*.war'
            }
        }
```

```
    }
}
```



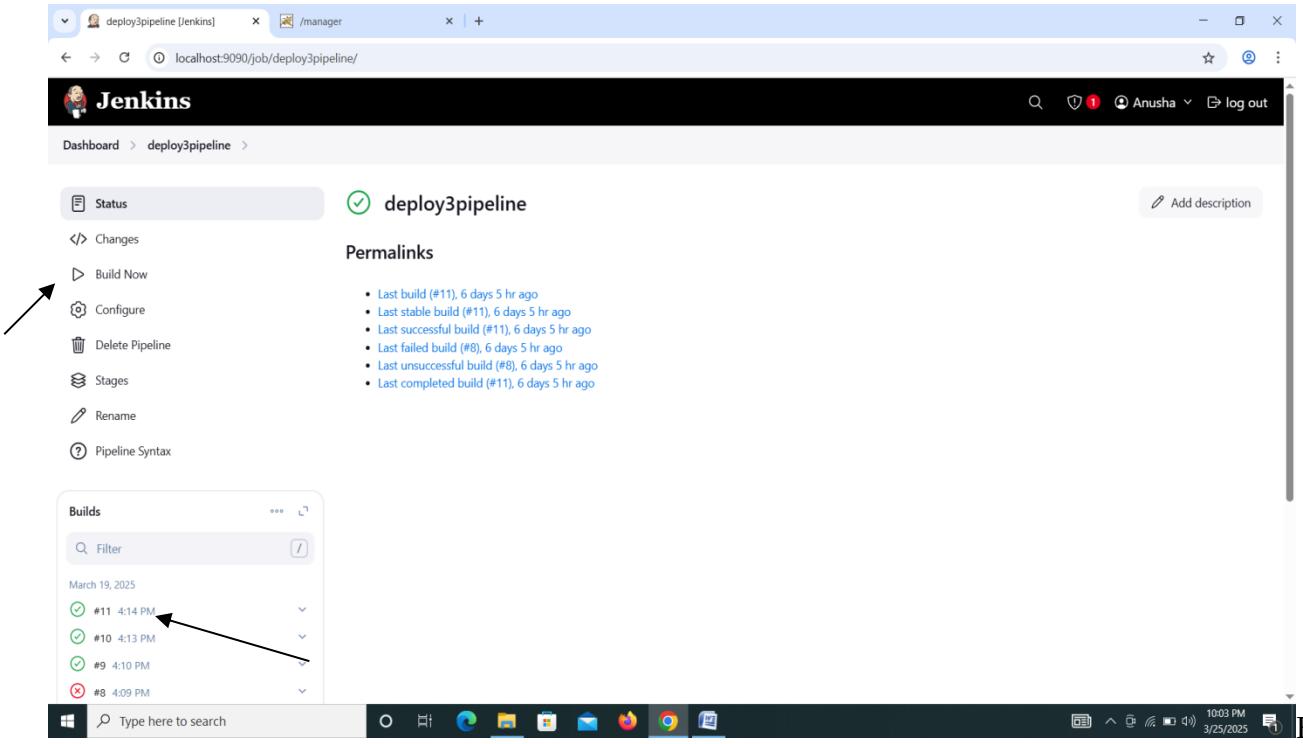
Step 6:-deploy to tomcat you want to create pipeline script go to →pipeline syntax→Select in sample step deploy: Deploy war/ear to a container →enter war/ear files:**/*.war→Select Containers tomcat 9→select credentials tomcat user name and password. →Enter Tomcat Url like http://localhost:9090. →Click Generate Pipeline Script copy and paste it original pipeline deployment stage.


Selenium Grid
selenium123/pom.xml at ma
DeployPipelineweek7 Config
Pipeline Syntax: Snippet Gen
Apache Tomcat/9.0.102
localhost:8080/job/DeployPipelineweek7/pipeline-syntax/
Verify it's you
Dashboard > DeployPipelineweek7 > Pipeline Syntax
Global Variables Reference
Online Documentation
Examples Reference
IntelliJ IDEA GDSL
Steps
Sample Step
deploy: Deploy war/ear to a container
deploy
WAR/EAR files
**/*.war
Context path
Containers
Tomcat 9.x Remote
Credentials
deployer/****** (Deployer12345)
Add
Tomcat URL
http://localhost:9090
Advanced
Add Container
Deploy on failure
Generate Pipeline Script
deploy adapters: [tomcat9(credentialsId: 'Deployer12345', path: '', url: 'http://localhost:9090')], contextPath: null, war: '**/*.war'
82°F
Haze
Search
ENG
IN
10:07 AM
3/27/2025

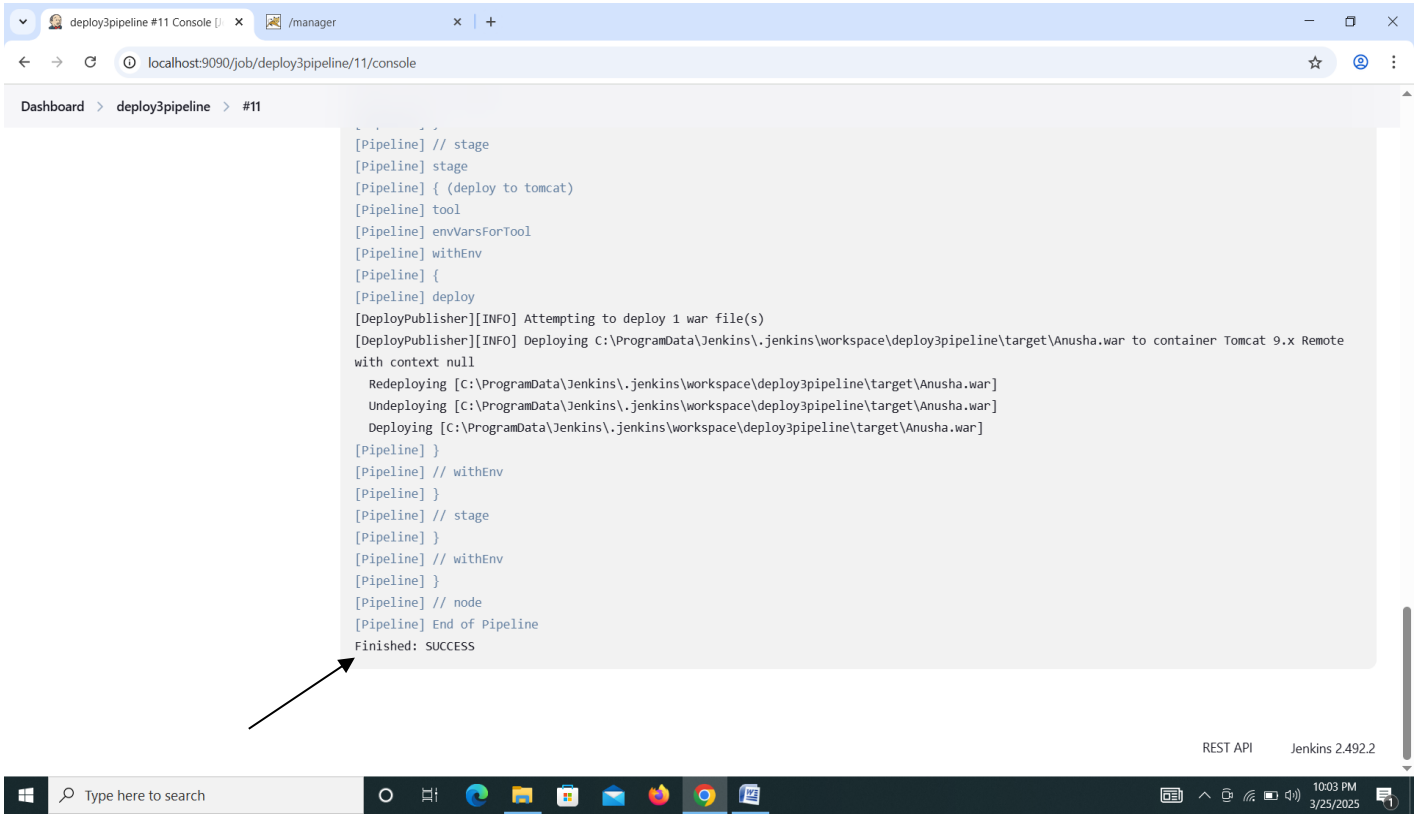


Step 7:- Build war File

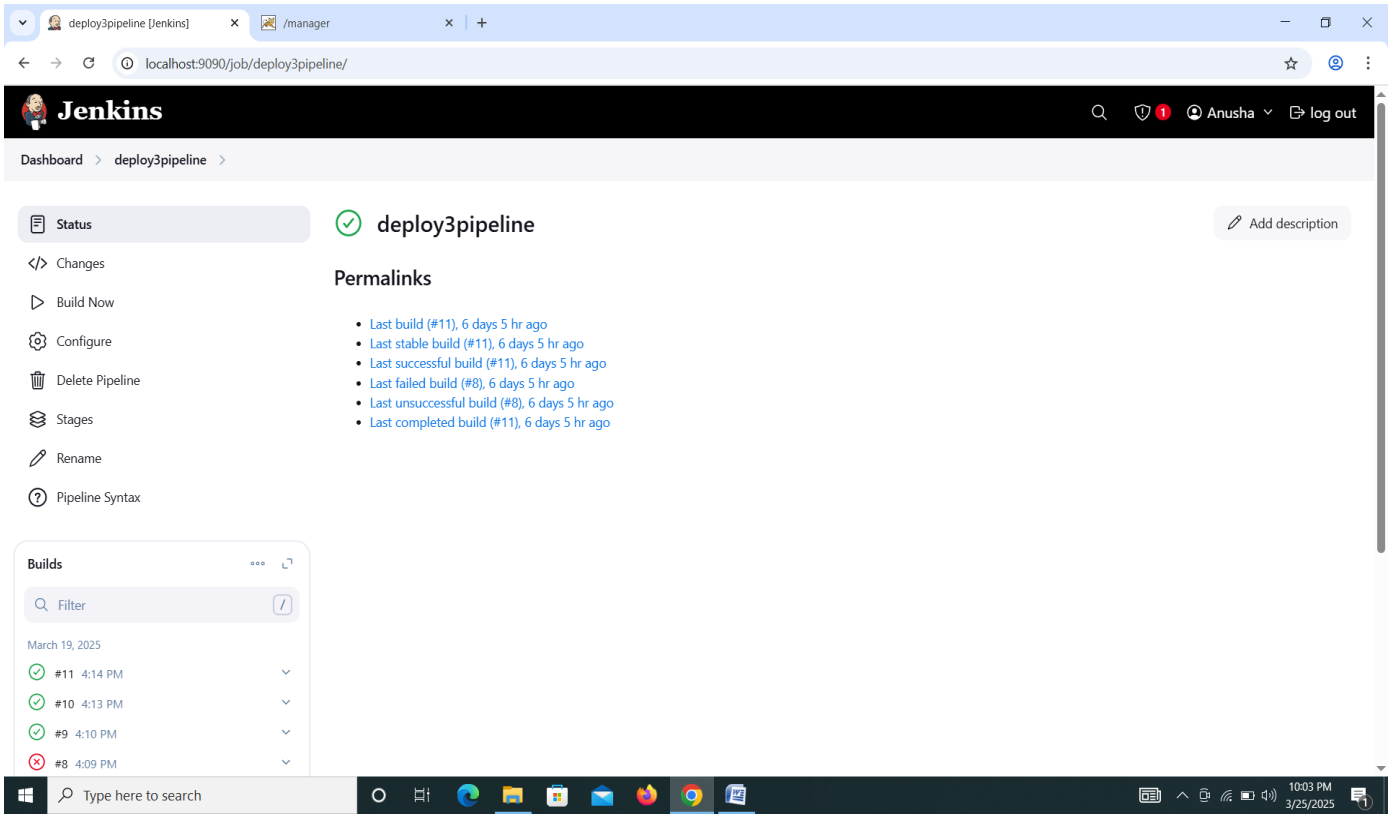
2. Click Build now →Go to

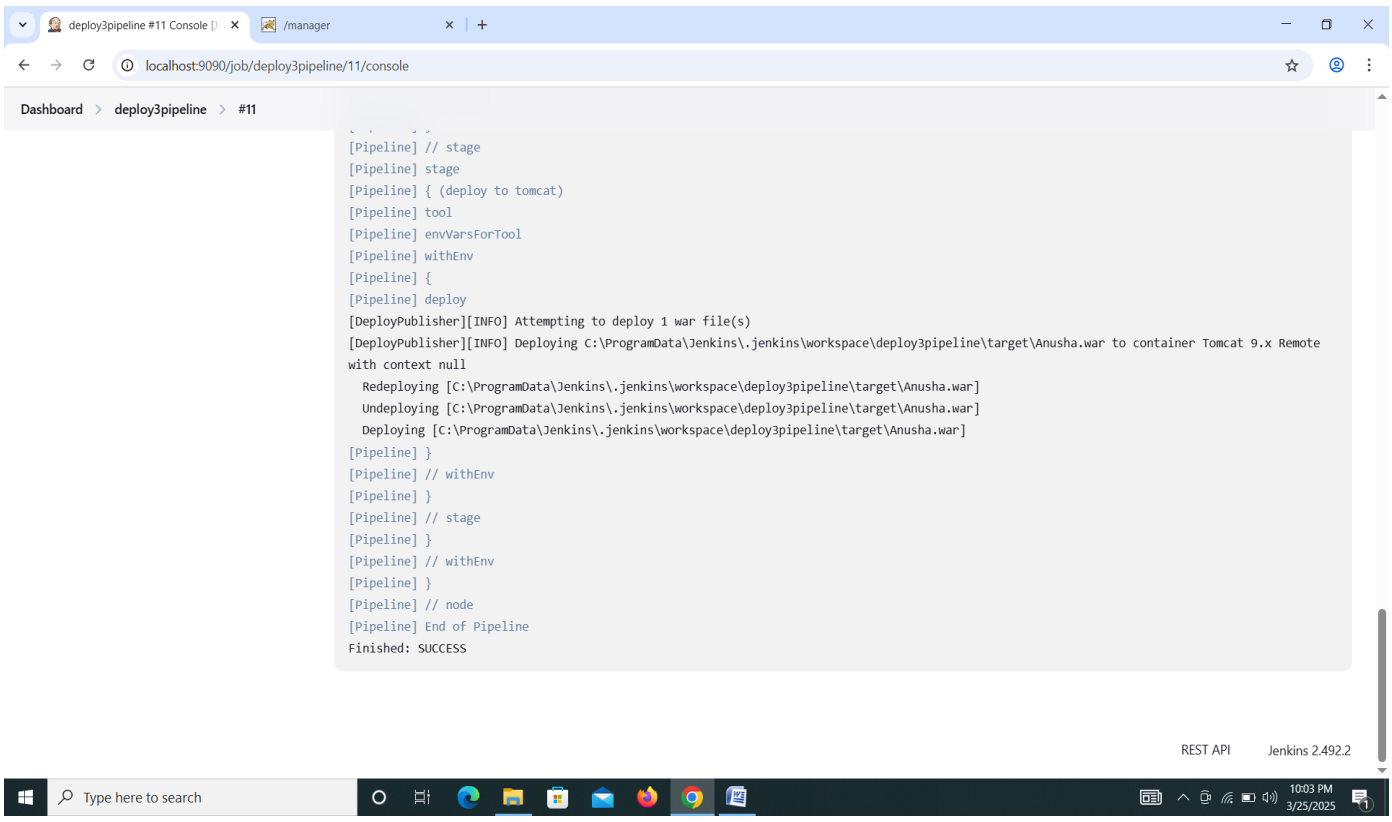


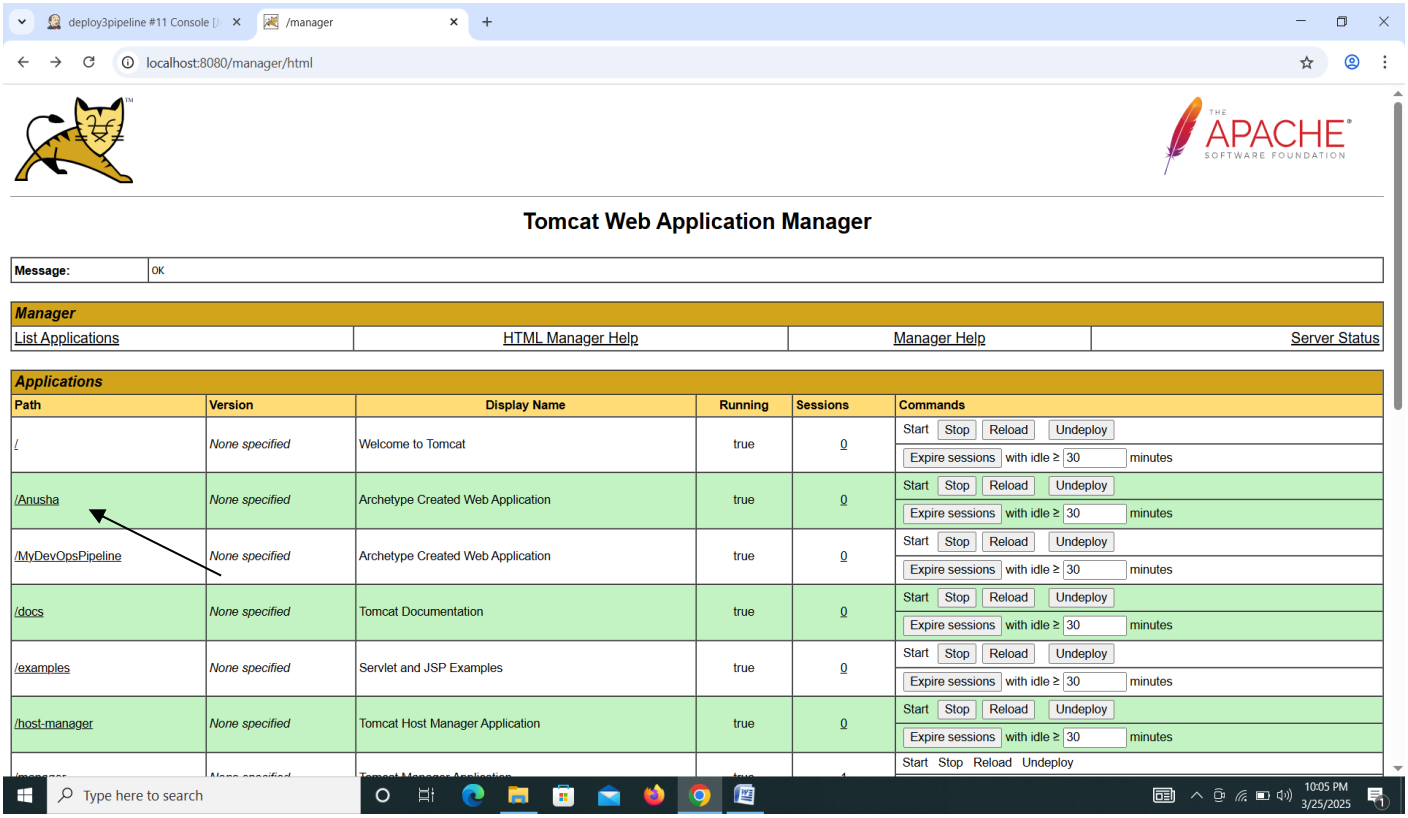
Build select console output now you got Successfully Finish.

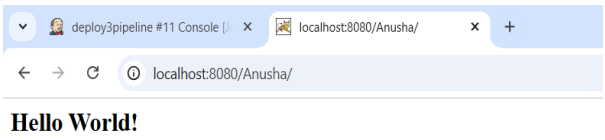

deploy3pipeline #11 Console
/manager
localhost:9090/job/deploy3pipeline/11/console
Dashboard > deploy3pipeline > #11
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (deploy to tomcat)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] deploy
[DeployPublisher][INFO] Attempting to deploy 1 war file(s)
[DeployPublisher][INFO] Deploying C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war to container Tomcat 9.x Remote with context null
Redeploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war]
Undeploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war]
Deploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war]
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
REST API
Jenkins 2.492.2
Type here to search
10:03 PM
3/25/2025

Output:-


deploy3pipeline [Jenkins]
/manager
localhost:9090/job/deploy3pipeline/
Jenkins
Anusha
log out
Dashboard
deploy3pipeline
Status
Changes
Build Now
Configure
Delete Pipeline
Stages
Rename
Pipeline Syntax
deploy3pipeline
Add description
Permalinks
Last build (#11), 6 days 5 hr ago
Last stable build (#11), 6 days 5 hr ago
Last successful build (#11), 6 days 5 hr ago
Last failed build (#8), 6 days 5 hr ago
Last unsuccessful build (#8), 6 days 5 hr ago
Last completed build (#11), 6 days 5 hr ago
Builds
Filter
March 19, 2025
#11 4:14 PM
#10 4:13 PM
#9 4:10 PM
#8 4:09 PM
Type here to search
10:03 PM
3/25/2025


deploy3pipeline #11 Console
/manager
localhost:9090/job/deploy3pipeline/11/console
Dashboard
deploy3pipeline
#11
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (deploy to tomcat)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] deploy
[DeployPublisher][INFO] Attempting to deploy 1 war file(s)
[DeployPublisher][INFO] Deploying C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war to container Tomcat 9.x Remote with context null
Redeploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war]
Undeploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war]
Deploying [C:\ProgramData\Jenkins\.jenkins\workspace\deploy3pipeline\target\Anusha.war]
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
REST API
Jenkins 2.492.2
Type here to search
10:03 PM
3/25/2025


deploy3pipeline #11 Console
/manager
localhost:8080/manager/html
Tomcat Web Application Manager
Message: OK
Manager
List Applications HTML Manager Help Manager Help Server Status
Applications
Path Version Display Name Running Sessions Commands
/ None specified Welcome to Tomcat true 0 Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/Anusha None specified Archetype Created Web Application true 0 Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/MyDevOpsPipeline None specified Archetype Created Web Application true 0 Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs None specified Tomcat Documentation true 0 Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples None specified Servlet and JSP Examples true 0 Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager None specified Tomcat Host Manager Application true 0 Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
Start Stop Reload Undeploy
Type here to search
10:05 PM
3/25/2025

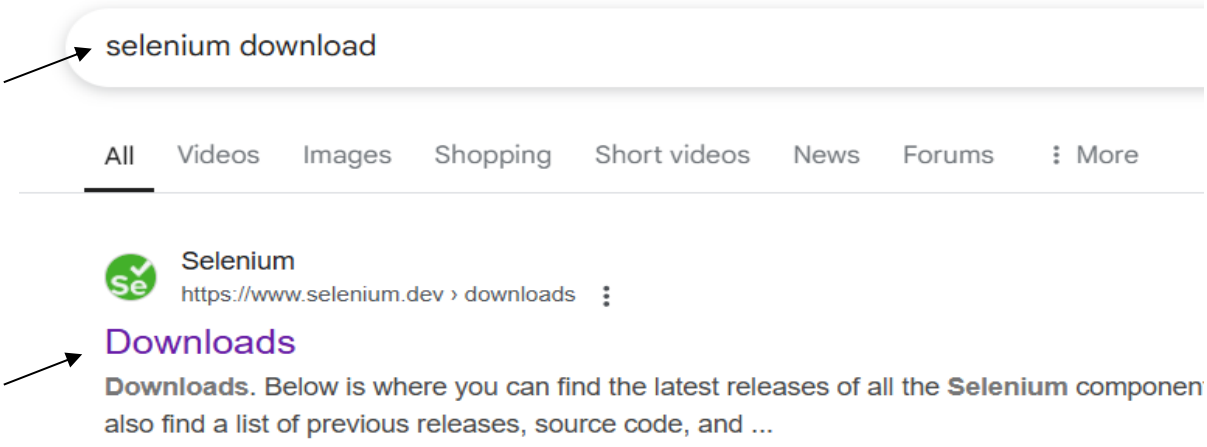

deploy3pipeline #11 Console
localhost:8080/Anusha/
localhost:8080/Anusha/
Hello World!

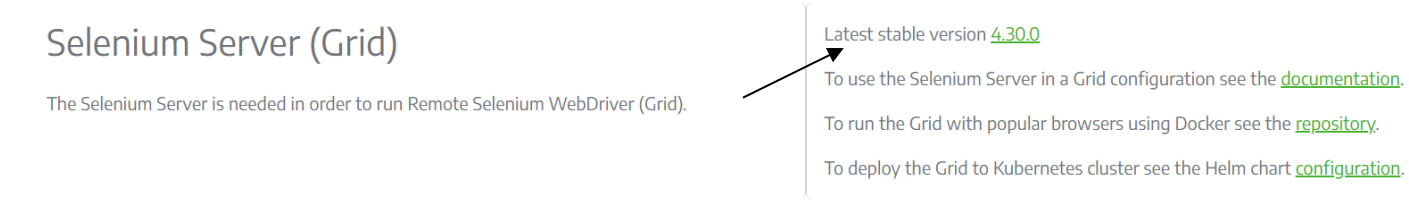
Experiment 8

Week 8

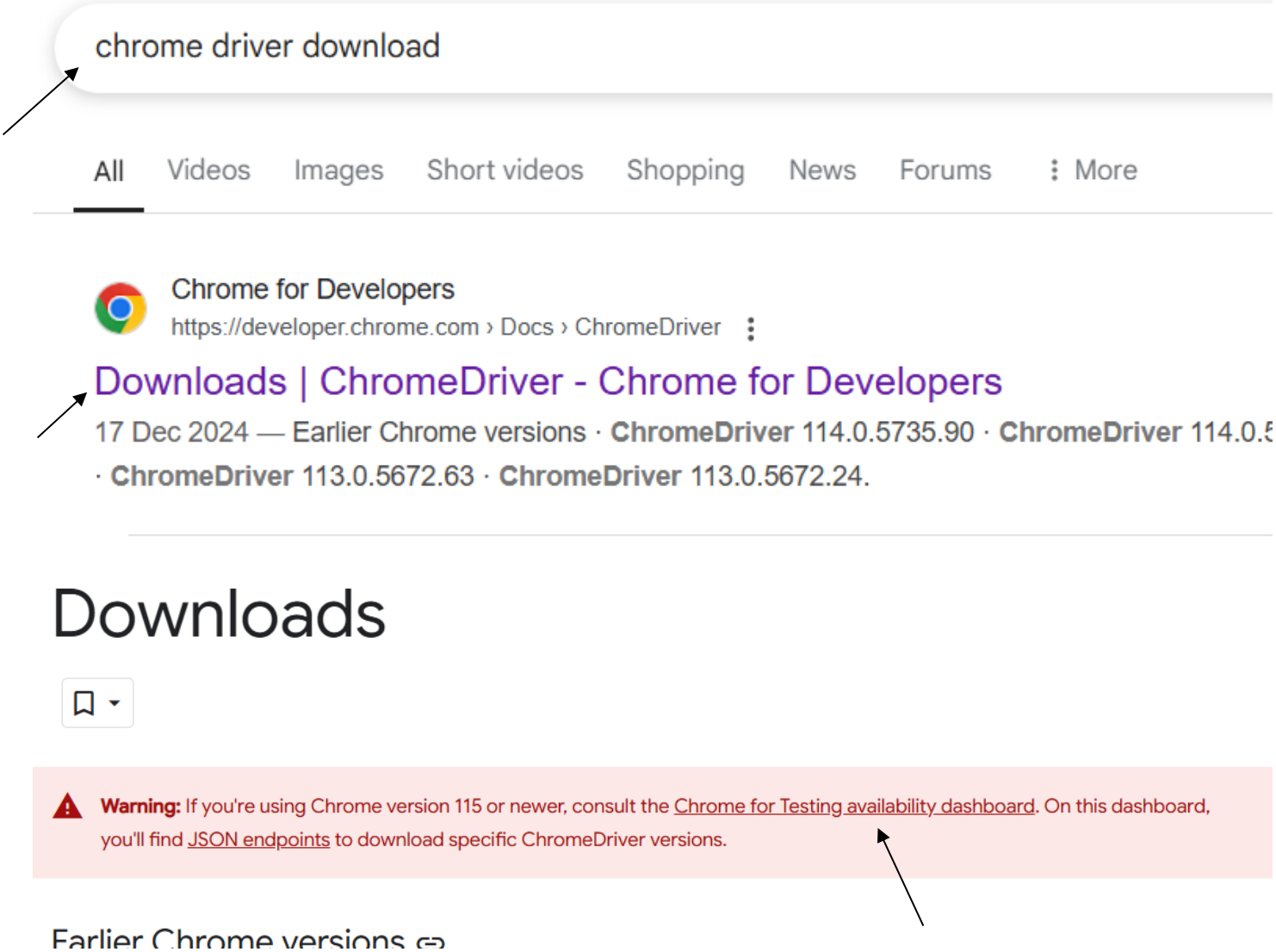
AIM:-Build and deploy a grid for Chrome and Firefox based testing.

Step1:- Download Selenium Grid





Step2:-Download Chrome Driver



Downloads

Warning: If you're using Chrome version 115 or newer, consult the Chrome for Testing availability dashboard. On this dashboard, you'll find JSON endpoints to download specific ChromeDriver versions.

Earlier Chrome versions

Chrome for Testing availability

This page lists the latest available cross-platform Chrome for Testing versions and assets per Chrome

Consult our JSON API endpoints if you're looking to build automated scripts based on Chrome for Test

Last updated @ 2025-03-28T07:09:34.087Z

Channel	Version	Revision	Status
Stable	134.0.6998.165	r1415337	✓
Beta	135.0.7049.41	r1427262	✓
Dev	136.0.7091.2	r1437865	✓
Canary	136.0.7093.0	r1438506	✓

Below picture address copy and paste it new tab. Automatically chrome driver downloded

Stable

Version: 134.0.6998.165 (r1415337)

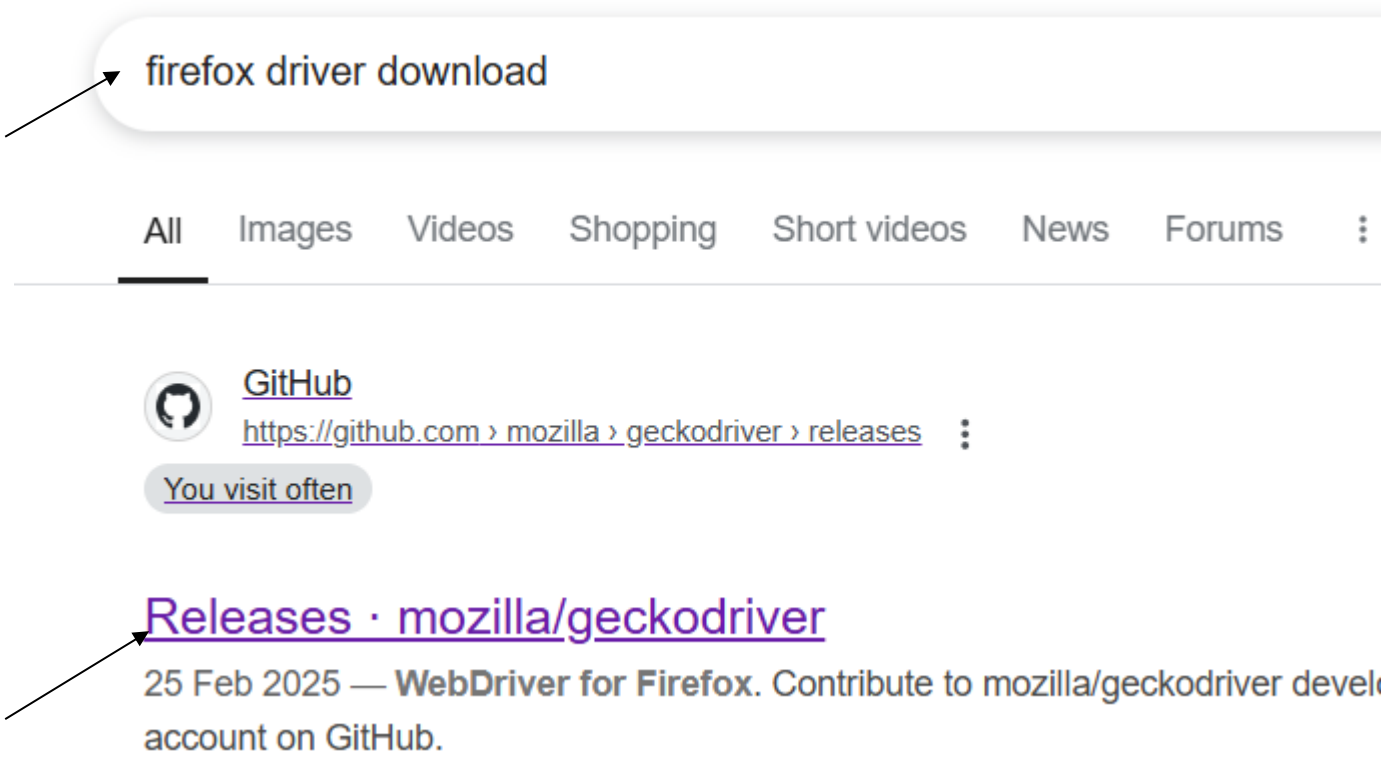
Binary	Platform	URL	HTTP status
chrome	linux64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/linux64/chrome-linux64.zip	200
chrome	mac-arm64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/mac-arm64/chrome-mac-arm64.zip	200
chrome	mac-x64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/mac-x64/chrome-mac-x64.zip	200
chrome	win32	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win32/chrome-win32.zip	200
chrome	win64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win64/chrome-win64.zip	200
chromedriver	linux64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/linux64/chromedriver-linux64.zip	200
chromedriver	mac-arm64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/mac-arm64/chromedriver-mac-arm64.zip	200
chromedriver	mac-x64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/mac-x64/chromedriver-mac-x64.zip	200
chromedriver	win32	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win32/chromedriver-win32.zip	200
chromedriver	win64	https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win64/chromedriver-win64.zip	200

https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win64/chromedriver-win64.zip

https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win64/chromedriver-win64.zip

https://storage.googleapis.com/chrome-for-testing-public/134.0.6998.165/win64/chromedriver-win64.zip - Google Search

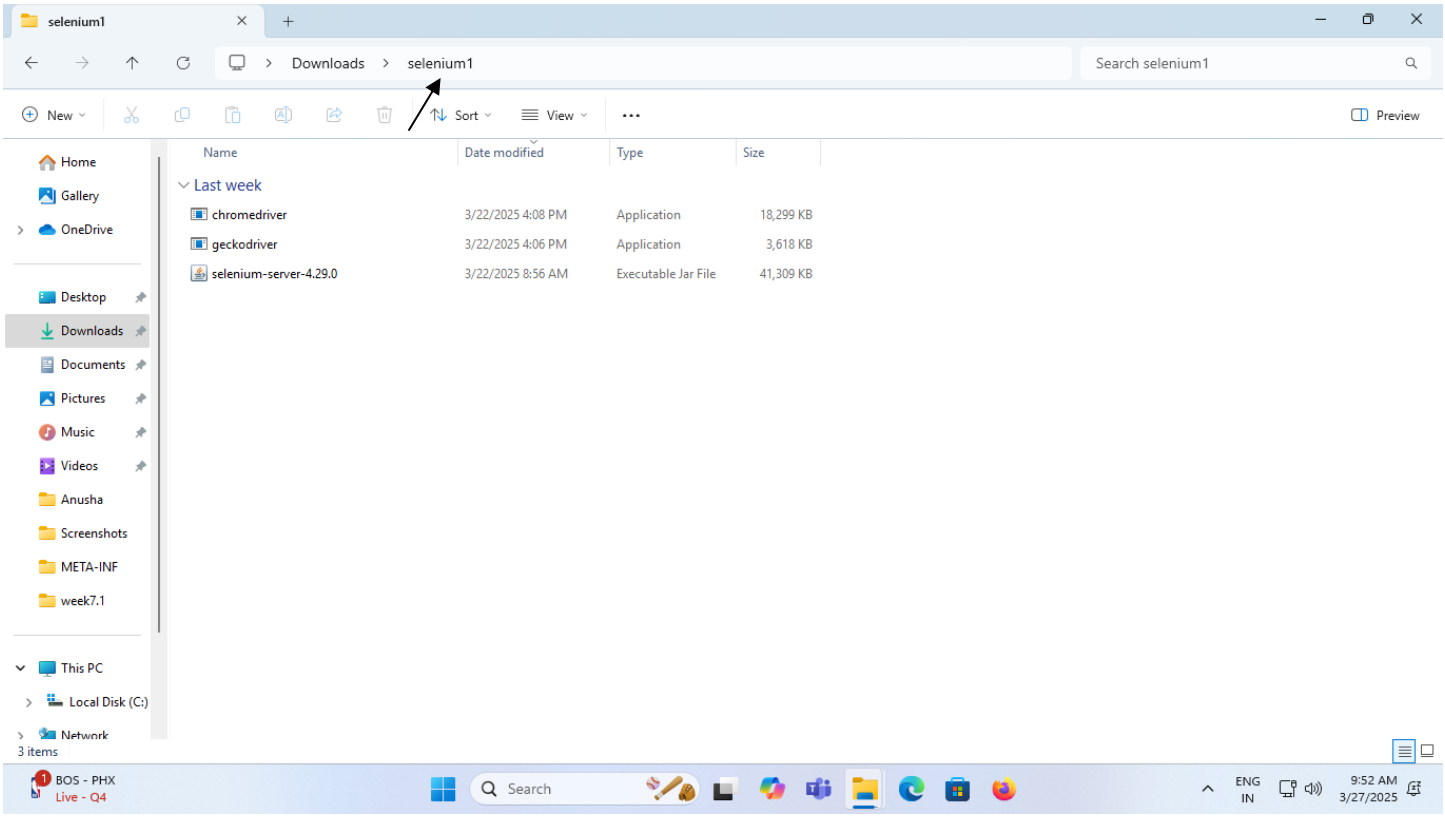
Step3:-Download Gecko Driver



▾ Assets 13

geckodriver-v0.36.0-linux-aarch64.tar.gz	2.07 MB	last month
geckodriver-v0.36.0-linux-aarch64.tar.gz.asc	833 Bytes	last month
geckodriver-v0.36.0-linux32.tar.gz	2.16 MB	last month
geckodriver-v0.36.0-linux32.tar.gz.asc	833 Bytes	last month
geckodriver-v0.36.0-linux64.tar.gz	2.2 MB	last month
geckodriver-v0.36.0-linux64.tar.gz.asc	833 Bytes	last month
geckodriver-v0.36.0-macos-aarch64.tar.gz	1.97 MB	last month
geckodriver-v0.36.0-macos.tar.gz	2.19 MB	last month
geckodriver-v0.36.0-win-aarch64.zip	1.62 MB	last month
geckodriver-v0.36.0-win32.zip	1.7 MB	last month
Source code (zip)		last month
Source code (tar.gz)		last month
Show all 13 assets		

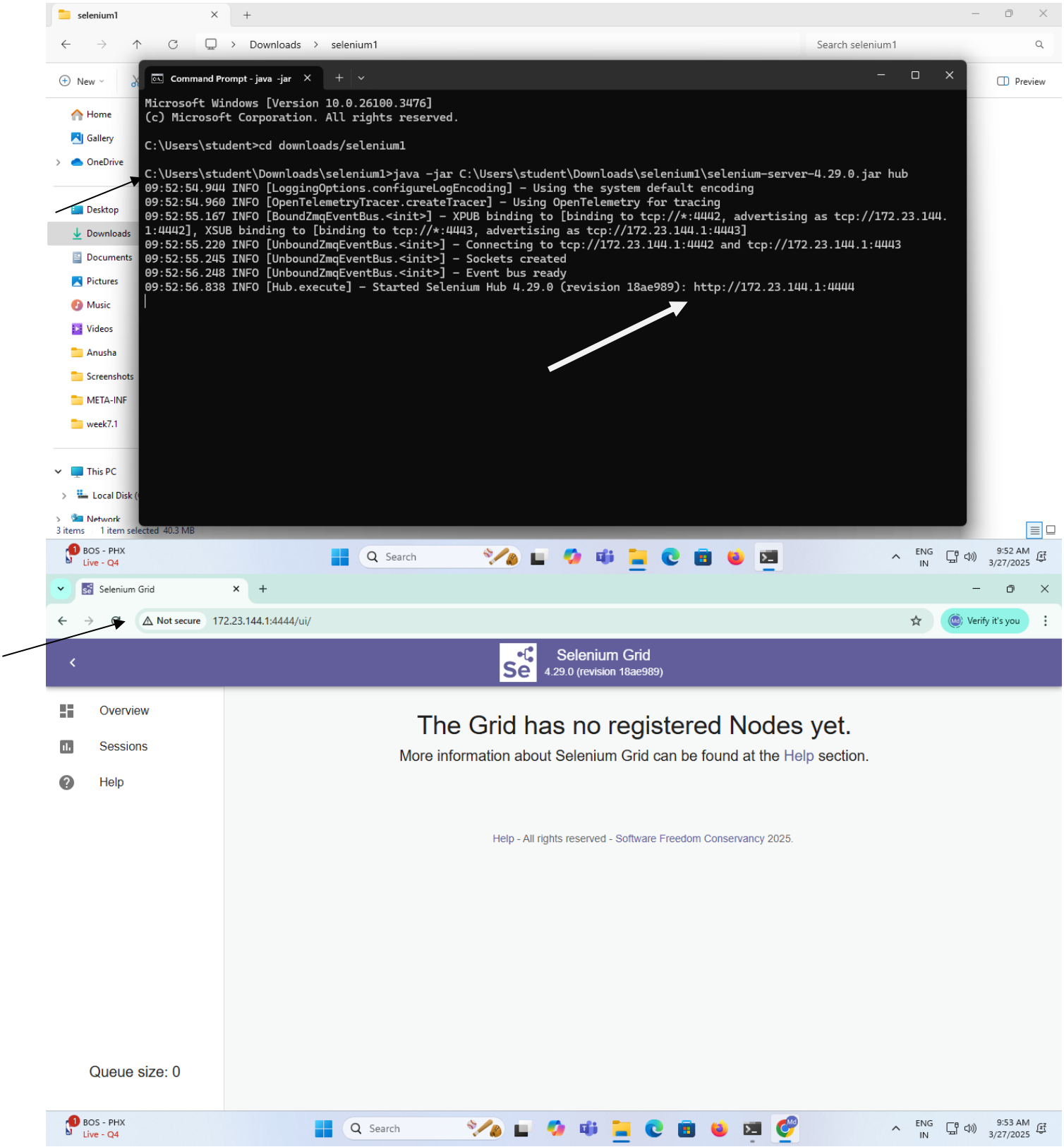
Step 4:-Put all drivers one folder

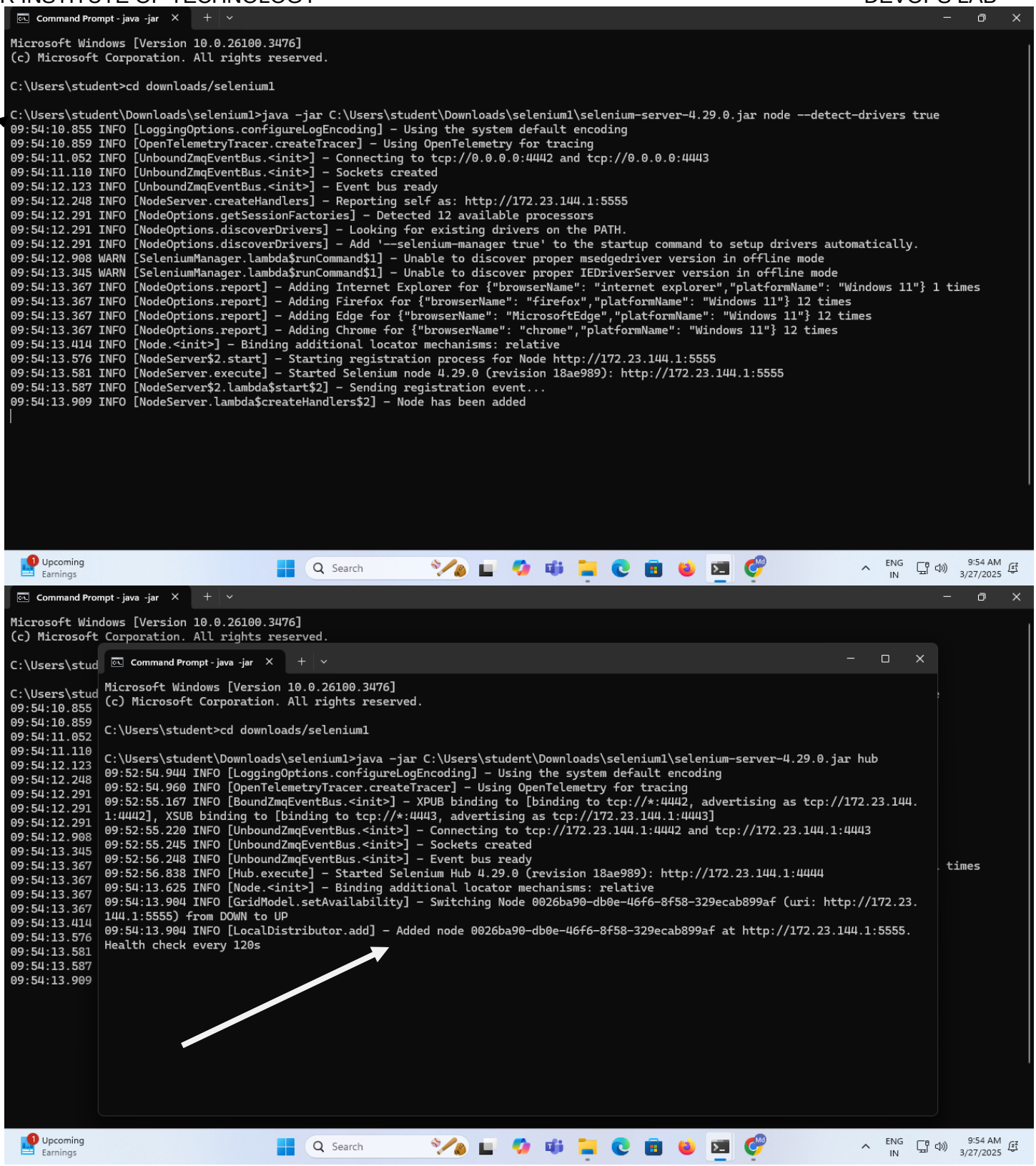


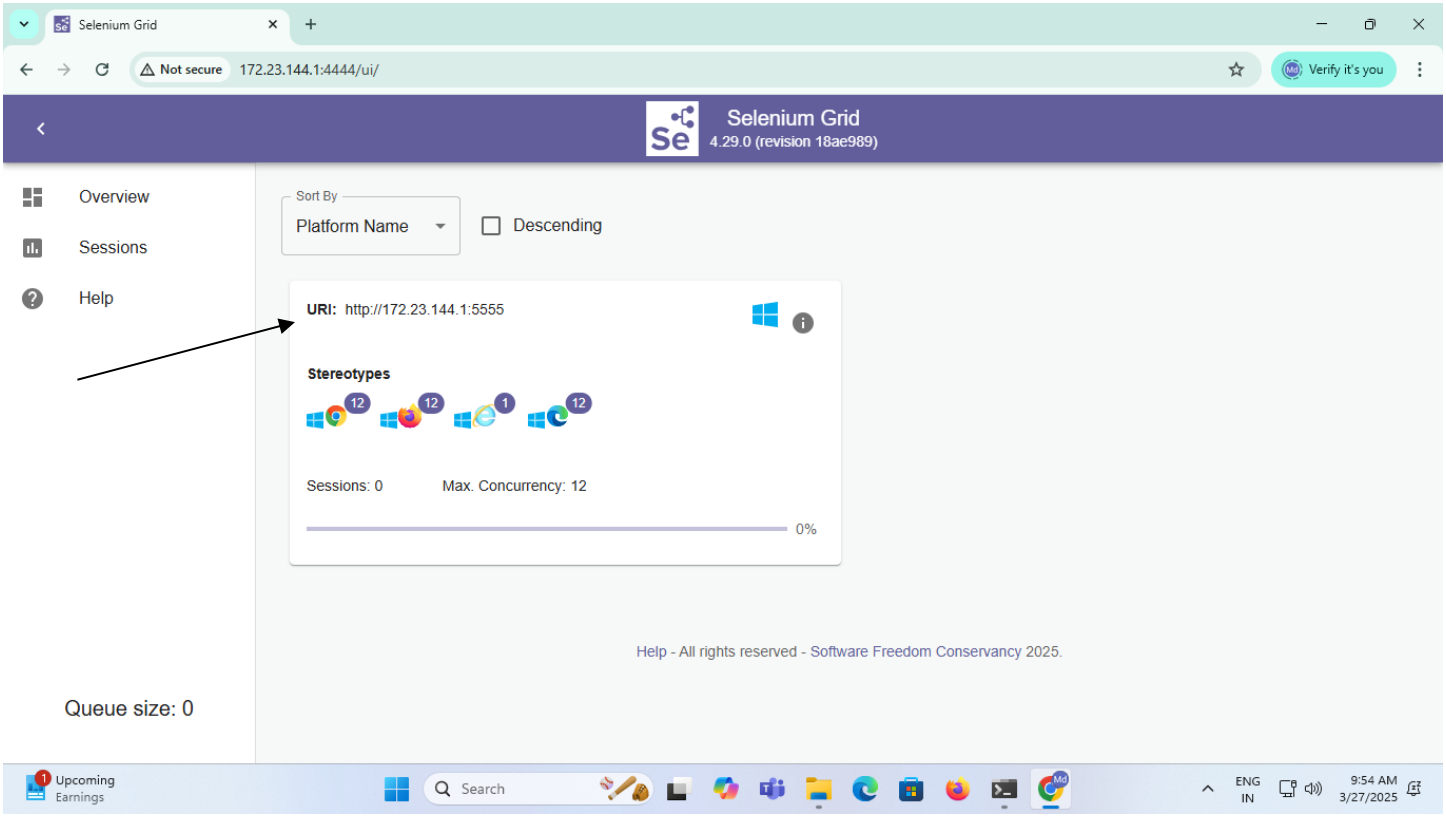
Step 5:-Run hub use following command and node also separate cmd. In cmd change directory where available all drivers

1. `java -jar selenium-server-4.29.0.jar hub`
2. `java -jar selenium-server-4.29.0.jar node --detect-drivers true`

Also run chrome using ip address path it will generate after running hub and verify

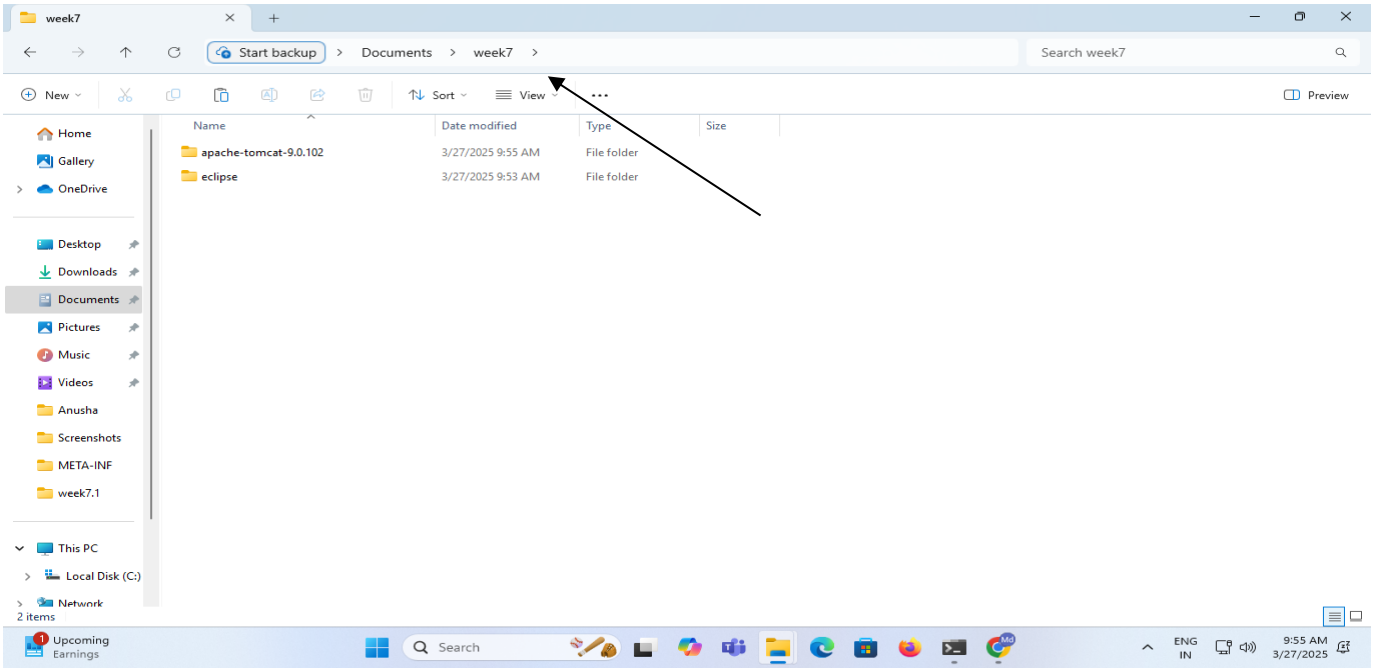


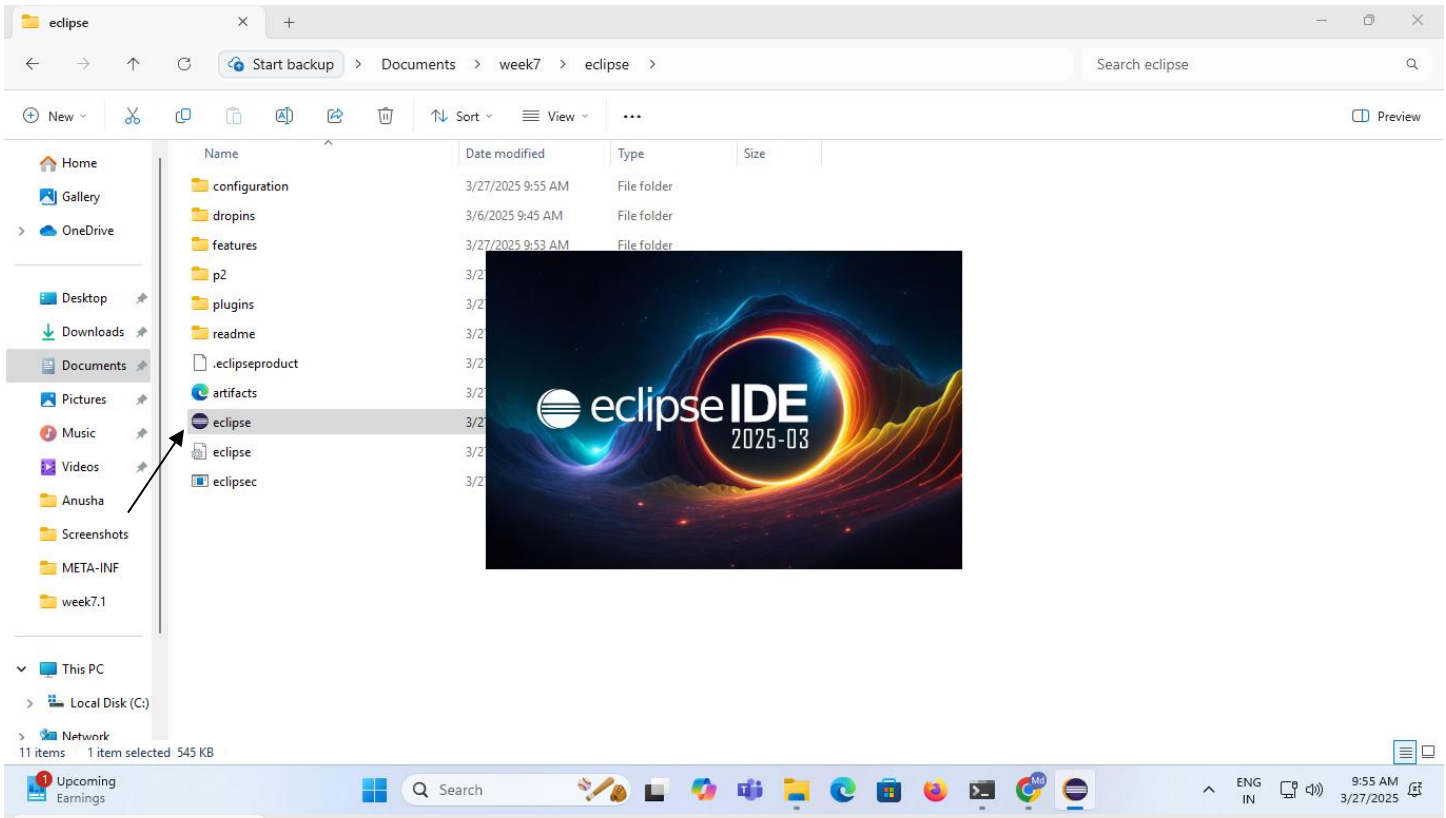

Command Prompt - java -jar
Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.
C:\Users\student>cd downloads/selenium1
C:\Users\student\Downloads\selenium1>java -jar C:\Users\student\Downloads\selenium1\selenium-server-4.29.0.jar node --detect-drivers true
09:54:10.855 INFO [LoggingOptions.configureLogEncoding] - Using the system default encoding
09:54:10.859 INFO [OpenTelemetryTracer.createTracer] - Using OpenTelemetry for tracing
09:54:11.052 INFO [UnboundZmqEventBus.<init>] - Connecting to tcp://0.0.0.0:4442 and tcp://0.0.0.0:4443
09:54:11.110 INFO [UnboundZmqEventBus.<init>] - Sockets created
09:54:12.123 INFO [UnboundZmqEventBus.<init>] - Event bus ready
09:54:12.248 INFO [NodeServer.createHandlers] - Reporting self as: http://172.23.144.1:5555
09:54:12.291 INFO [NodeOptions.getSessionFactories] - Detected 12 available processors
09:54:12.291 INFO [NodeOptions.discoverDrivers] - Looking for existing drivers on the PATH.
09:54:12.291 INFO [NodeOptions.discoverDrivers] - Add '--selenium-manager true' to the startup command to setup drivers automatically.
09:54:12.908 WARN [SeleniumManager.lambda$runCommand$1] - Unable to discover proper msedgedriver version in offline mode
09:54:13.345 WARN [SeleniumManager.lambda$runCommand$1] - Unable to discover proper IEDriverServer version in offline mode
09:54:13.367 INFO [NodeOptions.report] - Adding Internet Explorer for {"browserName": "internet explorer","platformName": "Windows 11"} 1 times
09:54:13.367 INFO [NodeOptions.report] - Adding Firefox for {"browserName": "firefox","platformName": "Windows 11"} 12 times
09:54:13.367 INFO [NodeOptions.report] - Adding Edge for {"browserName": "MicrosoftEdge","platformName": "Windows 11"} 12 times
09:54:13.367 INFO [NodeOptions.report] - Adding Chrome for {"browserName": "chrome","platformName": "Windows 11"} 12 times
09:54:13.414 INFO [Node.<init>] - Binding additional locator mechanisms: relative
09:54:13.576 INFO [NodeServer$2.start] - Starting registration process for Node http://172.23.144.1:5555
09:54:13.581 INFO [NodeServer.execute] - Started Selenium node 4.29.0 (revision 18ae989): http://172.23.144.1:5555
09:54:13.587 INFO [NodeServer$2.lambda$start$2] - Sending registration event...
09:54:13.909 INFO [NodeServer.lambda$createHandlers$2] - Node has been added
Upcoming Earnings
Search
ENG IN
9:54 AM 3/27/2025
Command Prompt - java -jar
Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.
C:\Users\stud
Command Prompt - java -jar
Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.
C:\Users\student>cd downloads/selenium1
C:\Users\student\Downloads\selenium1>java -jar C:\Users\student\Downloads\selenium1\selenium-server-4.29.0.jar hub
09:52:54.944 INFO [LoggingOptions.configureLogEncoding] - Using the system default encoding
09:52:54.960 INFO [OpenTelemetryTracer.createTracer] - Using OpenTelemetry for tracing
09:52:55.167 INFO [BoundZmqEventBus.<init>] - XPUB binding to [binding to tcp://*:4442, advertising as tcp://172.23.144.1:4442], XSUB binding to [binding to tcp://*:4443, advertising as tcp://172.23.144.1:4443]
09:52:55.220 INFO [UnboundZmqEventBus.<init>] - Connecting to tcp://172.23.144.1:4442 and tcp://172.23.144.1:4443
09:52:55.245 INFO [UnboundZmqEventBus.<init>] - Sockets created
09:52:56.248 INFO [UnboundZmqEventBus.<init>] - Event bus ready
09:52:56.838 INFO [Hub.execute] - Started Selenium Hub 4.29.0 (revision 18ae989): http://172.23.144.1:4444
09:54:13.625 INFO [Node.<init>] - Binding additional locator mechanisms: relative
09:54:13.904 INFO [GridModel.setAvailability] - Switching Node 0026ba90-db0e-46f6-8f58-329ecab899af (uri: http://172.23.144.1:5555) from DOWN to UP
09:54:13.904 INFO [LocalDistributor.add] - Added node 0026ba90-db0e-46f6-8f58-329ecab899af at http://172.23.144.1:5555. Health check every 120s
times
Upcoming Earnings
Search
ENG IN
9:54 AM 3/27/2025

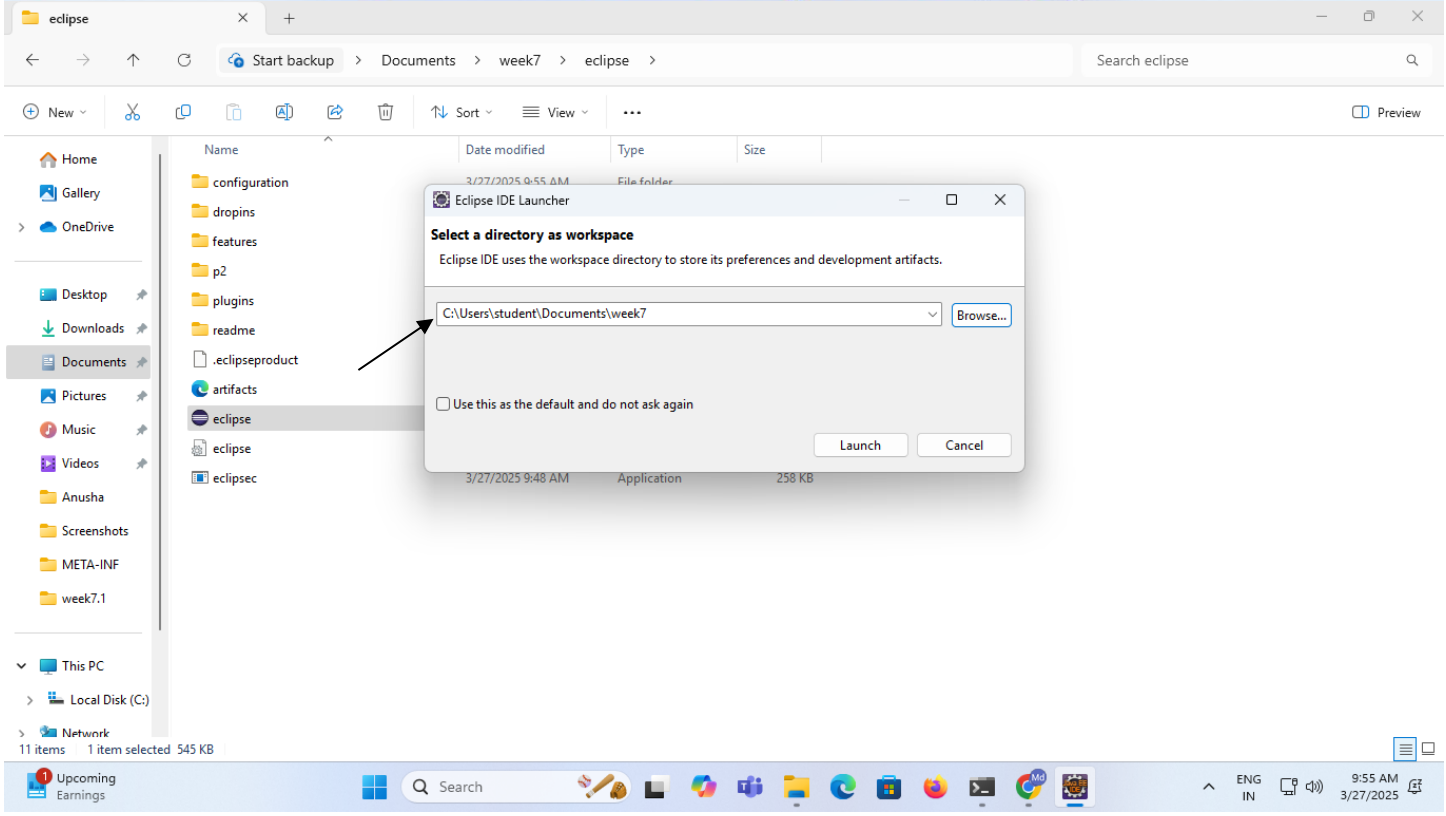


Step 6:-Open Eclipse Attach Apache Tomcat and TestNG

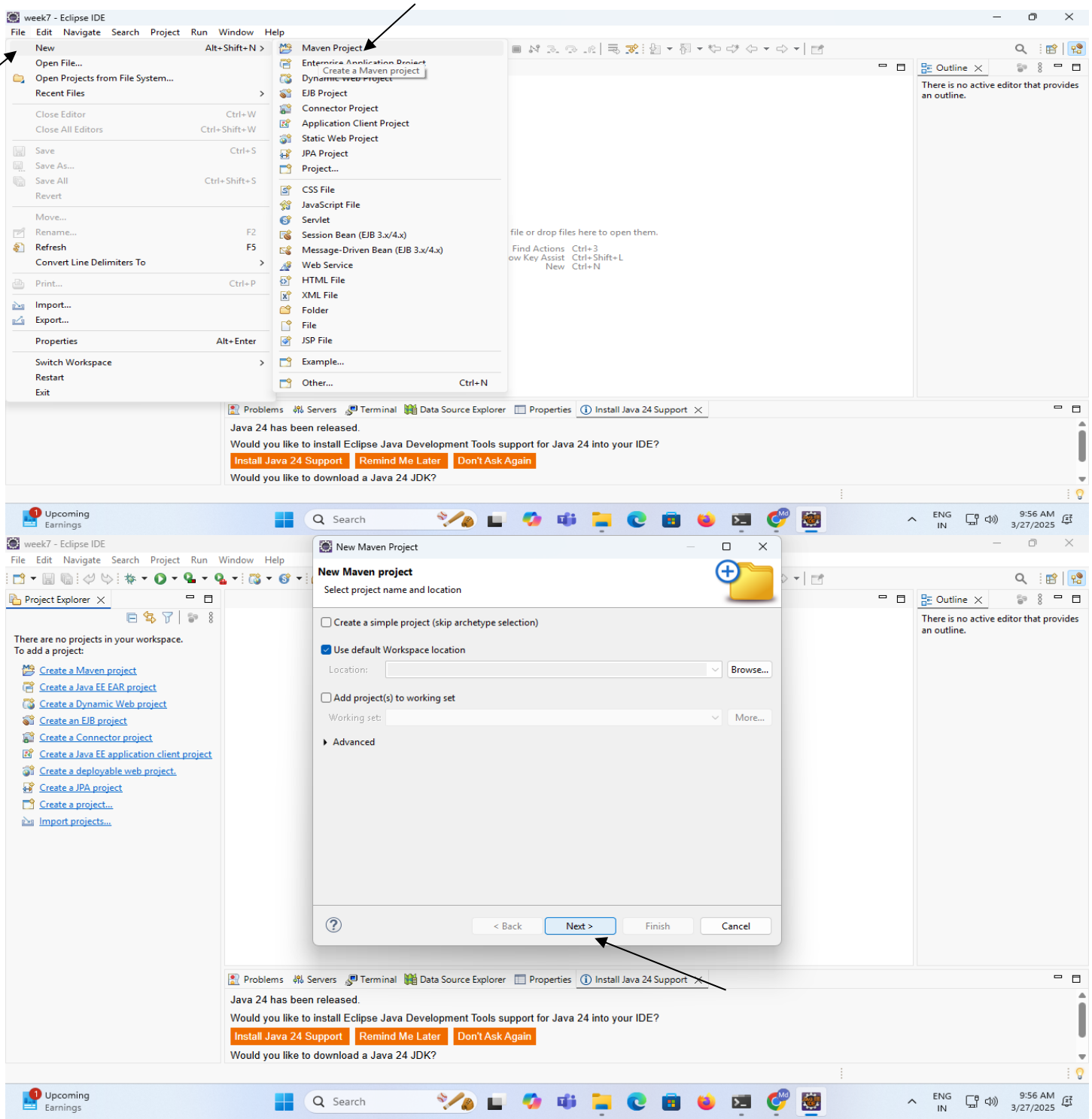
1. **Store Apache and eclipse folders only single folder and lunch Eclipse same folder**

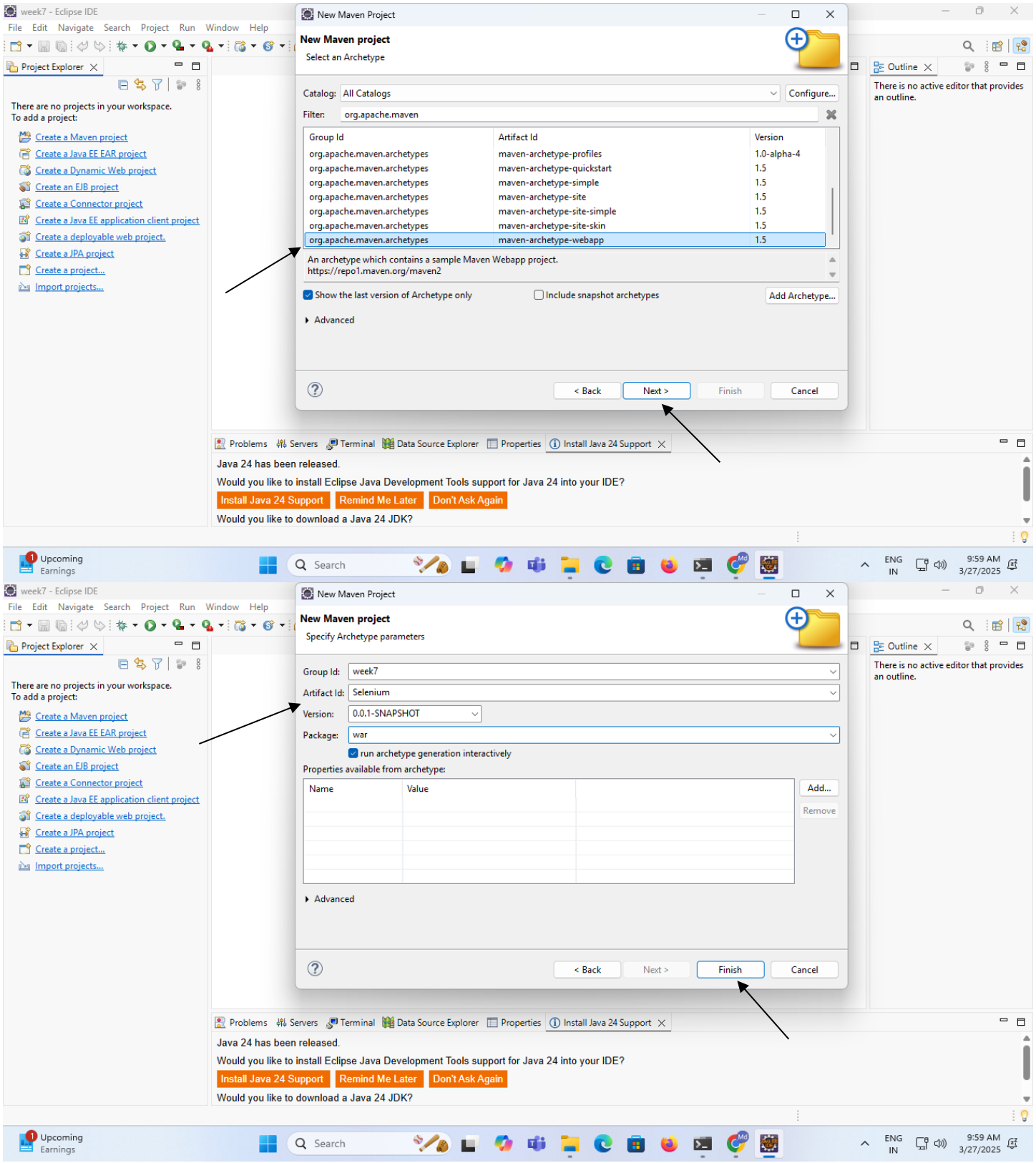



eclipse
Start backup
Documents
week7
eclipse
Search eclipse
New
Sort
View
Preview
Home
Gallery
OneDrive
Desktop
Downloads
Documents
Pictures
Music
Videos
Anusha
Screenshots
META-INF
week7.1
This PC
Local Disk (C:)
Network
Name
Date modified
Type
Size
configuration
dropins
features
p2
plugins
readme
.eclipseproduct
artifacts
eclipse
eclipse
eclipsec
eclipse IDE
2025-03
11 items
1 item selected 545 KB
Upcoming
Earnings
Search
ENG
IN
9:55 AM
3/27/2025

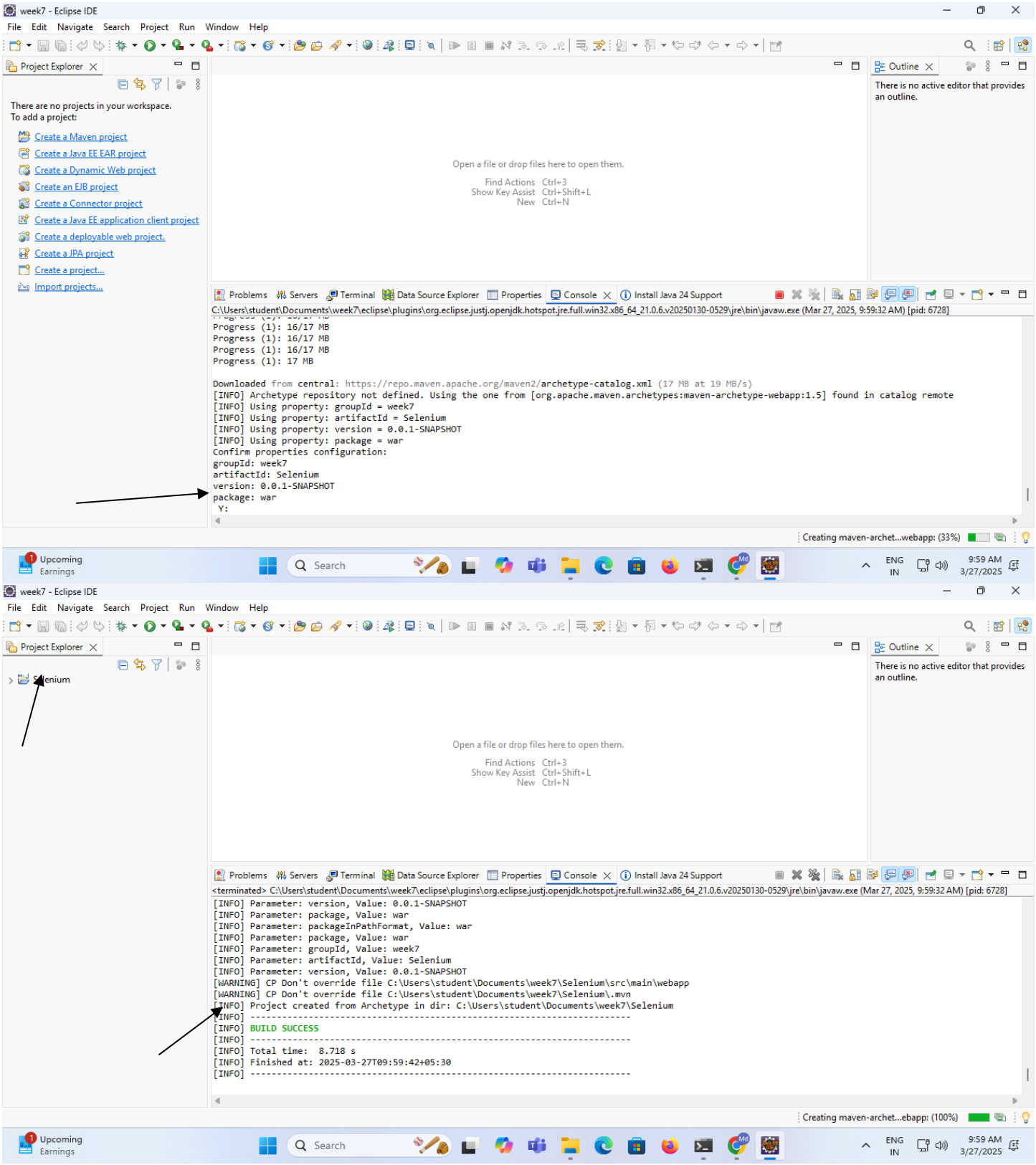

eclipse
Start backup
Documents
week7
eclipse
Search eclipse
New
Sort
View
Preview
Home
Gallery
OneDrive
Desktop
Downloads
Documents
Pictures
Music
Videos
Anusha
Screenshots
META-INF
week7.1
This PC
Local Disk (C:)
Network
Name
Date modified
Type
Size
configuration
dropins
features
p2
plugins
readme
.eclipseproduct
artifacts
eclipse
eclipse
eclipsec
3/27/2025 9:48 AM
Application
258 KB
Eclipse IDE Launcher
Select a directory as workspace
Eclipse IDE uses the workspace directory to store its preferences and development artifacts.
C:\Users\student\Documents\week7
Browse...
Use this as the default and do not ask again
Launch
Cancel
11 items
1 item selected 545 KB
Upcoming
Earnings
Search
ENG
IN
9:55 AM
3/27/2025

3.Create maven project goto File→New→Maven Project Select→Next→select org.apache.maven.archetypes select webapp→Enter Group Id:week7 ArtifactId:selenium Package:war→Finish. Enter Y you get Build Success in console.




week7 - Eclipse IDE
File Edit Navigate Search Project Run Window Help
Project Explorer
There are no projects in your workspace.
To add a project:
Create a Maven project
Create a Java EE EAR project
Create a Dynamic Web project
Create an EJB project
Create a Connector project
Create a Java EE application client project
Create a deployable web project.
Create a JPA project
Create a project...
Import projects...
New Maven Project
New Maven project
Select an Archetype
Catalog: All Catalogs
Configure...
Filter: org.apache.maven
Group Id
Artifact Id
Version
org.apache.maven.archetypes maven-archetype-profiles 1.0-alpha-4
org.apache.maven.archetypes maven-archetype-quickstart 1.5
org.apache.maven.archetypes maven-archetype-simple 1.5
org.apache.maven.archetypes maven-archetype-site 1.5
org.apache.maven.archetypes maven-archetype-site-simple 1.5
org.apache.maven.archetypes maven-archetype-site-skin 1.5
org.apache.maven.archetypes maven-archetype-webapp 1.5
An archetype which contains a sample Maven Webapp project.
https://repo1.maven.org/maven2
Show the last version of Archetype only
Include snapshot archetypes
Add Archetype...
Advanced
< Back
Next >
Finish
Cancel
Outline
There is no active editor that provides an outline.
Problems Servers Terminal Data Source Explorer Properties Install Java 24 Support
Java 24 has been released.
Would you like to install Eclipse Java Development Tools support for Java 24 into your IDE?
Install Java 24 Support
Remind Me Later
Don't Ask Again
Would you like to download a Java 24 JDK?
Upcoming Earnings
Search
ENG IN
9:59 AM 3/27/2025

week7 - Eclipse IDE
File Edit Navigate Search Project Run Window Help
Project Explorer
There are no projects in your workspace.
To add a project:
Create a Maven project
Create a Java EE EAR project
Create a Dynamic Web project
Create an EJB project
Create a Connector project
Create a Java EE application client project
Create a deployable web project.
Create a JPA project
Create a project...
Import projects...
New Maven Project
New Maven project
Specify Archetype parameters
Group Id: week7
Artifact Id: Selenium
Version: 0.0.1-SNAPSHOT
Package: war
run archetype generation interactively
Properties available from archetype:
Name
Value
Add...
Remove
Advanced
< Back
Next >
Finish
Cancel
Outline
There is no active editor that provides an outline.
Problems Servers Terminal Data Source Explorer Properties Install Java 24 Support
Java 24 has been released.
Would you like to install Eclipse Java Development Tools support for Java 24 into your IDE?
Install Java 24 Support
Remind Me Later
Don't Ask Again
Would you like to download a Java 24 JDK?
Upcoming Earnings
Search
ENG IN
9:59 AM 3/27/2025



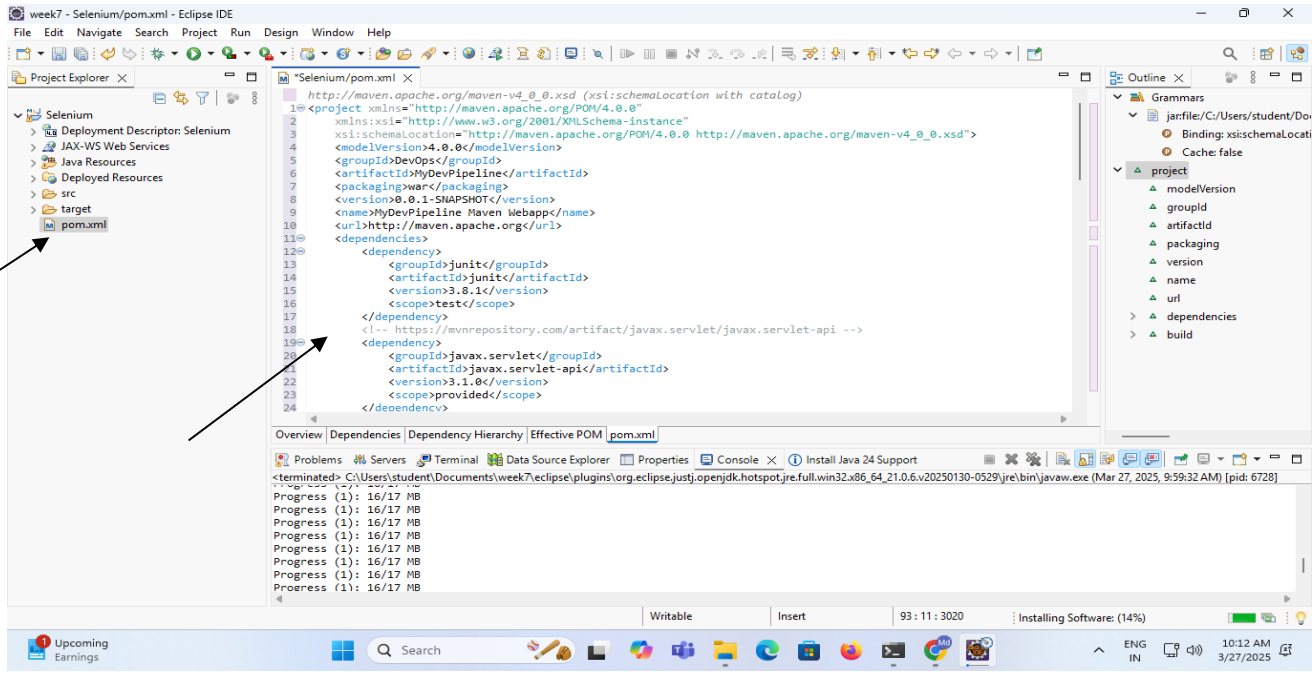
3. Open Pom.xml copy paste below code this all I added dependies and plugins. Next Right click Project→Maven→Update project→ok.
(Note:If you not update every changes it will not save.)

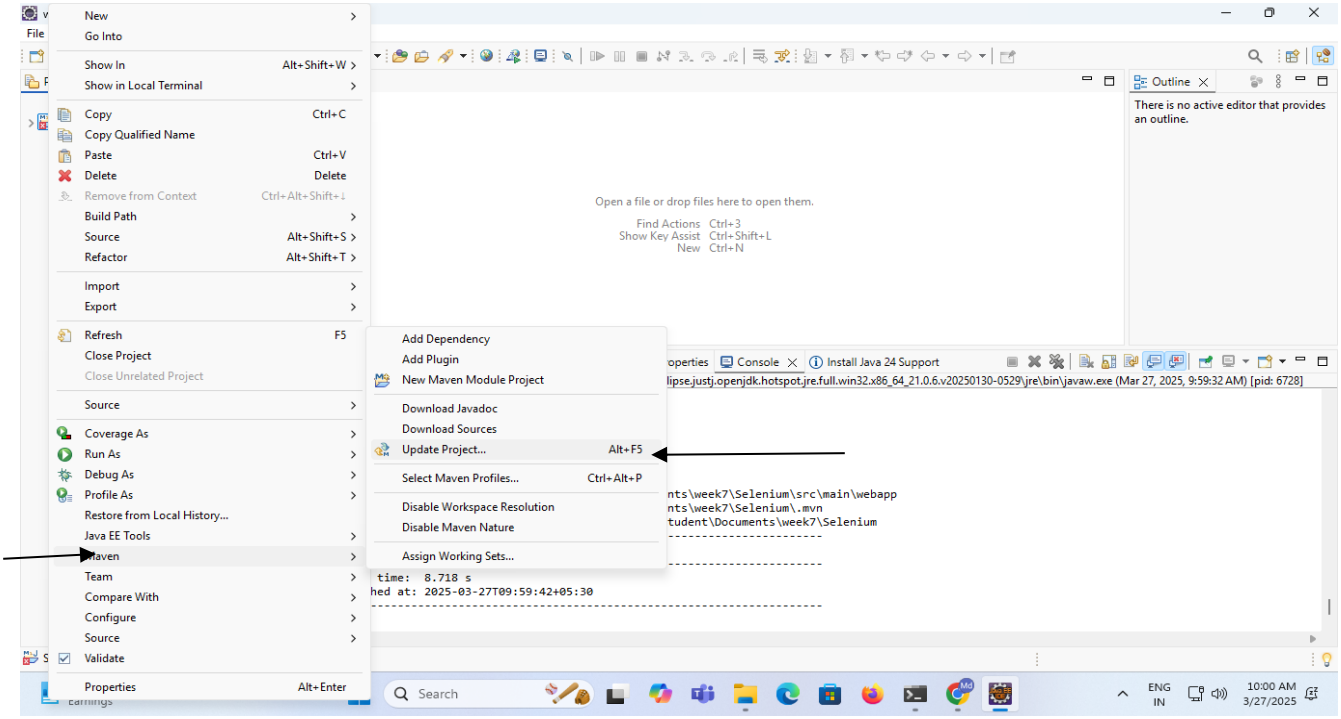
```
<project xmlns="http://maven.apache.org/POM/4.0.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://maven.apache.org/POM/4.0.0
http://maven.apache.org/maven-v4_0_0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <groupId>DevOps</groupId>
    <artifactId>MyDevPipeline</artifactId>
    <packaging>war</packaging>
    <version>0.0.1-SNAPSHOT</version>
    <name>MyDevPipeline Maven Webapp</name>
    <url>http://maven.apache.org</url>
    <dependencies>
        <dependency>
            <groupId>junit</groupId>
            <artifactId>junit</artifactId>
            <version>3.8.1</version>
            <scope>test</scope>
        </dependency>
        <!--
https://mvnrepository.com/artifact/javax.servlet/javax.servlet-api -->
        <dependency>
            <groupId>javax.servlet</groupId>
            <artifactId>javax.servlet-api</artifactId>
            <version>3.1.0</version>
            <scope>provided</scope>
        </dependency>
        <!--

    https://mvnrepository.com/artifact/org.seleniumhq.selenium/seleniu
m-api -->
        <dependency>
```

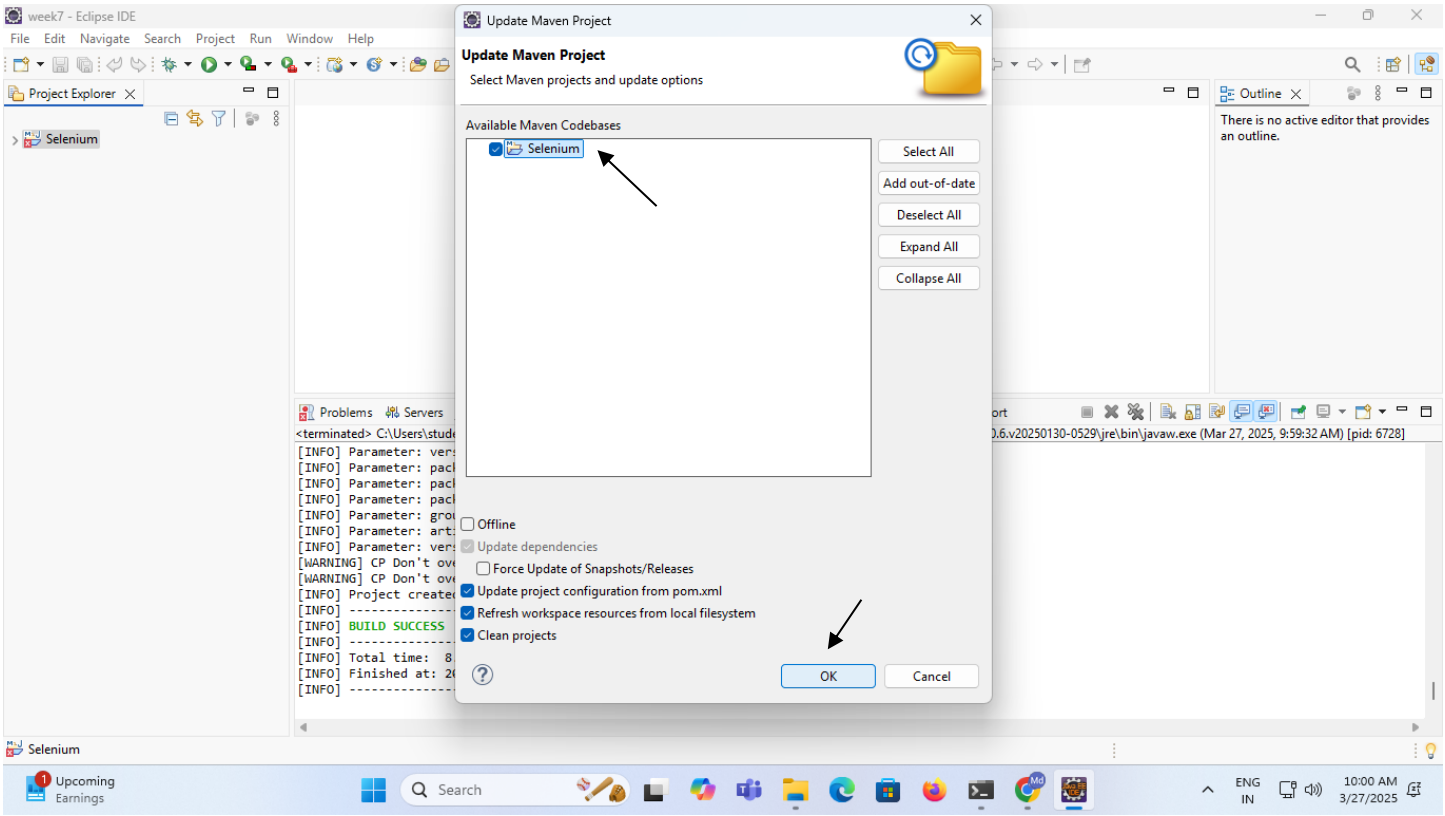
```
                <groupId>org.seleniumhq.selenium</groupId>
                <artifactId>selenium-server</artifactId>
                <version>3.141.59</version>
            </dependency>
            <!-- https://mvnrepository.com/artifact/org.testng/testng -->
            <dependency>
          <groupId>org.testng</groupId>
          <artifactId>testng</artifactId>
          <version>6.14.3</version>  <!-- Use the latest version available(7.11.0) -->
          <scope>test</scope>
        </dependency>

            <dependency>
          <groupId>io.github.bonigarcia</groupId>
          <artifactId>webdrivermanager</artifactId>
          <version>5.3.0</version>
        </dependency>

        </dependencies>
        <build>
            <finalName>MyDevPipeline</finalName>
            <pluginManagement>
                <plugins>
                    <plugin>

        <groupId>org.apache.maven.plugins</groupId>
                        <artifactId>maven-clean-plugin</artifactId>
                        <version>3.4.0</version>
                    </plugin>
                    <plugin>
```

```
        <groupId>org.apache.maven.plugins</groupId>
                        <artifactId>maven-resources-
plugin</artifactId>
                        <version>3.3.1</version>
                    </plugin>
                    <plugin>

        <groupId>org.apache.maven.plugins</groupId>
                        <artifactId>maven-compiler-
plugin</artifactId>
                        <version>3.13.0</version>
                        <configuration>
                            <source>17.0.12</source>
                            <target>17.0.12</target>
                        </configuration>
                    </plugin>
                    <plugin>

        <groupId>org.apache.maven.plugins</groupId>
                        <artifactId>maven-surefire-
plugin</artifactId>
                        <version>3.3.0</version>
                    </plugin>
                    <plugin>

        <groupId>org.apache.maven.plugins</groupId>
                        <artifactId>maven-war-plugin</artifactId>
                        <version>3.4.0</version>
                    </plugin>
                    <plugin>
```

```
<groupId>org.apache.maven.plugins</groupId>
                    <artifactId>maven-install-plugin</artifactId>
                    <version>3.1.2</version>
                </plugin>
                <plugin>

<groupId>org.apache.maven.plugins</groupId>
                    <artifactId>maven-deploy-plugin</artifactId>
                    <version>3.1.2</version>
                </plugin>
            </plugins>
        </pluginManagement>

    </build>
</project>
```



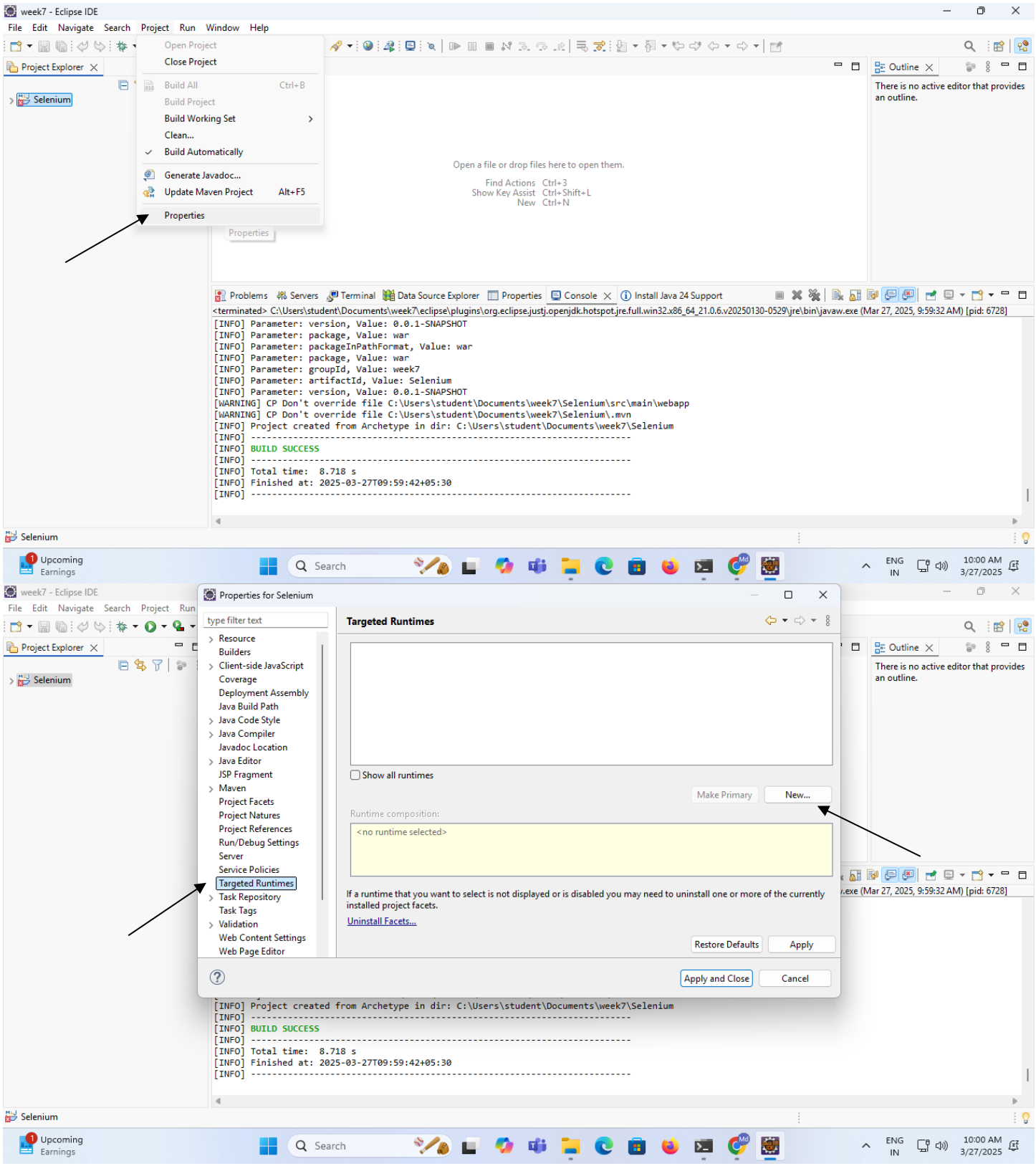


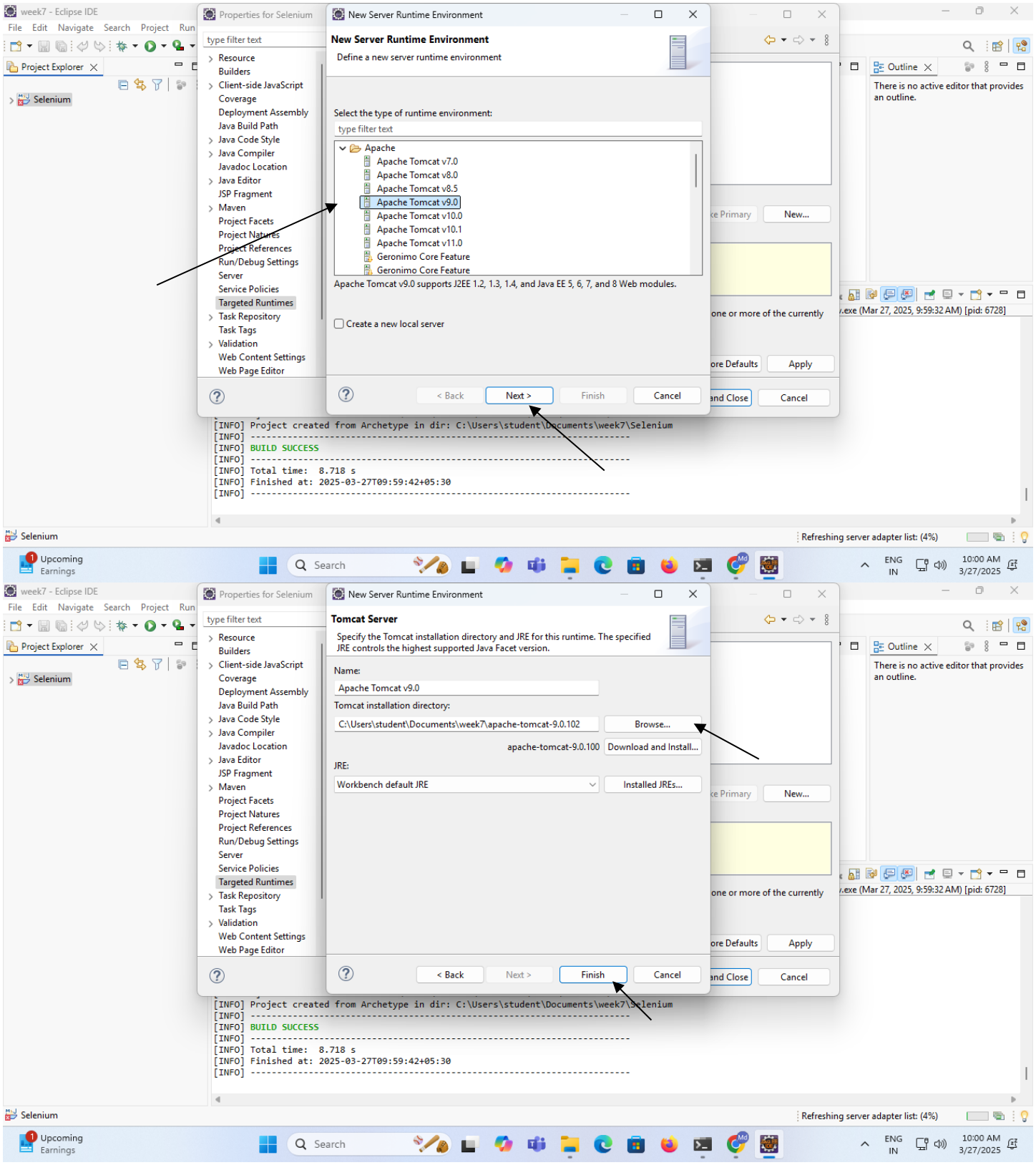


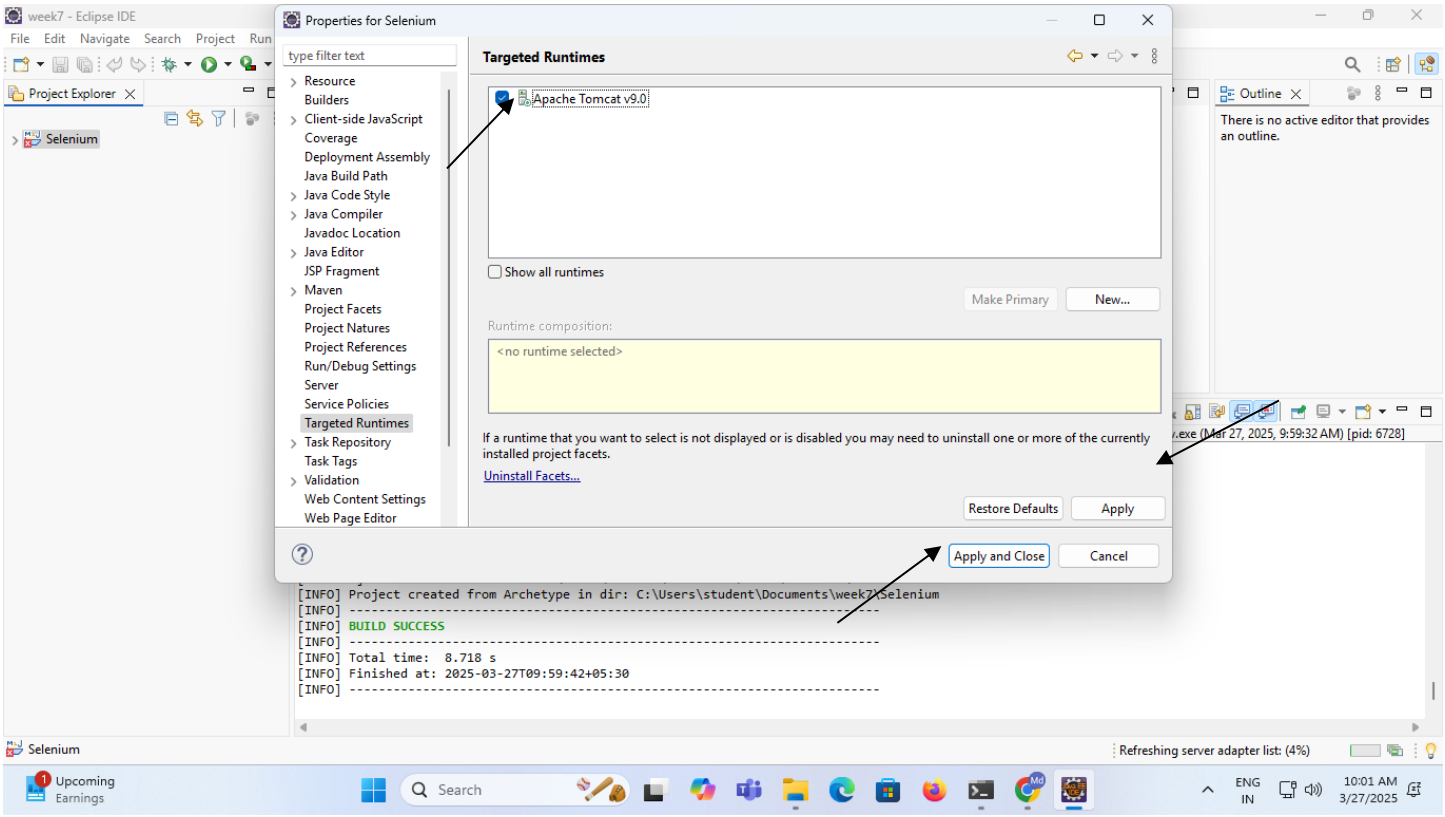
4.Adding Apache tomcat server

Go to Project→Properties→Maven→Targeted Runtimes→new→select apache tomcat 9→next→browse apache folder address→finish→click check box apache 9 and apply→apply and close.

(Note:-because running src→index.js file running purpose if you not adding it will show errors.)




week7 - Eclipse IDE
File Edit Navigate Search Project Run
Project Explorer
Selenium
Properties for Selenium
type filter text
Resource
Builders
Client-side JavaScript
Coverage
Deployment Assembly
Java Build Path
Java Code Style
Java Compiler
Javadoc Location
Java Editor
JSP Fragment
Maven
Project Facets
Project Natures
Project References
Run/Debug Settings
Server
Service Policies
Targeted Runtimes
Task Repository
Task Tags
Validation
Web Content Settings
Web Page Editor
New Server Runtime Environment
New Server Runtime Environment
Define a new server runtime environment
Select the type of runtime environment:
type filter text
Apache
Apache Tomcat v7.0
Apache Tomcat v8.0
Apache Tomcat v8.5
Apache Tomcat v9.0
Apache Tomcat v10.0
Apache Tomcat v10.1
Apache Tomcat v11.0
Geronimo Core Feature
Geronimo Core Feature
Apache Tomcat v9.0 supports J2EE 1.2, 1.3, 1.4, and Java EE 5, 6, 7, and 8 Web modules.
Create a new local server
< Back
Next >
Finish
Cancel
Outline
There is no active editor that provides an outline.
[INFO] Project created from Archetype in dir: C:\Users\student\Documents\week7\Selenium
[INFO] BUILD SUCCESS
[INFO] Total time: 8.718 s
[INFO] Finished at: 2025-03-27T09:59:42+05:30
Refreshing server adapter list: (4%)
Tomcat Server
Specify the Tomcat installation directory and JRE for this runtime. The specified JRE controls the highest supported Java Facet version.
Name:
Apache Tomcat v9.0
Tomcat installation directory:
C:\Users\student\Documents\week7\apache-tomcat-9.0.102
Browse...
apache-tomcat-9.0.100
Download and Install...
JRE:
Workbench default JRE
Installed JREs...
Upcoming Earnings
Search
ENG IN
10:00 AM 3/27/2025

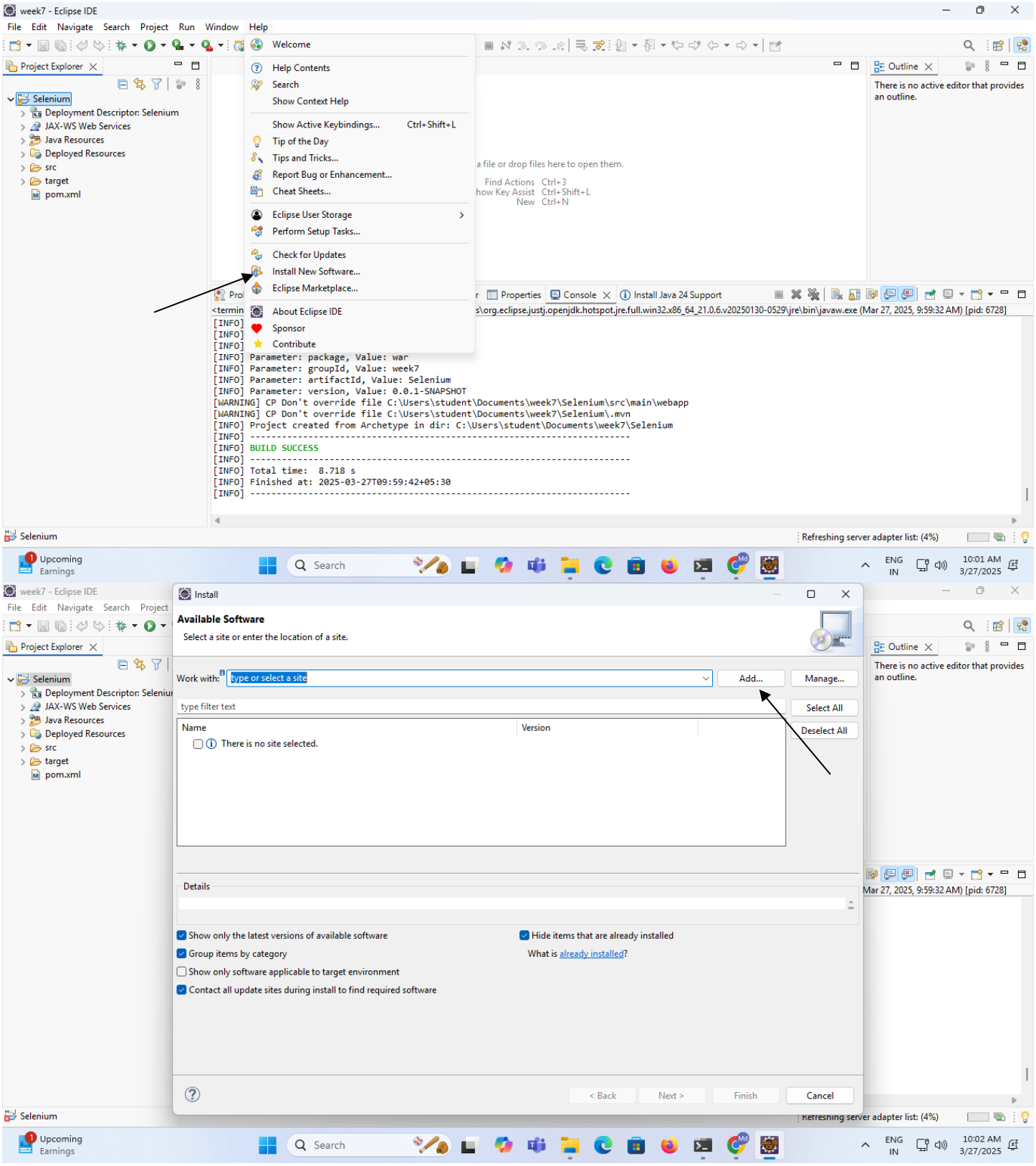


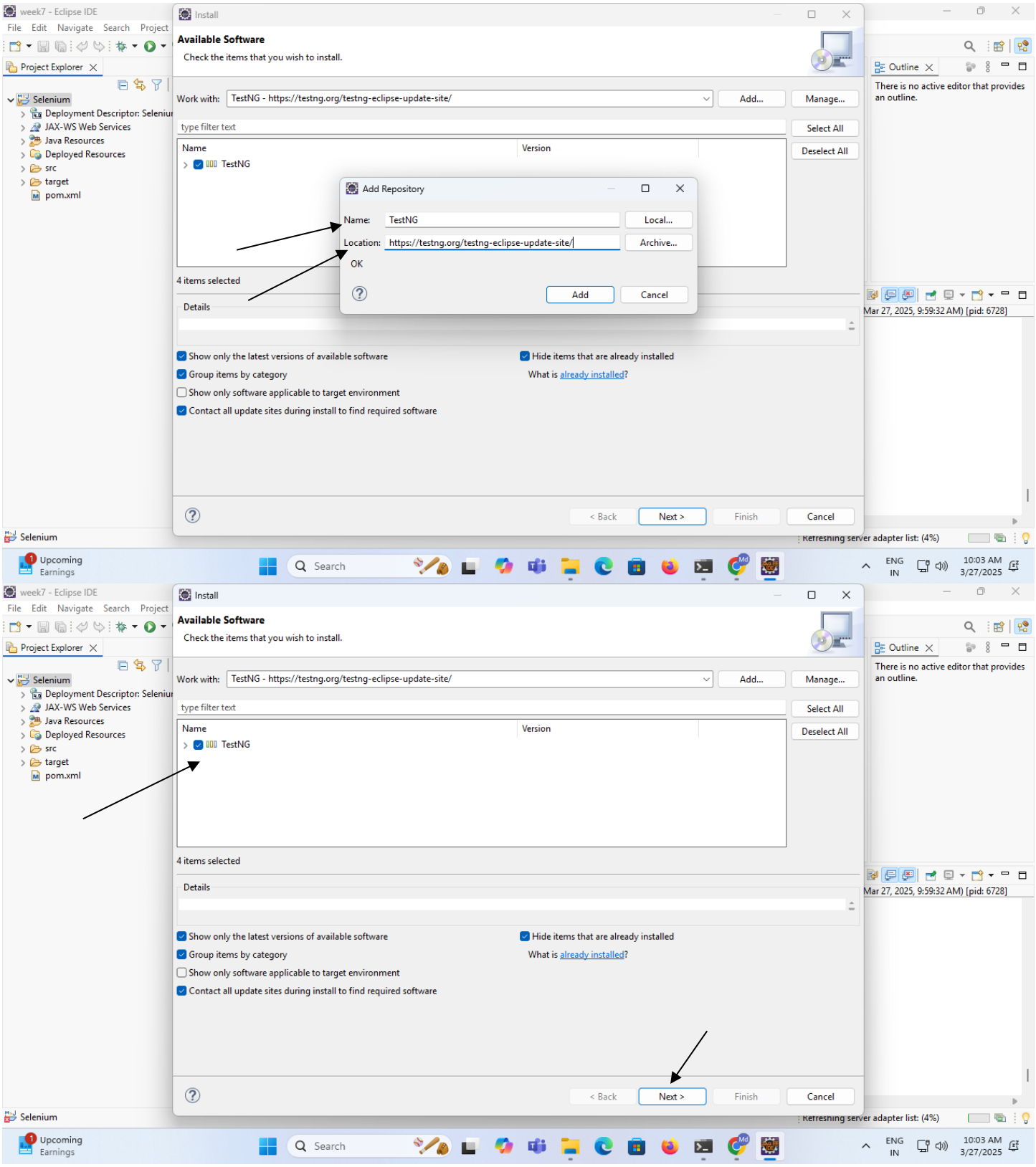
5. **Adding TestNG in Eclipse.**

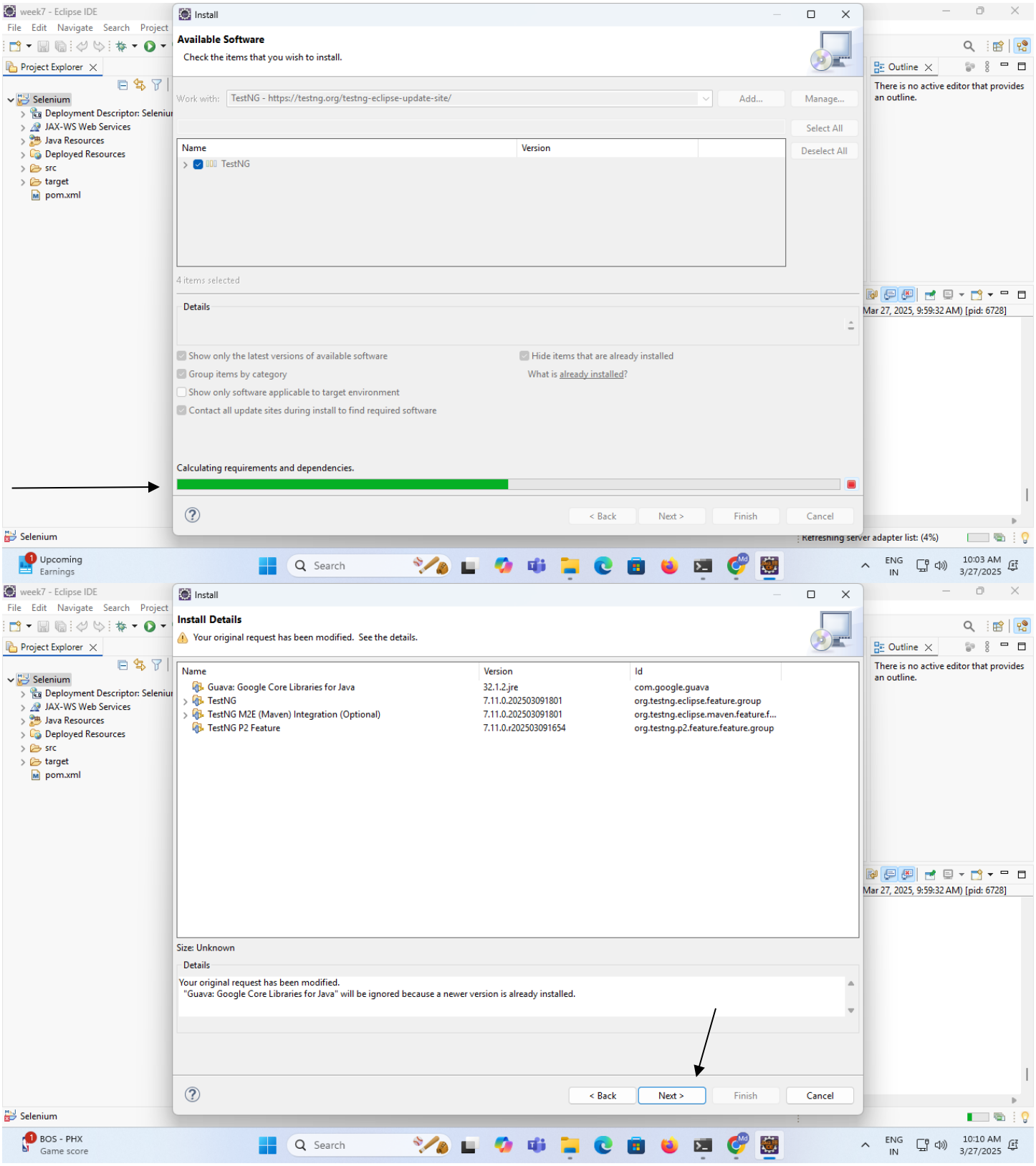
   Go to help→Install New Software→Add→Enter Name:TestNG, Location:https://testng.org/testing-eclipse-update-site/→Add.

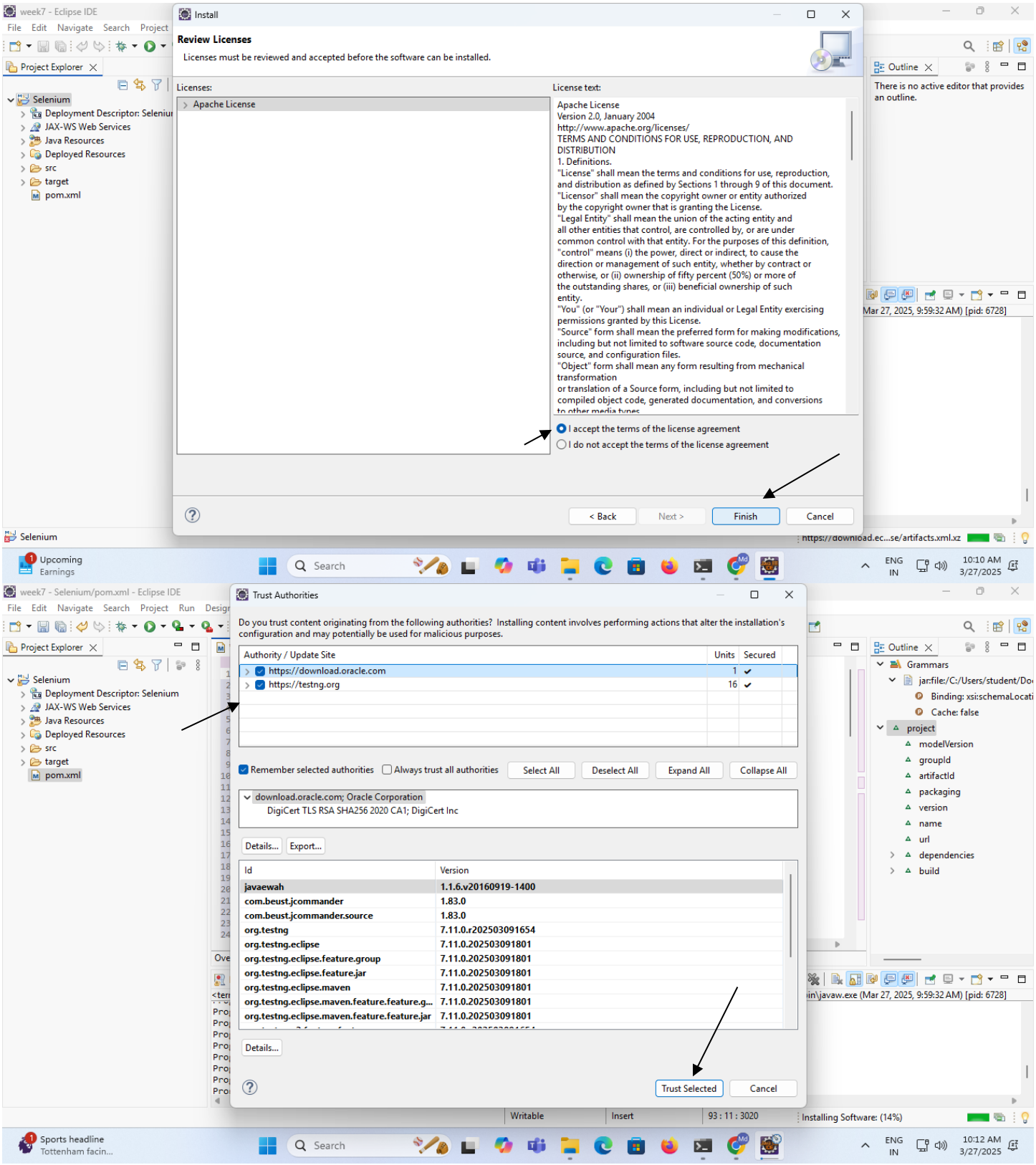
   Select TestNG check box→Next→Next→I accept→Finish

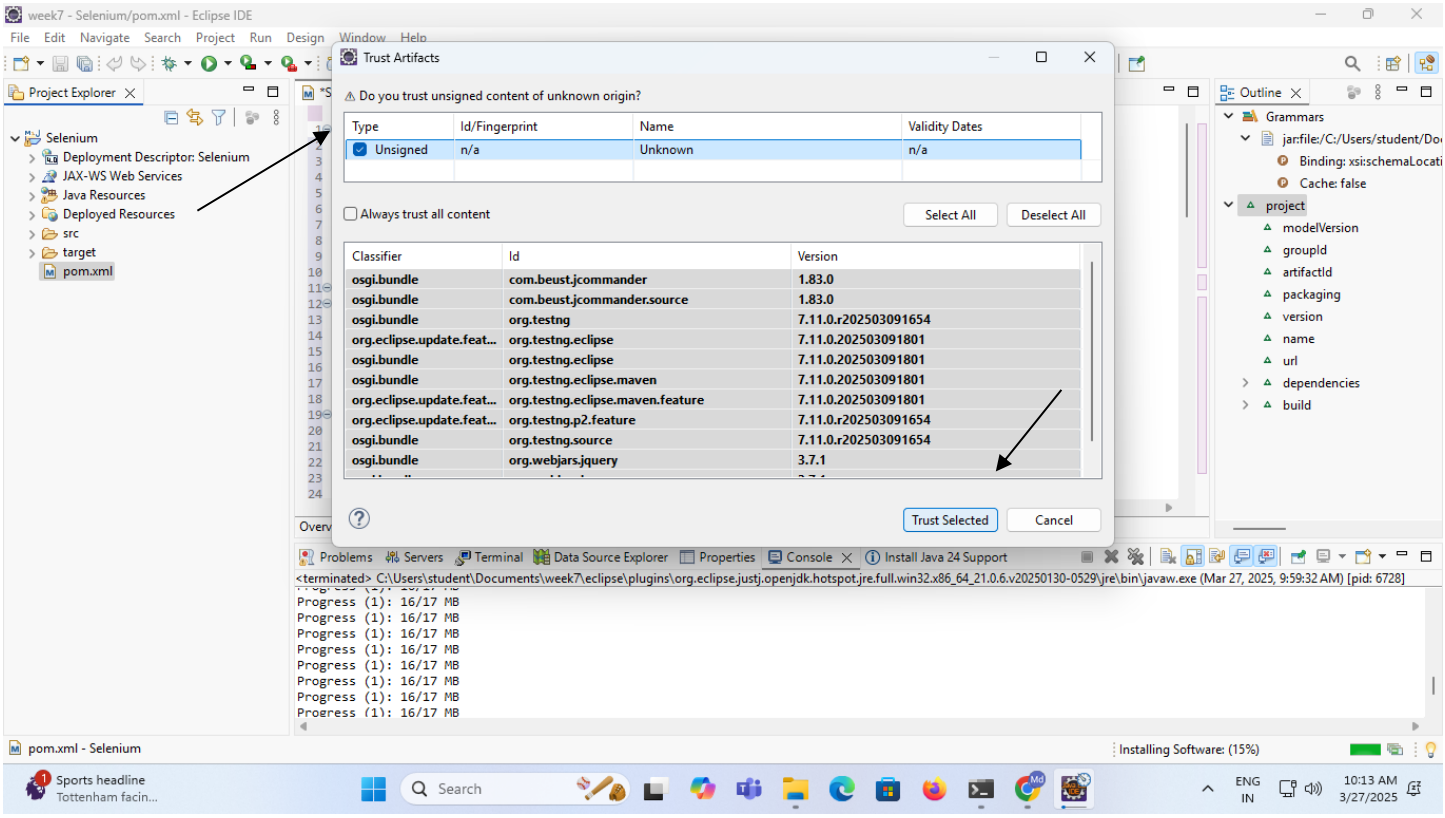
   Trust Selected→Trust Selected.


week7 - Eclipse IDE
File Edit Navigate Search Project Run Window Help
Welcome
Help Contents
Search
Show Context Help
Show Active Keybindings... Ctrl+Shift+L
Tip of the Day
Tips and Tricks...
Report Bug or Enhancement...
Cheat Sheets...
Eclipse User Storage
Perform Setup Tasks...
Check for Updates
Install New Software...
Eclipse Marketplace...
About Eclipse IDE
Sponsor
Contribute
Project Explorer
Selenium
Deployment Descriptor: Selenium
JAX-WS Web Services
Java Resources
Deployed Resources
src
target
pom.xml
Outline
There is no active editor that provides an outline.
Properties
Console
Install Java 24 Support
[INFO] Parameter: package, Value: war
[INFO] Parameter: groupId, Value: week7
[INFO] Parameter: artifactId, Value: Selenium
[INFO] Parameter: version, Value: 0.0.1-SNAPSHOT
[WARNING] CP Don't override file C:\Users\student\Documents\week7\Selenium\src\main\webapp
[WARNING] CP Don't override file C:\Users\student\Documents\week7\Selenium\.mvn
[INFO] Project created from Archetype in dir: C:\Users\student\Documents\week7\Selenium
[INFO] BUILD SUCCESS
[INFO] Total time: 8.718 s
[INFO] Finished at: 2025-03-27T09:59:42+05:30
Refreshing server adapter list: (4%)
Install
Available Software
Select a site or enter the location of a site.
Work with: type or select a site
Add...
Manage...
type filter text
Select All
Deselect All
Name
Version
There is no site selected.
Details
Show only the latest versions of available software
Group items by category
Show only software applicable to target environment
Contact all update sites during install to find required software
Hide items that are already installed
What is already installed?
< Back
Next >
Finish
Cancel
Search
ENG IN
10:01 AM 3/27/2025
10:02 AM 3/27/2025


week7 - Eclipse IDE
File Edit Navigate Search Project
Project Explorer
Selenium
Deployment Descriptor: Seleniu
JAX-WS Web Services
Java Resources
Deployed Resources
src
target
pom.xml
Install
Available Software
Check the items that you wish to install.
Work with: TestNG - https://testng.org/testng-eclipse-update-site/
Add...
Manage...
type filter text
Select All
Deselect All
Name
Version
TestNG
Add Repository
Name: TestNG
Location: https://testng.org/testng-eclipse-update-site/
Local...
Archive...
OK
Add
Cancel
4 items selected
Details
Show only the latest versions of available software
Group items by category
Show only software applicable to target environment
Contact all update sites during install to find required software
Hide items that are already installed
What is already installed?
< Back
Next >
Finish
Cancel
Outline
There is no active editor that provides an outline.
Mar 27, 2025, 9:59:32 AM) [pid: 6728]
Refreshing server adapter list: (4%)
Upcoming Earnings
Search
ENG IN
10:03 AM 3/27/2025


week7 - Eclipse IDE
File Edit Navigate Search Project
Project Explorer
Selenium
Deployment Descriptor: Seleniu
JAX-WS Web Services
Java Resources
Deployed Resources
src
target
pom.xml
Install
Available Software
Check the items that you wish to install.
Work with: TestNG - https://testng.org/testng-eclipse-update-site/
Add...
Manage...
Select All
Deselect All
Name
Version
TestNG
4 items selected
Details
Show only the latest versions of available software
Group items by category
Show only software applicable to target environment
Contact all update sites during install to find required software
Hide items that are already installed
What is already installed?
Calculating requirements and dependencies.
< Back
Next >
Finish
Cancel
Outline
There is no active editor that provides an outline.
Mar 27, 2025, 9:59:32 AM) [pid: 6728]
Refreshing server adapter list: (4%)
Upcoming Earnings
Search
ENG IN
10:03 AM 3/27/2025
Install Details
Your original request has been modified. See the details.
Name
Version
Id
Guava: Google Core Libraries for Java
32.1.2.jre
com.google.guava
TestNG
7.11.0.202503091801
org.testng.eclipse.feature.group
TestNG M2E (Maven) Integration (Optional)
7.11.0.202503091801
org.testng.eclipse.maven.feature.f...
TestNG P2 Feature
7.11.0.r202503091654
org.testng.p2.feature.feature.group
Size: Unknown
Details
Your original request has been modified.
"Guava: Google Core Libraries for Java" will be ignored because a newer version is already installed.
BOS - PHX Game score
10:10 AM 3/27/2025


Install
Review Licenses
Licenses must be reviewed and accepted before the software can be installed.
Licenses:
Apache License
License text:
Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/
TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION
1. Definitions.
"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.
"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.
"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.
"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.
"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.
"Object" form shall mean any form resulting from mechanical transformation
or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions
I accept the terms of the license agreement
I do not accept the terms of the license agreement
< Back
Next >
Finish
Cancel
Trust Authorities
Do you trust content originating from the following authorities? Installing content involves performing actions that alter the installation's configuration and may potentially be used for malicious purposes.
Authority / Update Site
Units
Secured
https://download.oracle.com
1
https://testng.org
16
Remember selected authorities
Always trust all authorities
Select All
Deselect All
Expand All
Collapse All
download.oracle.com; Oracle Corporation
DigiCert TLS RSA SHA256 2020 CA1; DigiCert Inc
Details...
Export...
Id
Version
javaewah
1.1.6.v20160919-1400
com.beust.jcommander
1.83.0
com.beust.jcommander.source
1.83.0
org.testng
7.11.0.r202503091654
org.testng.eclipse
7.11.0.202503091801
org.testng.eclipse.feature.group
7.11.0.202503091801
org.testng.eclipse.feature.jar
7.11.0.202503091801
org.testng.eclipse.maven
7.11.0.202503091801
org.testng.eclipse.maven.feature.feature.g...
7.11.0.202503091801
org.testng.eclipse.maven.feature.feature.jar
7.11.0.202503091801
Details...
Trust Selected
Cancel



6.Create Folder inside src →test inside java.java folder select build path →current folder.Right click that folder→new→others→class→next→give package name and class name→ok

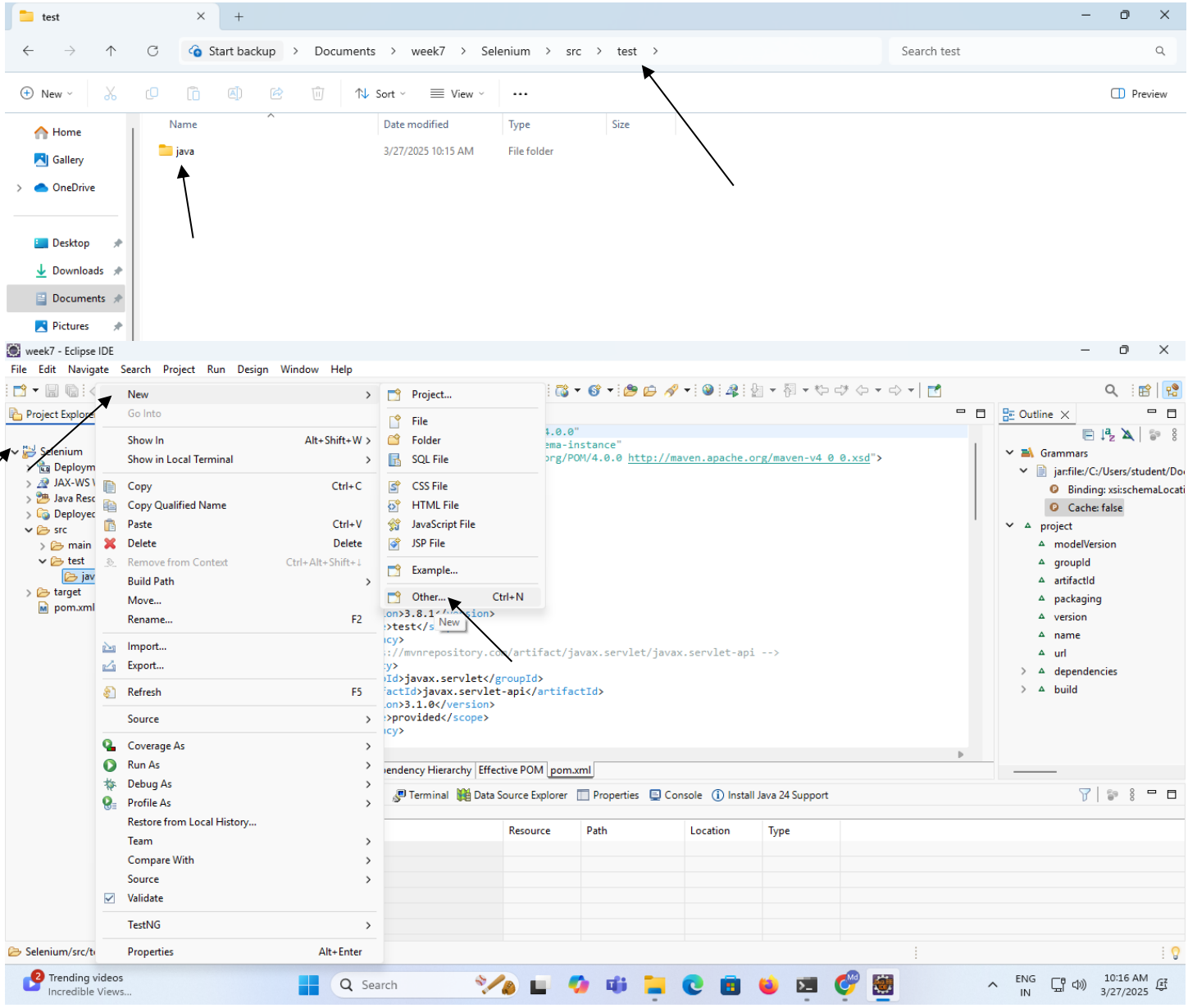
Java file created copy paste below code.change hub address must and should.

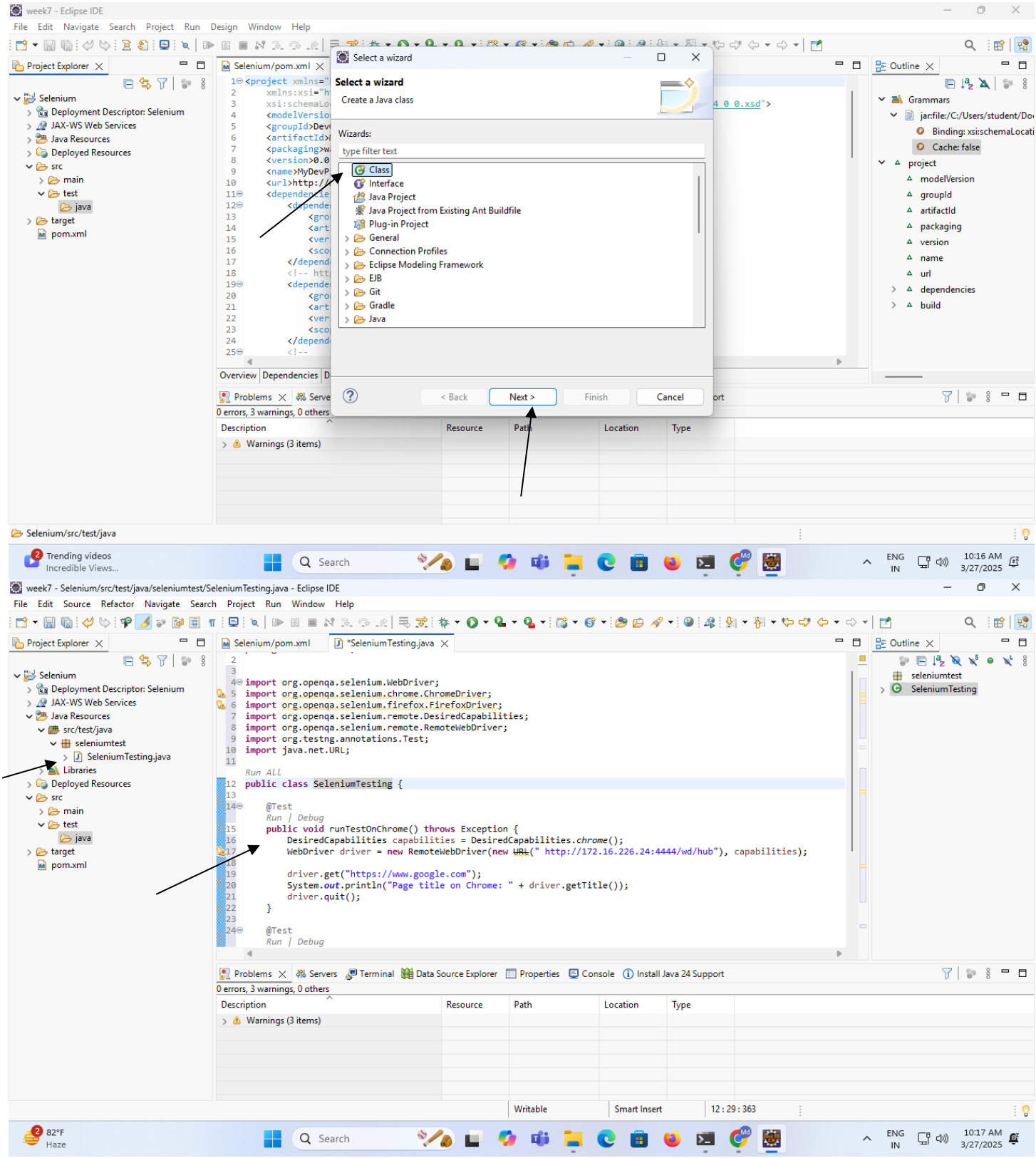
Same page right click→run→TestNG →Finally its run test passes.

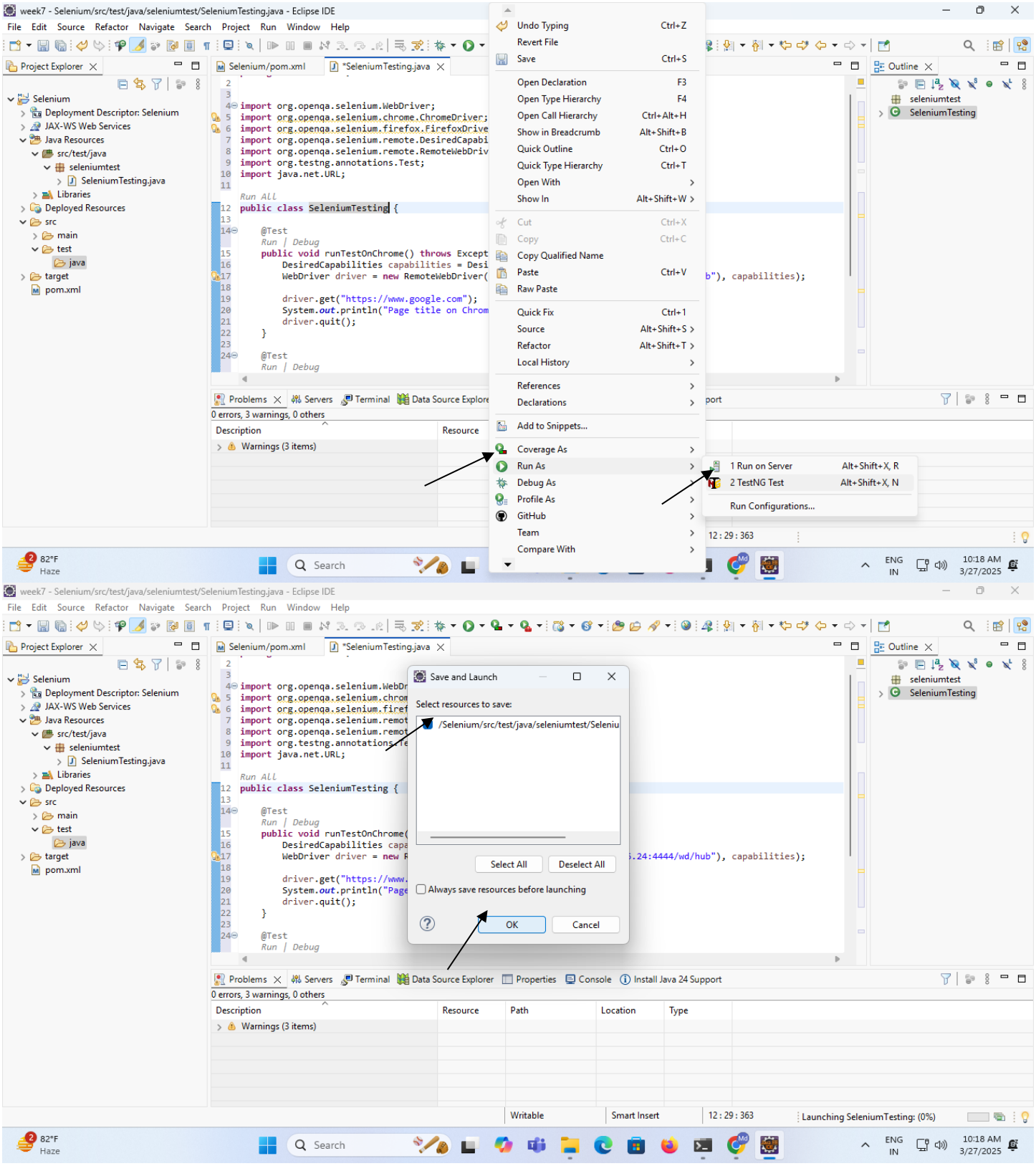
SeleniumGridDemo.java

```
package com.testautomation.grid;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.testng.annotations.Test;
import java.net.URL;

public class SeleniumGridDemo {
```

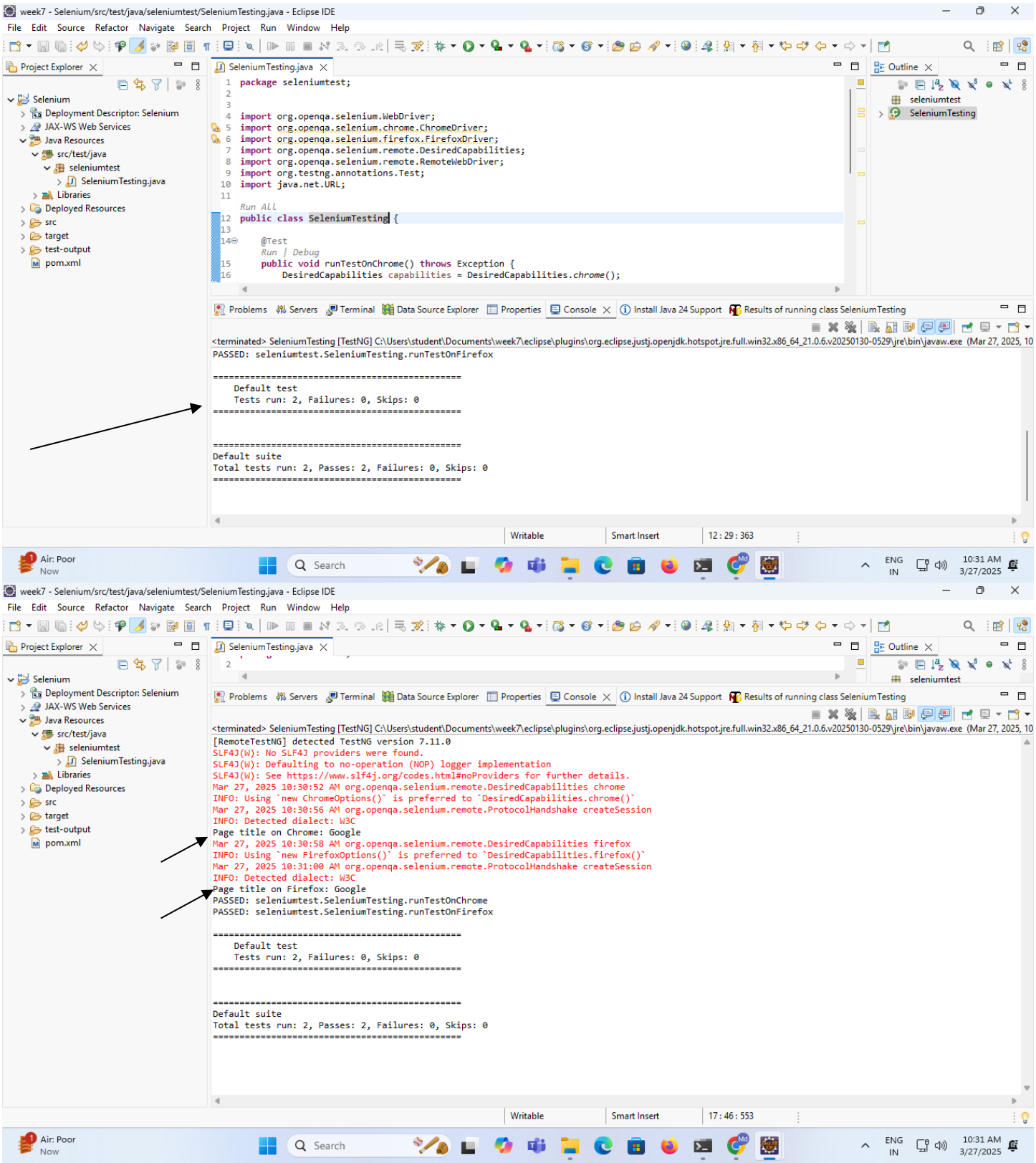
```
    @Test
    public void runTestOnChrome() throws Exception {
        DesiredCapabilities capabilities = DesiredCapabilities.chrome();
        WebDriver driver = new RemoteWebDriver(new URL("
http://172.16.226.24:4444/wd/hub"), capabilities);

        driver.get("https://www.google.com");
        System.out.println("Page title on Chrome: " + driver.getTitle());
        driver.quit();
    }

    @Test
    public void runTestOnFirefox() throws Exception {
        DesiredCapabilities capabilities = DesiredCapabilities.firefox();
        WebDriver driver = new RemoteWebDriver(new URL("
http://172.16.226.24:4444/wd/hub"), capabilities);

        driver.get("https://www.google.com");
        System.out.println("Page title on Firefox: " + driver.getTitle());
        driver.quit();
    }
}
```


test
Start backup
Documents
week7
Selenium
src
test
Search test
New
Sort
View
Preview
Home
Gallery
OneDrive
Desktop
Downloads
Documents
Pictures
Name
Date modified
Type
Size
java
3/27/2025 10:15 AM
File folder
week7 - Eclipse IDE
File Edit Navigate Search Project Run Design Window Help
Project Explorer
Selenium
src
main
test
target
pom.xml
New
Go Into
Show In Alt+Shift+W
Show in Local Terminal
Copy Ctrl+C
Copy Qualified Name
Paste Ctrl+V
Delete Delete
Remove from Context Ctrl+Alt+Shift+↓
Build Path
Move...
Rename... F2
Import...
Export...
Refresh F5
Source
Coverage As
Run As
Debug As
Profile As
Restore from Local History...
Team
Compare With
Source
Validate
TestNG
Properties Alt+Enter
Project...
File
Folder
SQL File
CSS File
HTML File
JavaScript File
JSP File
Example...
Other... Ctrl+N
New
Outline
Grammars
project
modelVersion
groupId
artifactId
packaging
version
name
url
dependencies
build
Dependency Hierarchy
Effective POM
pom.xml
Terminal
Data Source Explorer
Properties
Console
Install Java 24 Support
Resource
Path
Location
Type
Trending videos
Incredible Views...
Search
ENG
IN
10:16 AM
3/27/2025


week7 - Eclipse IDE
Select a wizard
Select a wizard
Create a Java class
Wizards:
type filter text
Class
Interface
Java Project
Java Project from Existing Ant Buildfile
Plug-in Project
General
Connection Profiles
Eclipse Modeling Framework
EJB
Git
Gradle
Java
< Back
Next >
Finish
Cancel
week7 - Selenium/src/test/java/seleniumtest/SeleniumTesting.java - Eclipse IDE
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.testng.annotations.Test;
import java.net.URL;
public class SeleniumTesting {
@Test
public void runTestOnChrome() throws Exception {
DesiredCapabilities capabilities = DesiredCapabilities.chrome();
WebDriver driver = new RemoteWebDriver(new URL(" http://172.16.226.24:4444/wd/hub"), capabilities);
driver.get("https://www.google.com");
System.out.println("Page title on Chrome: " + driver.getTitle());
driver.quit();
}
@Test


week7 - Selenium/src/test/java/seleniumtest/SeleniumTesting.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
Selenium
Deployment Descriptor: Selenium
JAX-WS Web Services
Java Resources
src/test/java
seleniumtest
SeleniumTesting.java
Libraries
Deployed Resources
src
main
test
java
target
pom.xml
Selenium/pom.xml
*SeleniumTesting.java
Outline
seleniumtest
SeleniumTesting
Undo Typing Ctrl+Z
Revert File
Save Ctrl+S
Open Declaration F3
Open Type Hierarchy F4
Open Call Hierarchy Ctrl+Alt+H
Show in Breadcrumb Alt+Shift+B
Quick Outline Ctrl+O
Quick Type Hierarchy Ctrl+T
Open With
Show In Alt+Shift+W
Cut Ctrl+X
Copy Ctrl+C
Copy Qualified Name
Paste Ctrl+V
Raw Paste
Quick Fix Ctrl+1
Source Alt+Shift+S
Refactor Alt+Shift+T
Local History
References
Declarations
Add to Snippets...
Coverage As
Run As
Debug As
Profile As
GitHub
Team
Compare With
1 Run on Server Alt+Shift+X, R
2 TestNG Test Alt+Shift+X, N
Run Configurations...
Problems
Servers
Terminal
Data Source Explorer
0 errors, 3 warnings, 0 others
Description
Resource
Warnings (3 items)
12 : 29 : 363
82°F Haze
Search
ENG IN
10:18 AM 3/27/2025
Save and Launch
Select resources to save:
/Selenium/src/test/java/seleniumtest/Seleniu
Select All
Deselect All
Always save resources before launching
OK
Cancel
Properties
Console
Install Java 24 Support
Path
Location
Type
Writable
Smart Insert
Launching SeleniumTesting: (0%)

Output:-


week7 - Selenium/src/test/java/seleniumtest/SeleniumTesting.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
Selenium
Deployment Descriptor: Selenium
JAX-WS Web Services
Java Resources
src/test/java
seleniumtest
SeleniumTesting.java
Libraries
Deployed Resources
src
target
test-output
pom.xml
SeleniumTesting.java
package seleniumtest;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.remote.DesiredCapabilities;
import org.openqa.selenium.remote.RemoteWebDriver;
import org.testng.annotations.Test;
import java.net.URL;
Run All
public class SeleniumTesting {
@Test
Run | Debug
public void runTestOnChrome() throws Exception {
DesiredCapabilities capabilities = DesiredCapabilities.chrome();
Outline
seleniumtest
SeleniumTesting
Problems Servers Terminal Data Source Explorer Properties Console Install Java 24 Support Results of running class SeleniumTesting
<terminated> SeleniumTesting [TestNG] C:\Users\student\Documents\week7\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_21.0.6.v20250130-0529\jre\bin\javaw.exe (Mar 27, 2025, 10
PASSED: seleniumtest.SeleniumTesting.runTestOnFirefox
Default test
Tests run: 2, Failures: 0, Skips: 0
Default suite
Total tests run: 2, Passes: 2, Failures: 0, Skips: 0
Writable
Smart Insert
12 : 29 : 363
Air: Poor
Now
Search
ENG
IN
10:31 AM
3/27/2025
week7 - Selenium/src/test/java/seleniumtest/SeleniumTesting.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Project Explorer
Selenium
Deployment Descriptor: Selenium
JAX-WS Web Services
Java Resources
src/test/java
seleniumtest
SeleniumTesting.java
Libraries
Deployed Resources
src
target
test-output
pom.xml
SeleniumTesting.java
Outline
seleniumtest
Problems Servers Terminal Data Source Explorer Properties Console Install Java 24 Support Results of running class SeleniumTesting
<terminated> SeleniumTesting [TestNG] C:\Users\student\Documents\week7\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_21.0.6.v20250130-0529\jre\bin\javaw.exe (Mar 27, 2025, 10
[RemoteTestNG] detected TestNG version 7.11.0
SLF4J(W): No SLF4J providers were found.
SLF4J(W): Defaulting to no-operation (NOP) logger implementation
SLF4J(W): See https://www.slf4j.org/codes.html#noProviders for further details.
Mar 27, 2025 10:30:52 AM org.openqa.selenium.remote.DesiredCapabilities chrome
INFO: Using `new ChromeOptions()` is preferred to `DesiredCapabilities.chrome()`
Mar 27, 2025 10:30:56 AM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Page title on Chrome: Google
Mar 27, 2025 10:30:58 AM org.openqa.selenium.remote.DesiredCapabilities firefox
INFO: Using `new FirefoxOptions()` is preferred to `DesiredCapabilities.firefox()`
Mar 27, 2025 10:31:00 AM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Page title on Firefox: Google
PASSED: seleniumtest.SeleniumTesting.runTestOnChrome
PASSED: seleniumtest.SeleniumTesting.runTestOnFirefox
Default test
Tests run: 2, Failures: 0, Skips: 0
Default suite
Total tests run: 2, Passes: 2, Failures: 0, Skips: 0
Writable
Smart Insert
17 : 46 : 553
Air: Poor
Now
Search
ENG
IN
10:31 AM
3/27/2025

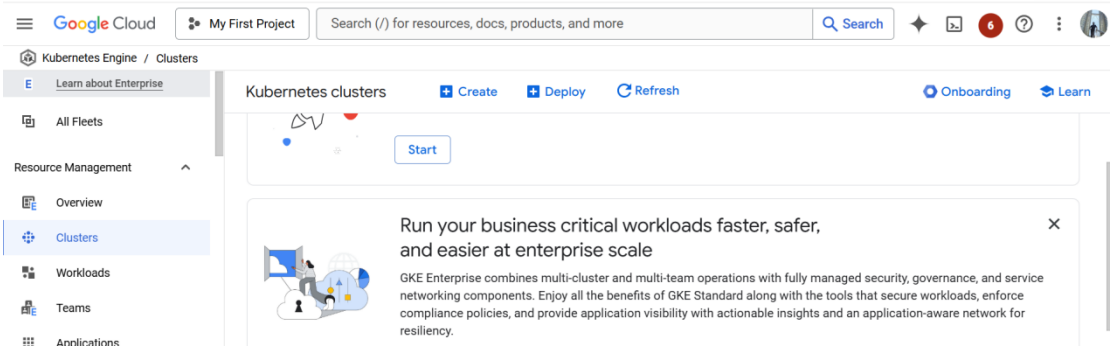
Experiment-9

Aim:-Create deployment resource using Kubernetes.

- Create the **google cloud console** free account
- It is a two step process
- It is deducting the 2 rupees from your account and it will give the 330$ free credit points.

NOTE: Don't active the full account

- Once the account is created u can login to google cloud console



- NOW CREATE THE KUBERNETES CLUSTER

Open the cloud shell

To see the cluster list run the below command

Gcloud container clusters list (no clusters are there)

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ gcloud container clusters list
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

You create the cluster with below command

gcloud container clusters create my-cluster --zone us-central1-a

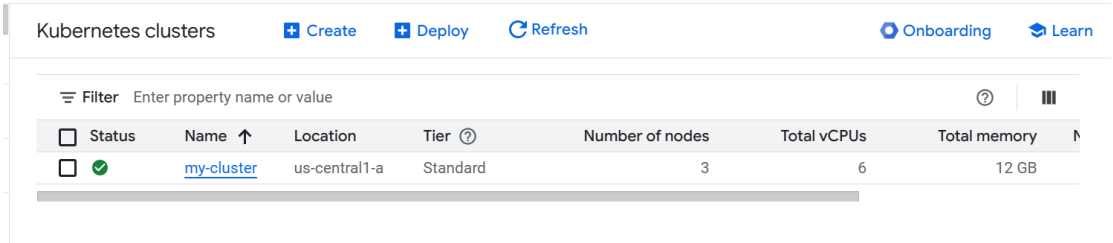
Cluster creation is taking 5 to 10 mints time

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ gcloud container clusters create my-cluster --zone us-central1-a
Note: The Kubelet readonly port (10255) is now deprecated. Please update your workloads to use the recommended alternatives. See https://cloud.google.com/kube
rnetes-engine/docs/how-to/disable-kubelet-readonly-port for ways to check usage and for migration instructions.
Note: Your Pod address range (`--cluster-ipv4-cidr`) can accommodate at most 1008 node(s).
Creating cluster my-cluster in us-central1-a...working.
```

Once the cluster is created u can see the below message automatically

```
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload_/gcloud/us-central1-a/my-cluster?project=hidden-solstice-
454006-n0
kubeconfig entry generated for my-cluster.
NAME: my-cluster
LOCATION: us-central1-a
MASTER_VERSION: 1.31.6-gke.1020000
MASTER_IP: 34.66.171.95
MACHINE_TYPE: e2-medium
NODE_VERSION: 1.31.6-gke.1020000
NUM_NODES: 3
STATUS: RUNNING
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

Now u go and check kubernetes engine--->cluster , you can see the my-cluster is running



Run the below command

gcloud container clusters get-credentials my-cluster --zone us-central1-a

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ gcloud container clusters get-credentials my-cluster --zone us-central1-a
Fetching cluster endpoint and auth data.
kubeconfig entry generated for my-cluster.
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

To see the list of nodes

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get nodes
NAME                                          STATUS   ROLES    AGE     VERSION
gke-my-cluster-default-pool-020e8447-03bv   Ready    <none>   8m43s   v1.31.6-gke.1020000
gke-my-cluster-default-pool-020e8447-1510   Ready    <none>   8m43s   v1.31.6-gke.1020000
gke-my-cluster-default-pool-020e8447-rv2r   Ready    <none>   8m43s   v1.31.6-gke.1020000
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

Create the pods

Kubectl run --image tomcat webserver

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl run --image tomcat webserver
pod/webserver created
```

To see the pods list

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get pods
NAME        READY   STATUS    RESTARTS   AGE
webserver   1/1     Running   0          20m
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

To get the list of pods along with ip address and which node the pod is running

Kubectl get pods -o wide

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get pods -o wide
NAME        READY   STATUS    RESTARTS   AGE   IP          NODE                                          NOMINATED NODE   READINESS GATES
webserver   1/1     Running   0          22m   10.40.0.4   gke-my-cluster-default-pool-020e8447-1510   <none>           <none>
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

Actually u can create the pod using definition file

Create pd-df1.yaml

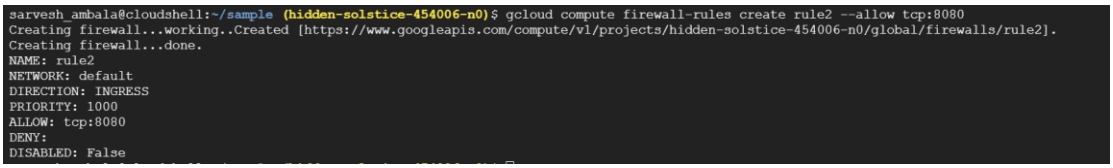
Vim pd-df1.yaml

```
apiVersion: v1
kind: Pod
metadata:
  name: jenkins-pod
spec:
  containers:
  - name: myjenkins
    image: jenkins/jenkins
    ports:
    - containerPort: 8080
      hostPort: 8080
```

for accessing the application u need to open the port

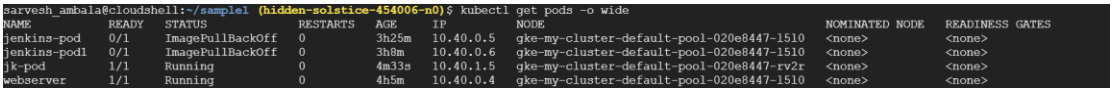
How to open the port

gcloud compute firewall-rules create rule2 --allow tcp:8080



Kubectl create -f pd-df1.yaml

Kubectl get pods -o wide



Kubectl get nodes -o wide

```
sarvesh_ambala@cloudshell:~/sample1 (hidden-solstice-454006-n0)$ kubectl get nodes -o wide
NAME                                                  STATUS   ROLES    AGE     VERSION               INTERNAL-IP    EXTERNAL-IP     OS-IMAGE
KERNEL-VERSION   CONTAINER-RUNTIME
gke-my-cluster-default-pool-020e8447-03bv   Ready    <none>   4h19m   v1.31.6-gke.1020000   10.128.0.15    35.225.52.28    Container-Optimized OS from Google
6.6.72+          containerd://1.7.24
gke-my-cluster-default-pool-020e8447-1510   Ready    <none>   4h19m   v1.31.6-gke.1020000   10.128.0.13    34.60.92.233    Container-Optimized OS from Google
6.6.72+          containerd://1.7.24
gke-my-cluster-default-pool-020e8447-rv2r   Ready    <none>   4h19m   v1.31.6-gke.1020000   10.128.0.14    34.56.2.233     Container-Optimized OS from Google
6.6.72+          containerd://1.7.24
sarvesh_ambala@cloudshell:~/sample1 (hidden-solstice-454006-n0)$
```

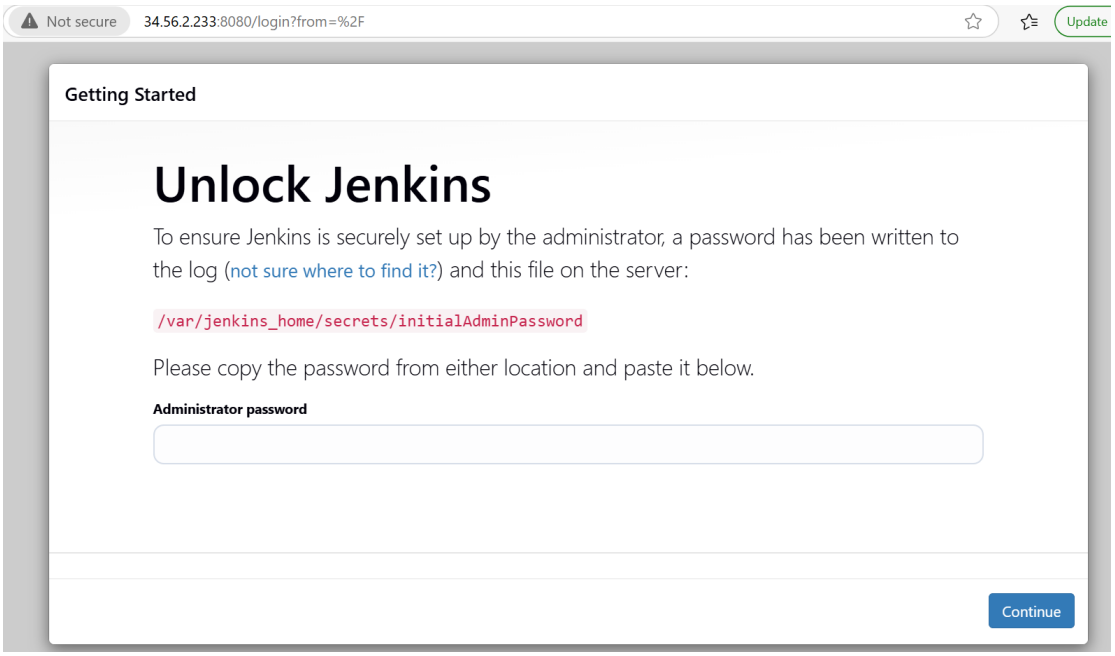
How can we access the pod

Take the external ip add the port no 8080

Open the browser paste ipaddress:8080

Now u can able to see the Jenkins

Output:-



Experiment 10

AIM:-Create a docker image for any application using docker file and push it to Docker Hub.

Step 1:-Connecting AWS Instance Ubuntu using Mobaxterm

1. Login AWS(Amazon Web Services) Account
2. Lunch Instance name Docker
3. Connect to Ubuntu or mobaxterm

(note:-Follow this url for docker file and application—https://github.com/devisar/devopslab)

Step 2:-Create Docker Hub Account and create repository in Docker Hub

Step 3:-Install Docker and Check Status and Start Docker in mobaxterm

1. sudo apt update -y
2. sudo apt install docker.io –y
3. sudo systemctl status docker(come outside use command ctl+z)

```
ubuntu@ip-172-31-90-47:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
     Active: active (running) since Fri 2025-02-28 03:50:40 UTC; 2min 5s ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
   Main PID: 2110 (dockerd)
      Tasks: 8
     Memory: 35.8M (peak: 38.1M)
        CPU: 253ms
     CGroup: /system.slice/docker.service
             └─2110 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Feb 28 03:50:38 ip-172-31-90-47 systemd[1]: Starting docker.service - Docker Application Container Engine...
Feb 28 03:50:38 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:38.974271527Z" level=info msg="Starting up"
Feb 28 03:50:38 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:38.975783980Z" level=info msg="detected 127.0.0.53 name
Feb 28 03:50:39 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:39.094061737Z" level=info msg="Loading containers: star
Feb 28 03:50:39 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:39.560107166Z" level=info msg="Loading containers: done
Feb 28 03:50:40 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:40.287913914Z" level=info msg="Docker daemon" commit="2
Feb 28 03:50:40 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:40.288020817Z" level=info msg="Daemon has completed ini
Feb 28 03:50:40 ip-172-31-90-47 dockerd[2110]: time="2025-02-28T03:50:40.338547546Z" level=info msg="API listen on /run/docke
Feb 28 03:50:40 ip-172-31-90-47 systemd[1]: Started docker.service - Docker Application Container Engine.
lines 1-21/21 (END)
```

Above status command is docker running means no problem if not run use command below to run

4. sudo systemctl start docker

Step 4:- Grant Access

Why we give grant access means

A easy way to verify your Docker installation is by running the below command

docker run hello-world

If the output says:

```
ubuntu@ip-172-31-90-47:~$ docker run hello-world
docker: permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Head "http://%2Fvar%2Frun%2Fdocker.sock/_ping": dial unix /var/run/docker.sock: connect: permiss
ion denied.
See 'docker run --help'.
ubuntu@ip-172-31-90-47:~$
```

This can mean two things,

1. Docker deamon is not running.(start docker using “sudo systemctl start docker”)
2. Your user does not have access to run docker commands.

Grant Access to your user to run docker commands

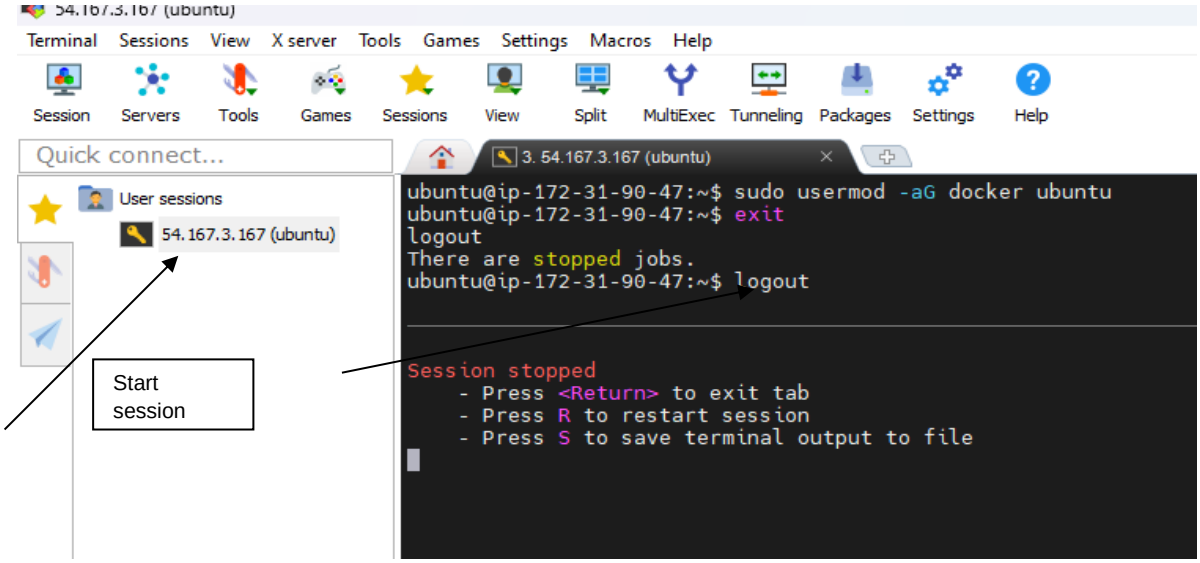
1. sudo usermod -aG docker ubuntu

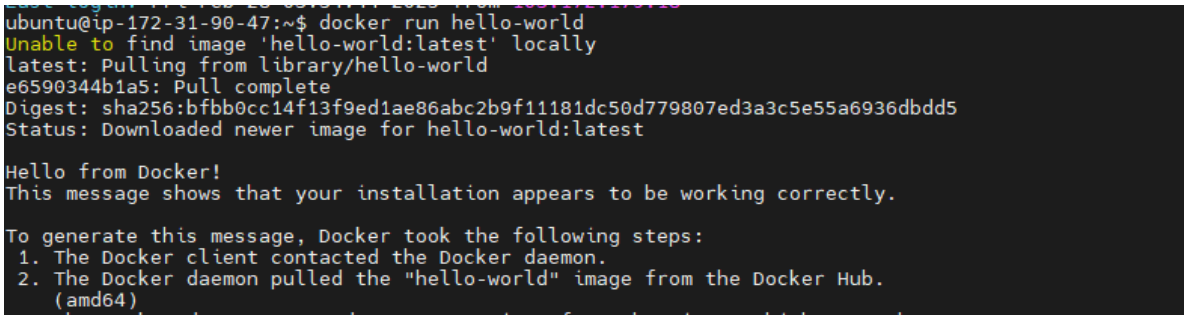
In the above command ubuntu is the name of the user, you can change the username appropriately.

NOTE: : You need to logout and login back for the changes to be reflected.

2. Logout purpose use commands exit or logout

   Again run command “docker run hello-world”





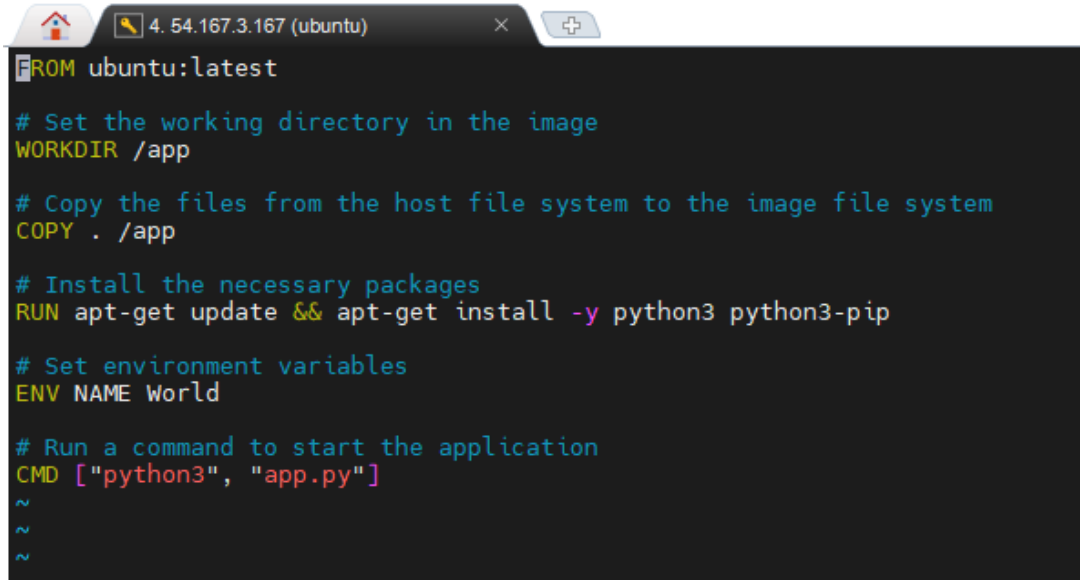
Step 5:-Creating application and Docker file

1. Mkdir docker1
2. cd docker1
3. vim app.py

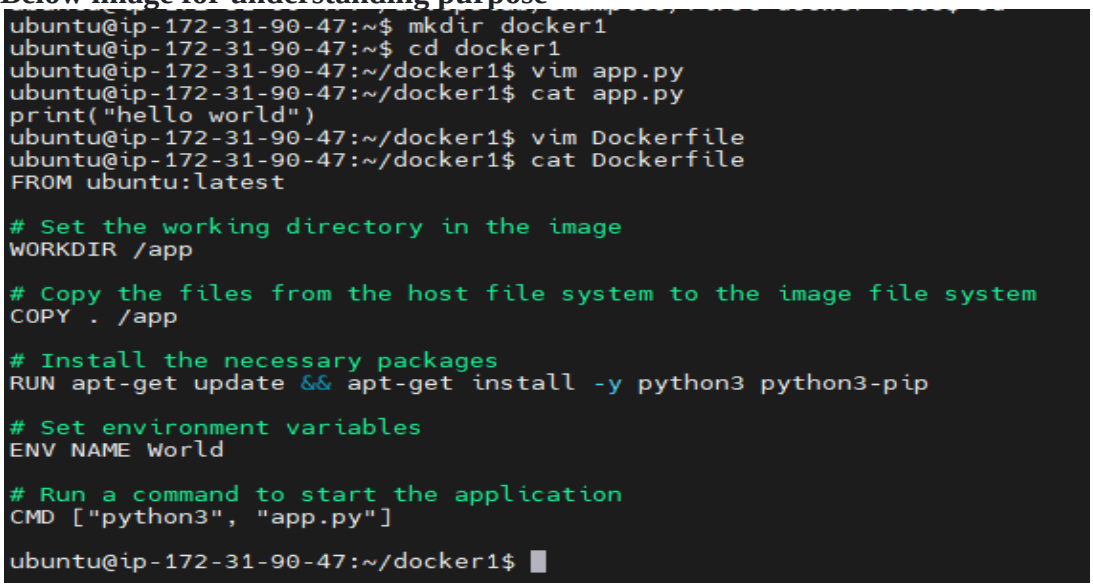
   print(“hello world”)

4. cat app.py

5. vim Dockerfile (below pic commands write lab record) typing command vim before click “i” for insert data after completion Docker file commands save before click esc use :wq!



Below image for understanding purpose



se

Step 6:- Build and Check Docker image

Syntax:- docker build –t dockerhub_username/repositoryname:tag .

1. docker build –t anu1308/dockerimage:latest .
2. docker images

Below images for understanding purpose

```
Build an image from a Dockerfile
ubuntu@ip-172-31-90-47:~/docker1$ docker build -t anu1308/dockerimage:latest .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  3.072kB
Step 1/6 : FROM ubuntu:latest
latest: Pulling from library/ubuntu
5a7813e071bf: Pull complete
Digest: sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782
Status: Downloaded newer image for ubuntu:latest
 ---> a04dc4851cbc
Step 2/6 : WORKDIR /app
 ---> Running in 490762c2b766
 ---> Removed intermediate container 490762c2b766
 ---> f19d0296889a
Step 3/6 : COPY . /app
 ---> 05e2e2564f3a
Step 4/6 : RUN apt-get update && apt-get install -y python3 python3-pip
 ---> Running in 0cad8878ec6b
Get:1 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [842 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/restricted amd64 Packages [117 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [19.3 MB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [24.2 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [807 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1053 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [331 kB]
Get:12 http://archive.ubuntu.com/ubuntu noble/main amd64 Packages [1808 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1131 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [28.8 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [881 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1336 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [16.0 kB]
Fetched 28.3 MB in 3s (8996 kB/s)
Successfully tagged anu1308/dockerimage:latest
ubuntu@ip-172-31-90-47:~/docker1$ docker images
REPOSITORY              TAG       IMAGE ID       CREATED          SIZE
anu1308/dockerimage     latest    cdbf156a1eda   56 seconds ago   574MB
ubuntu                  latest    a04dc4851cbc   4 weeks ago      78.1MB
hello-world             latest    74cc54e27dc4   5 weeks ago      10.1kB
ubuntu@ip-172-31-90-47:~/docker1$
```

Step 7:- Run your First Docker Container

1. docker run -it anu1308/dockerimage:latest

Output

Hello World

```
4. 54.167.3.167 (ubuntu)
ubuntu@ip-172-31-90-47:~/docker1$ docker run -it anu1308/dockerimage:latest
hello world
ubuntu@ip-172-31-90-47:~/docker1$
```

Step 8:-Docker Login

1. docker login

```
ubuntu@ip-172-31-90-47:~/docker1$ docker login
Log in with your Docker ID or email address to push and pull images from Docker Hub. If you don't have a Doc
You can log in with your password or a Personal Access Token (PAT). Using a limited-scope PAT grants better
ess-tokens/

Username: anu1308
Password:
WARNING! Your password will be stored unencrypted in /home/ubuntu/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
ubuntu@ip-172-31-90-47:~/docker1$
```

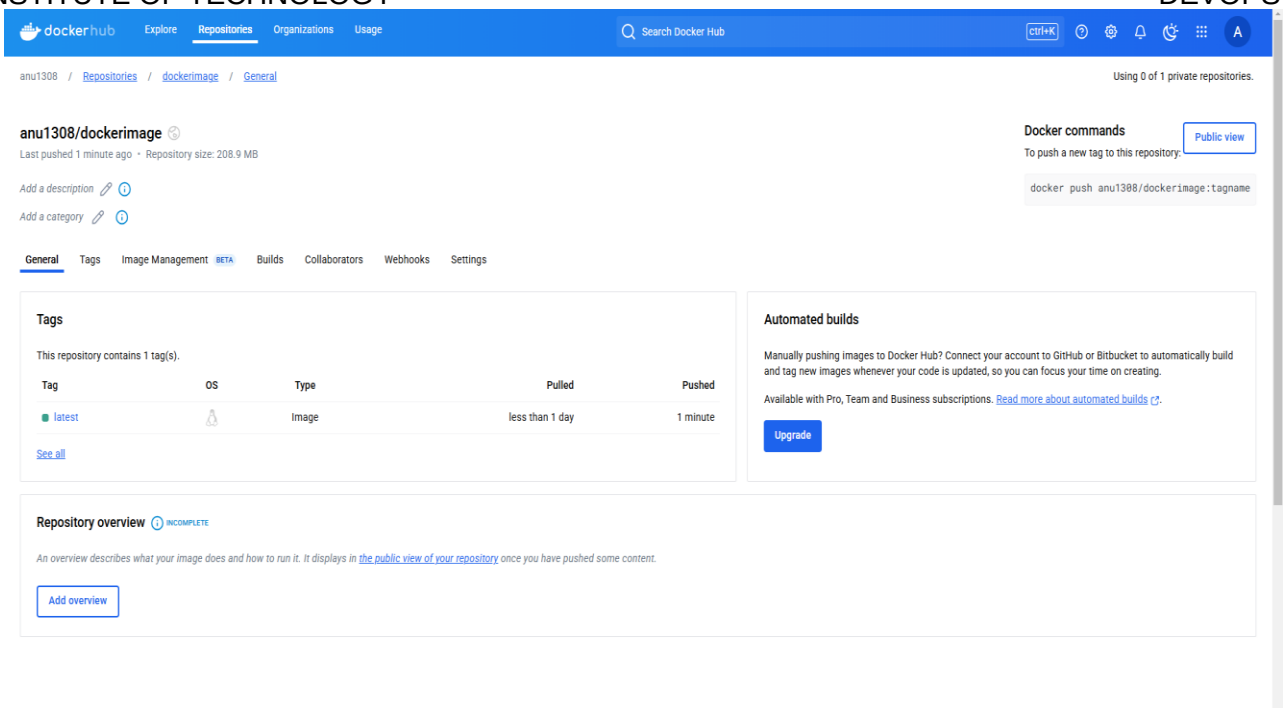
Step 9:- Push the Image to DockerHub and share it with the world

1. docker push anu1308/dockerimage:latest

```
ubuntu@ip-172-31-90-47:~/docker1$ docker push anu1308/dockerimage:latest
The push refers to repository [docker.io/anu1308/dockerimage]
2d65eeb8aca1: Pushed
9863a1399ed4: Pushed
8870c5a70606: Pushed
4b7c01ed0534: Mounted from library/ubuntu
latest: digest: sha256:ec420e83236afe2170d2feac0ba4ff0af40d1eb580bb3c83a5e50a374c5d1746 size: 1155
ubuntu@ip-172-31-90-47:~/docker1$
```

Output:-

```
ubuntu@ip-172-31-90-47:~/docker1$ docker images
REPOSITORY            TAG       IMAGE ID       CREATED          SIZE
anu1308/dockerimage   latest    cdbf156a1eda   56 seconds ago   574MB
ubuntu                latest    a04dc4851cbc   4 weeks ago      78.1MB
hello-world           latest    74cc54e27dc4   5 weeks ago      10.1kB
ubuntu@ip-172-31-90-47:~/docker1$
```



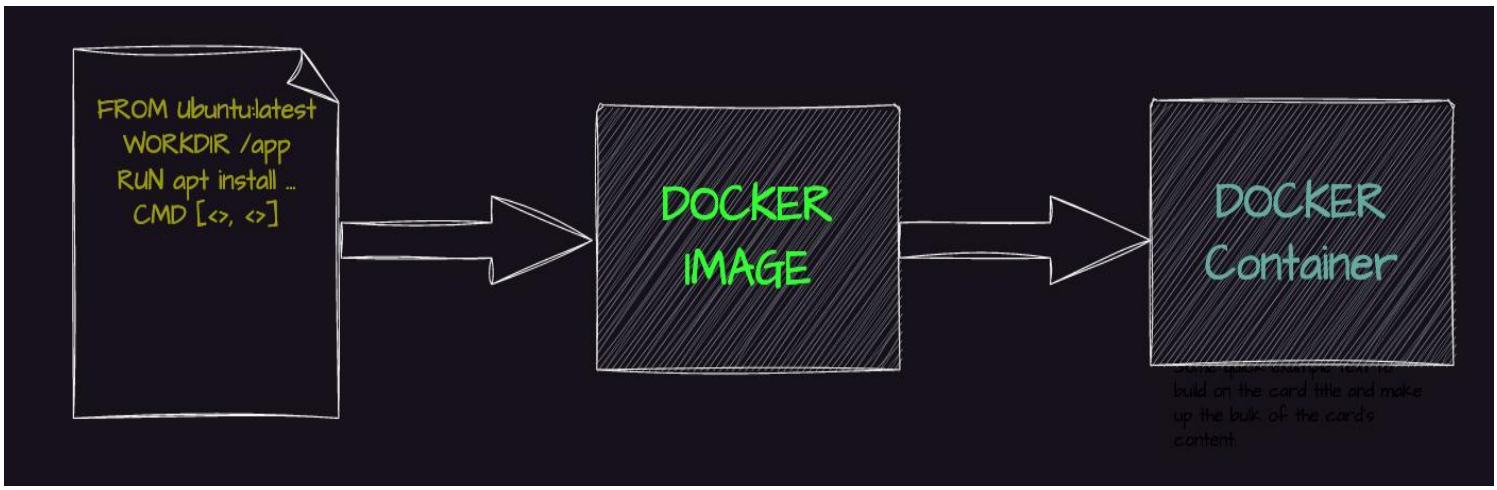
Definitions:-

Docker LifeCycle

We can use the above Image as reference to understand the lifecycle of Docker.

There are three important things,

1. docker build -> builds docker images from Dockerfile
2. docker run -> runs container from docker images
3. docker push -> push the container image to public/private regestries(docker hub) to share the docker images.



What is a container ?

A container is a standard unit of software that packages up code and all its dependencies so the application runs quickly and reliably from one computing environment to another. A Docker container image is a lightweight, standalone, executable package of software that includes everything needed to run an application: code, runtime, system tools, system libraries and settings.

Why are containers light weight ?

Containers are lightweight because they use a technology called containerization, which allows them to share the host operating system's kernel and libraries, while still providing isolation for the application and its dependencies. This results in a smaller footprint compared to traditional virtual machines, as the containers do not need to include a full operating system. Additionally, Docker containers are designed to be minimal, only including what is necessary for the application to run, further reducing their size.

What is Docker ?

Docker is a containerization platform that provides easy way to containerize your applications, which means, using Docker you can build container images, run the images to create containers and also push these containers to container regestries such as DockerHub

Docker daemon

The Docker daemon (dockerd) listens for Docker API requests and manages Docker objects such as images, containers, networks, and volumes. A daemon can also communicate with other daemons to manage Docker services.

Docker client

The Docker client (docker) is the primary way that many Docker users interact with Docker. When you use commands such as docker run, the client sends these commands to dockerd, which carries them out. The docker command uses the Docker API. The Docker client can communicate with more than one daemon.

Docker Desktop

Docker Desktop is an easy-to-install application for your Mac, Windows or Linux environment that enables you to build and share containerized applications and microservices. Docker Desktop includes the Docker daemon (dockerd), the Docker client (docker), Docker Compose, Docker Content Trust, Kubernetes, and Credential Helper. For more information, see Docker Desktop.

Docker registries

A Docker registry stores Docker images. Docker Hub is a public registry that anyone can use, and Docker is configured to look for images on Docker Hub by default. You can even run your own private registry.

When you use the docker pull or docker run commands, the required images are pulled from your configured registry. When you use the docker push command, your image is pushed to your configured registry. Docker objects

When you use Docker, you are creating and using images, containers, networks, volumes, plugins, and other objects. This section is a brief overview of some of those objects.

Dockerfile

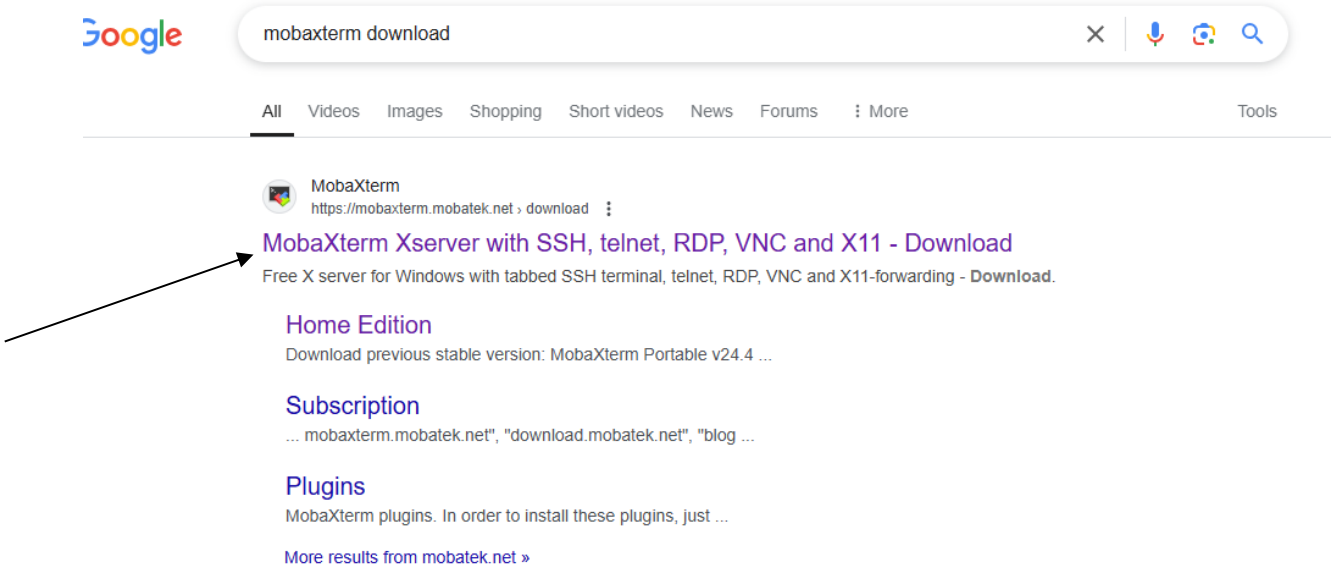
Dockerfile is a file where you provide the steps to build your Docker Image.

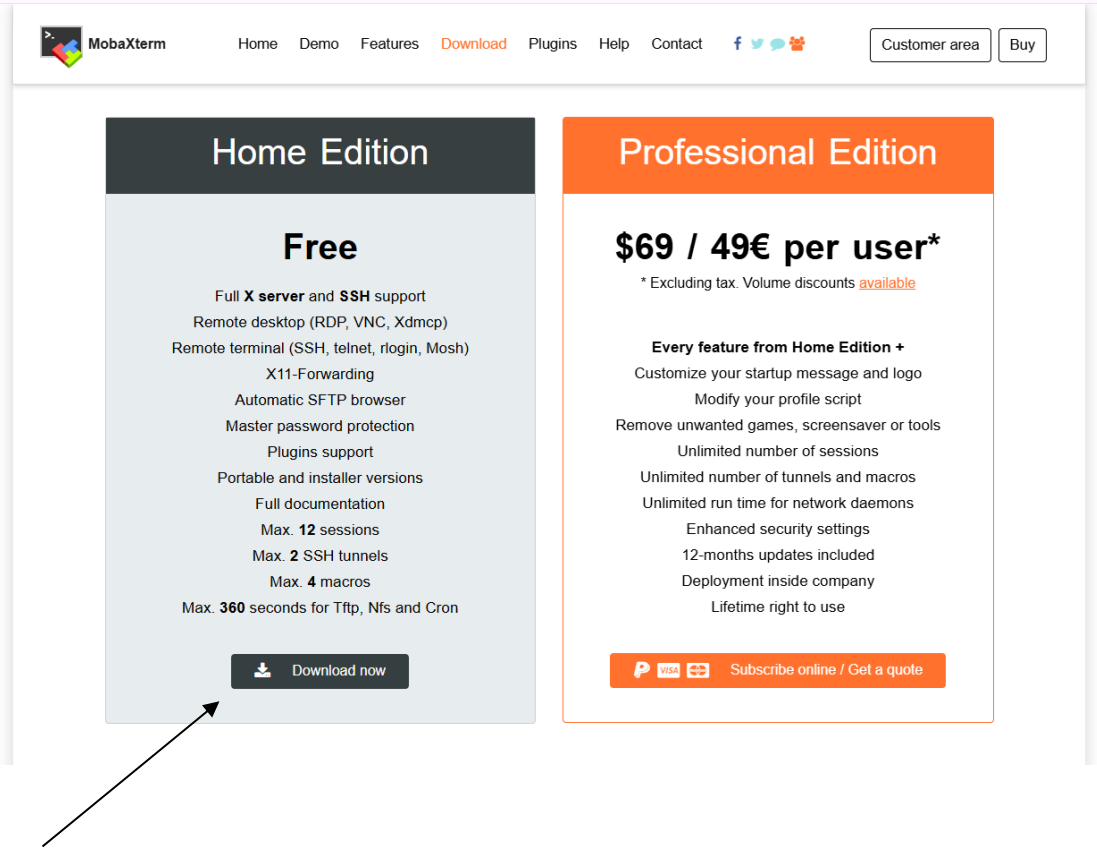
Images

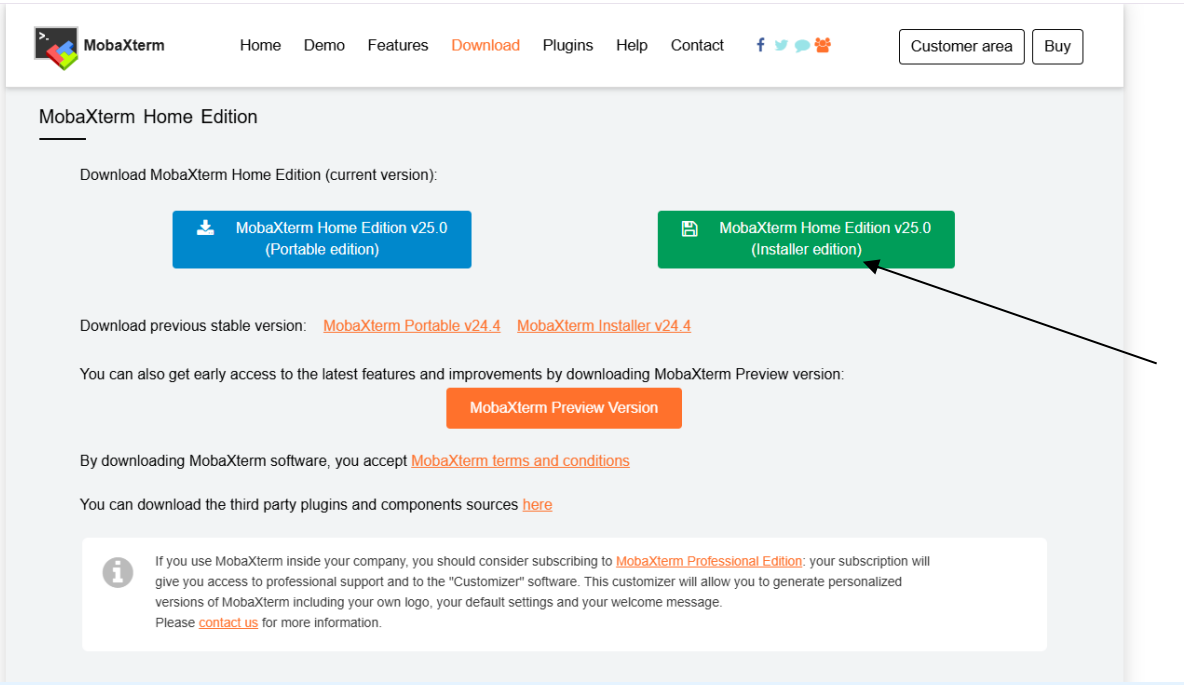
An image is a read-only template with instructions for creating a Docker container. Often, an image is based on another image, with some additional customization. For example, you may build an image which is based on the ubuntu image, but installs the Apache web server and your application, as well as the configuration details needed to make your application run.

Below Images for Understanding purpose

Connecting AWS Instance to Mobaxterm




MobaXterm
Home
Demo
Features
Download
Plugins
Help
Contact
Customer area
Buy
Home Edition
Free
Full X server and SSH support
Remote desktop (RDP, VNC, Xdmcp)
Remote terminal (SSH, telnet, rlogin, Mosh)
X11-Forwarding
Automatic SFTP browser
Master password protection
Plugins support
Portable and installer versions
Full documentation
Max. 12 sessions
Max. 2 SSH tunnels
Max. 4 macros
Max. 360 seconds for Tftp, Nfs and Cron
Download now
Professional Edition
$69 / 49€ per user*
* Excluding tax. Volume discounts available
Every feature from Home Edition +
Customize your startup message and logo
Modify your profile script
Remove unwanted games, screensaver or tools
Unlimited number of sessions
Unlimited number of tunnels and macros
Unlimited run time for network daemons
Enhanced security settings
12-months updates included
Deployment inside company
Lifetime right to use
Subscribe online / Get a quote


MobaXterm
Home
Demo
Features
Download
Plugins
Help
Contact
Customer area
Buy
MobaXterm Home Edition
Download MobaXterm Home Edition (current version):
MobaXterm Home Edition v25.0 (Portable edition)
MobaXterm Home Edition v25.0 (Installer edition)
Download previous stable version: MobaXterm Portable v24.4 MobaXterm Installer v24.4
You can also get early access to the latest features and improvements by downloading MobaXterm Preview version:
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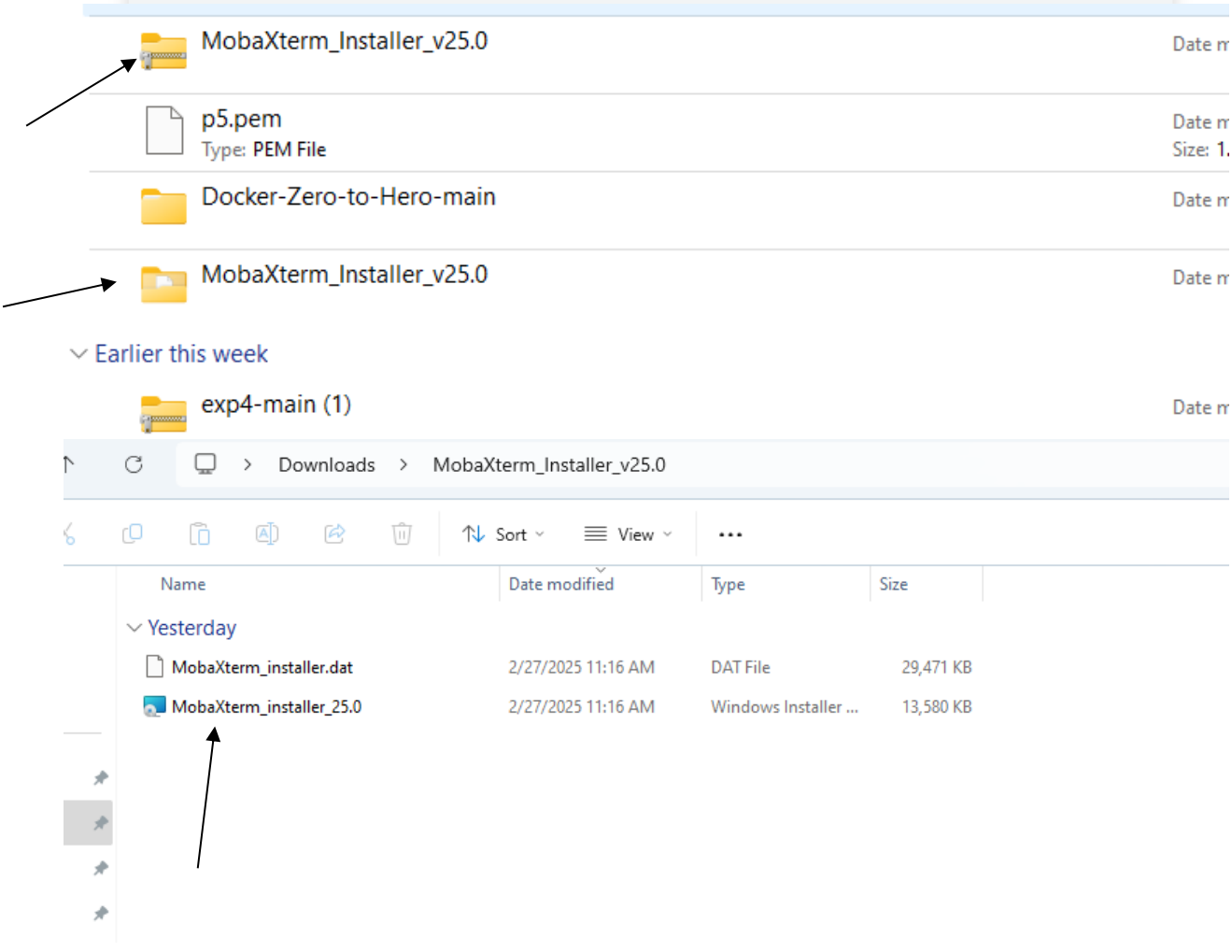
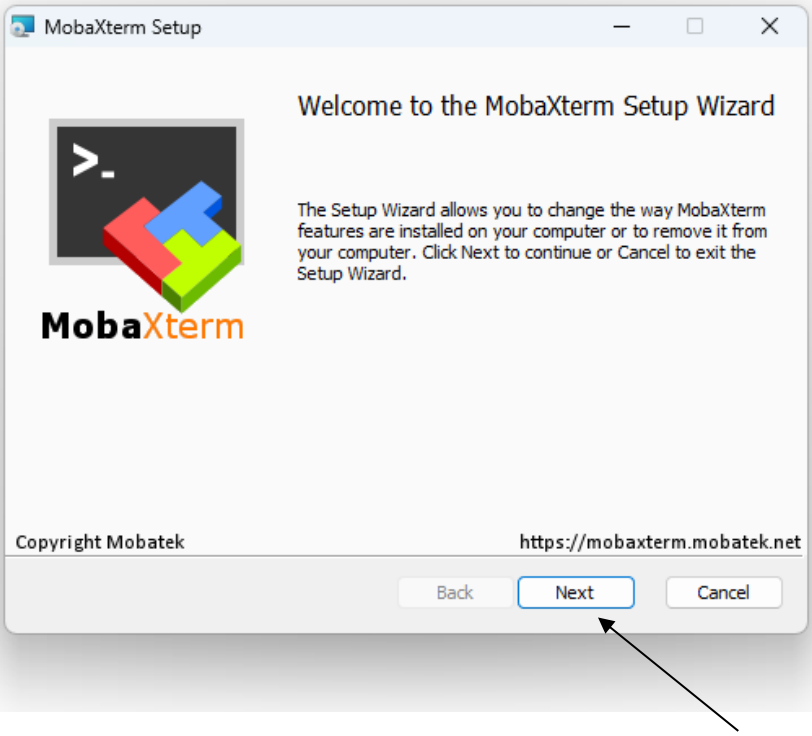
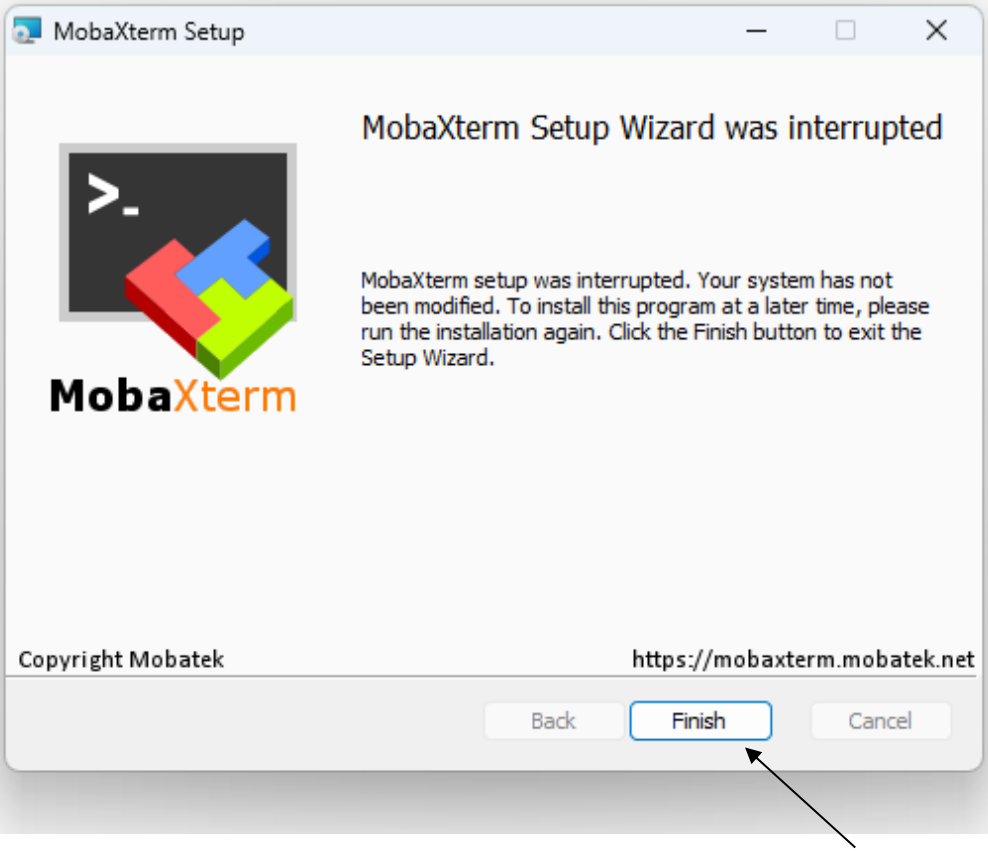
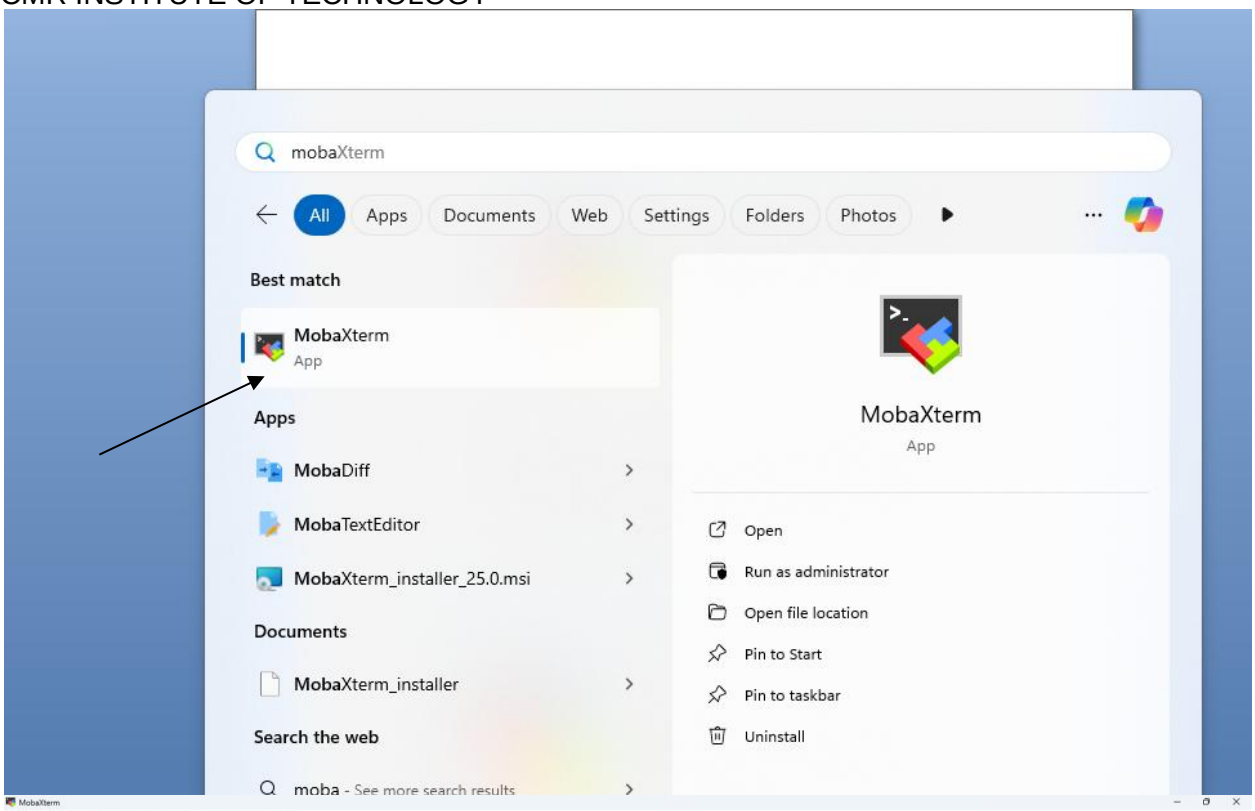
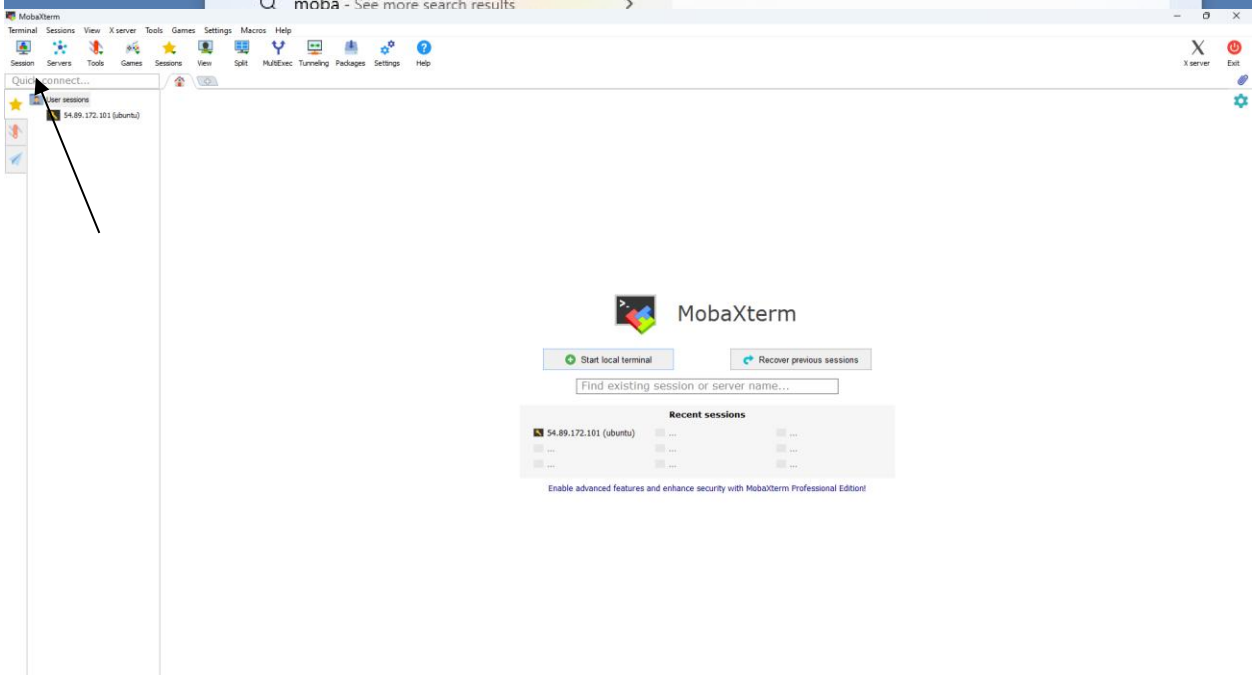
You can download the third party plugins and components sources here
If you use MobaXterm inside your company, you should consider subscribing to MobaXterm Professional Edition: your subscription will give you access to professional support and to the "Customizer" software. This customizer will allow you to generate personalized versions of MobaXterm including your own logo, your default settings and your welcome message.
Please contact us for more information.

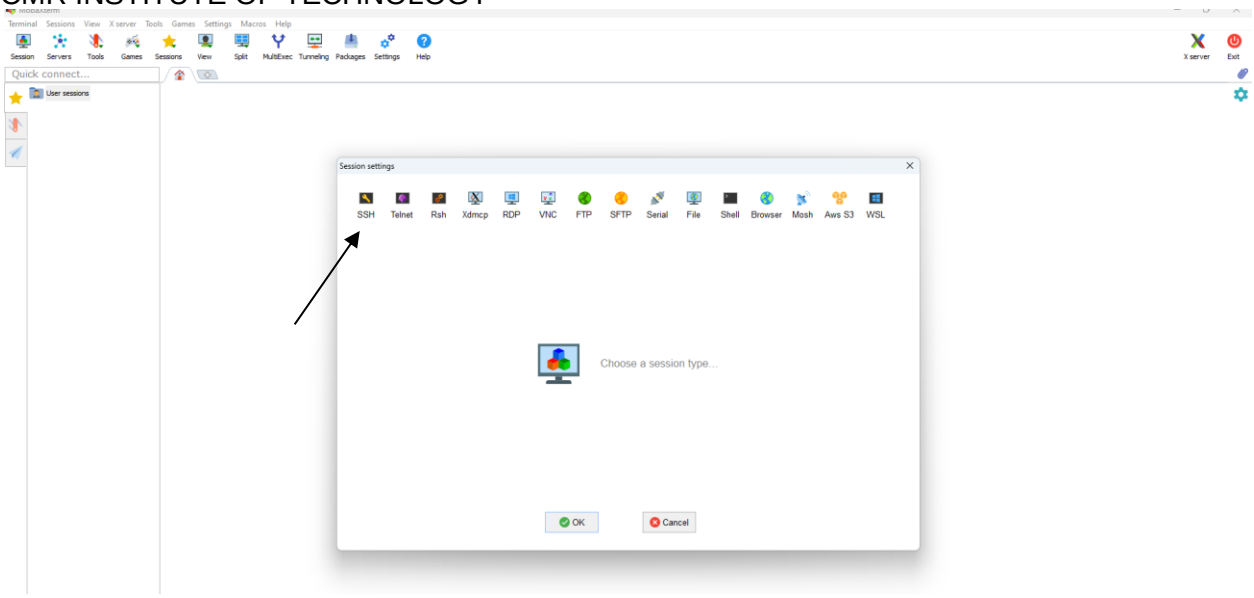

MobaXterm_Installer_v25.0
p5.pem
Type: PEM File
Docker-Zero-to-Hero-main
MobaXterm_Installer_v25.0
Earlier this week
exp4-main (1)
Downloads
MobaXterm_Installer_v25.0
Sort
View
Name
Date modified
Type
Size
Yesterday
MobaXterm_installer.dat
2/27/2025 11:16 AM
DAT File
29,471 KB
MobaXterm_installer_25.0
2/27/2025 11:16 AM
Windows Installer ...
13,580 KB

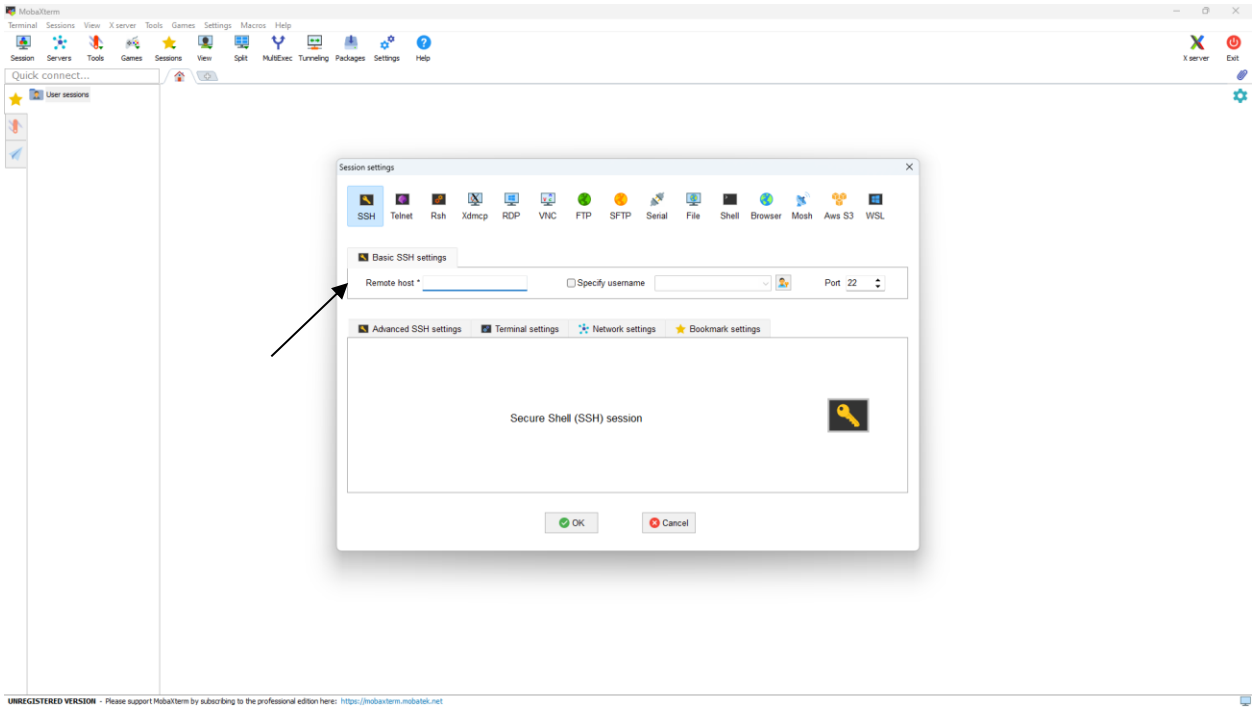

MobaXterm Setup
Welcome to the MobaXterm Setup Wizard
The Setup Wizard allows you to change the way MobaXterm features are installed on your computer or to remove it from your computer. Click Next to continue or Cancel to exit the Setup Wizard.
MobaXterm
Copyright Mobatek
https://mobaxterm.mobatek.net
Back
Next
Cancel


MobaXterm Setup
MobaXterm Setup Wizard was interrupted
MobaXterm setup was interrupted. Your system has not been modified. To install this program at a later time, please run the installation again. Click the Finish button to exit the Setup Wizard.
MobaXterm
Copyright Mobatek
https://mobaxterm.mobatek.net
Back
Finish
Cancel

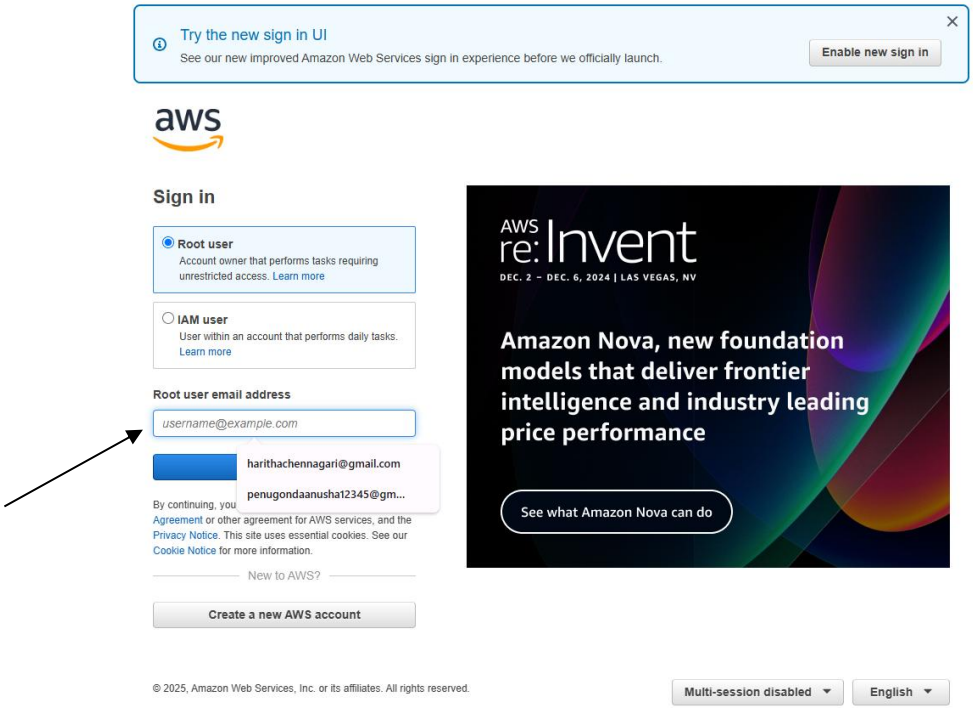

mobaXterm
All
Apps
Documents
Web
Settings
Folders
Photos
Best match
MobaXterm
App
Apps
MobaDiff
MobaTextEditor
MobaXterm_installer_25.0.msi
Documents
MobaXterm_installer
Search the web
moba - See more search results
MobaXterm
App
Open
Run as administrator
Open file location
Pin to Start
Pin to taskbar
Uninstall

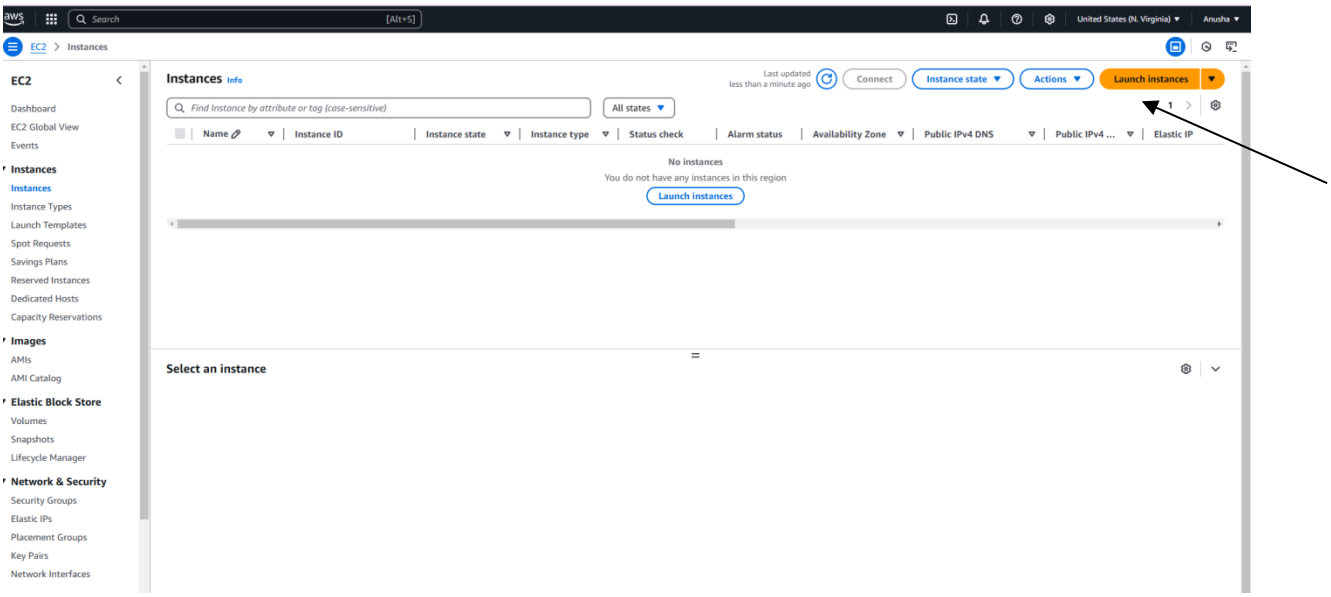

MobaXterm
Start local terminal
Recover previous sessions
Find existing session or server name...
Recent sessions
54.89.172.101 (ubuntu)
Enable advanced features and enhance security with MobaXterm Professional Edition!

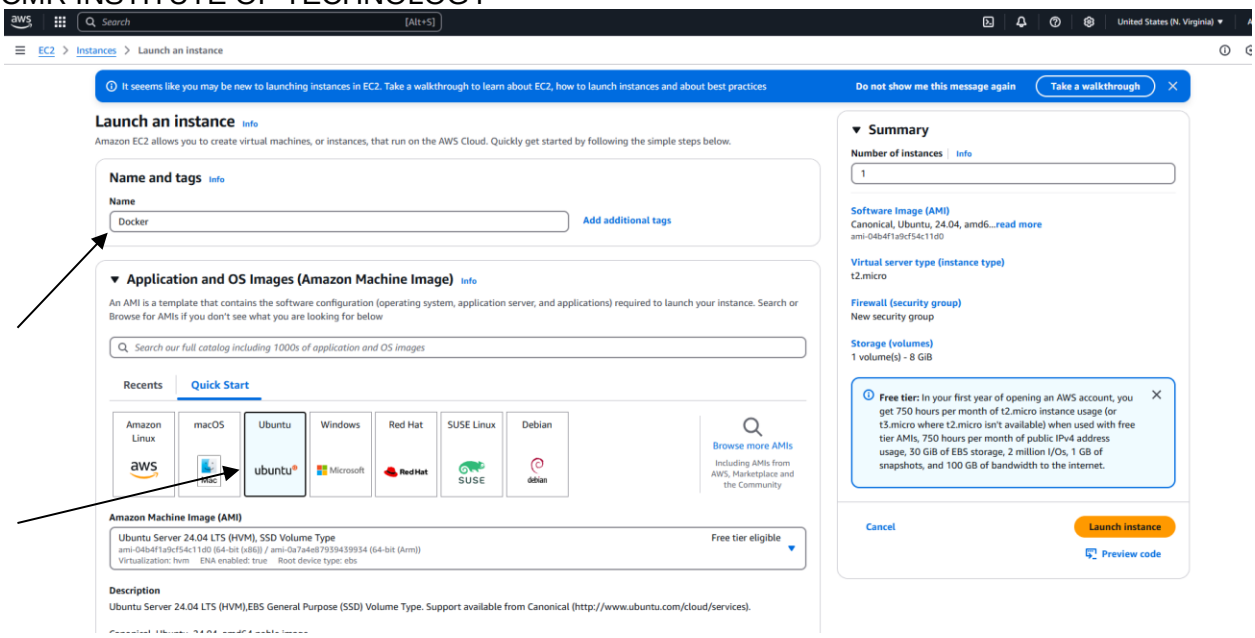


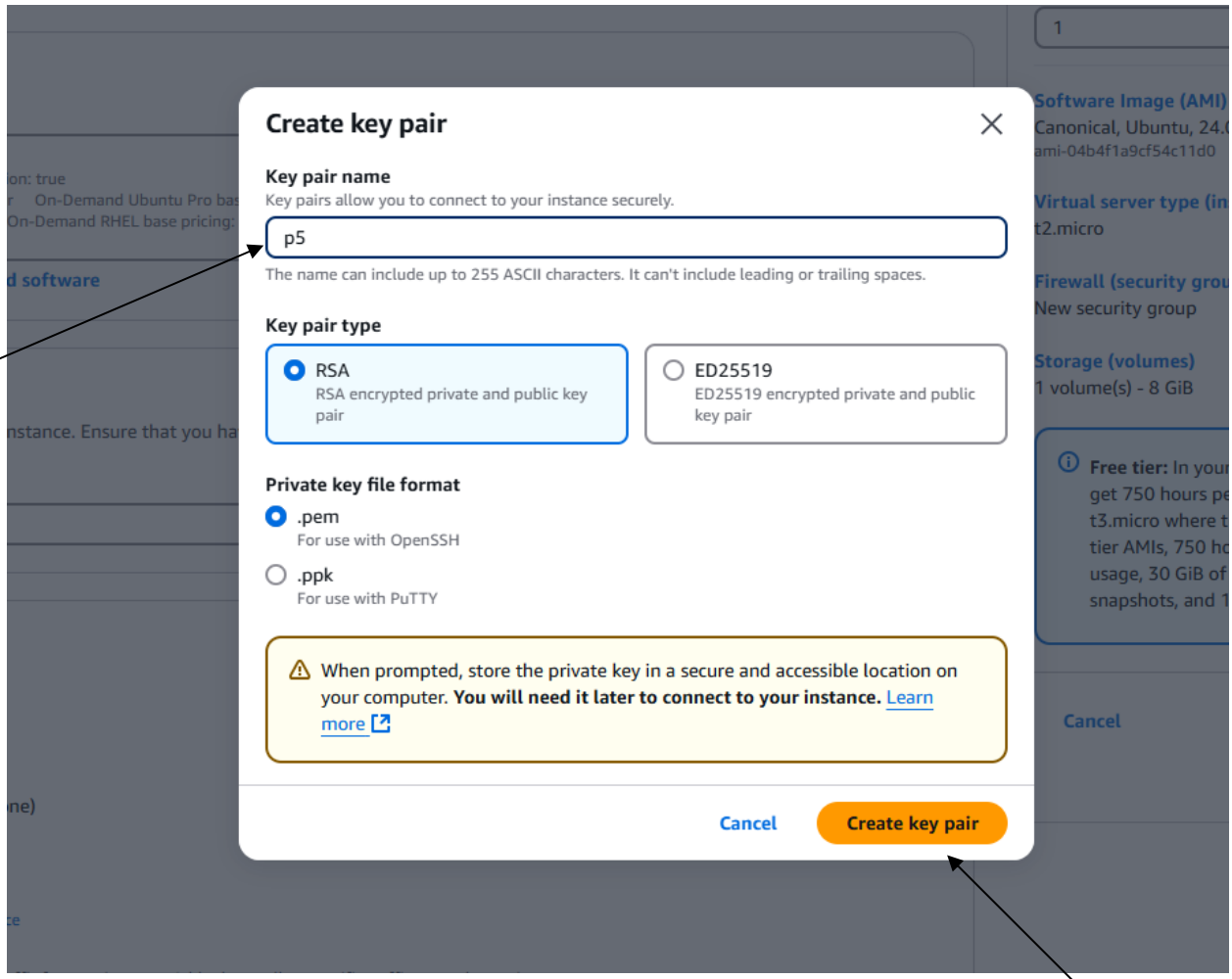


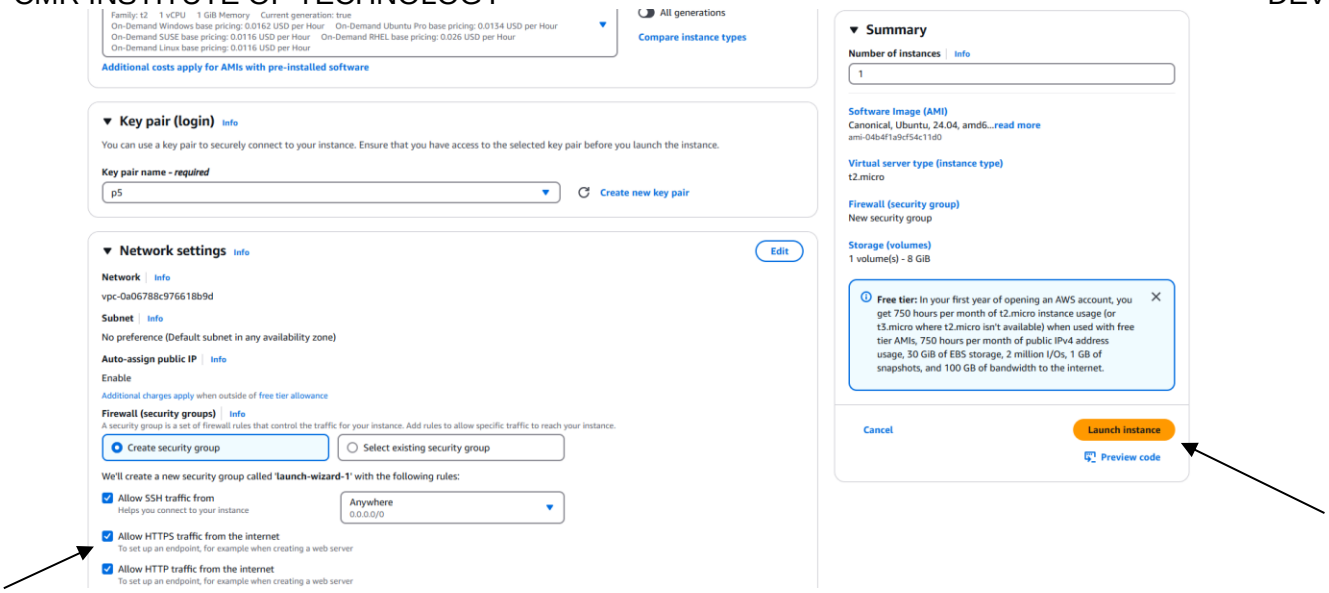
Remote host we want public key and .pem file also so login to AWS Account


Try the new sign in UI
See our new improved Amazon Web Services sign in experience before we officially launch.
Enable new sign in
aws
Sign in
Root user
Account owner that performs tasks requiring unrestricted access. Learn more
IAM user
User within an account that performs daily tasks. Learn more
Root user email address
username@example.com
harithachennagari@gmail.com
penugondaanusha12345@gm...
By continuing, you
Agreement or other agreement for AWS services, and the
Privacy Notice. This site uses essential cookies. See our
Cookie Notice for more information.
New to AWS?
Create a new AWS account
AWS re:Invent
DEC. 2 – DEC. 6, 2024 | LAS VEGAS, NV
Amazon Nova, new foundation models that deliver frontier intelligence and industry leading price performance
See what Amazon Nova can do
© 2025, Amazon Web Services, Inc. or its affiliates. All rights reserved.
Multi-session disabled
English

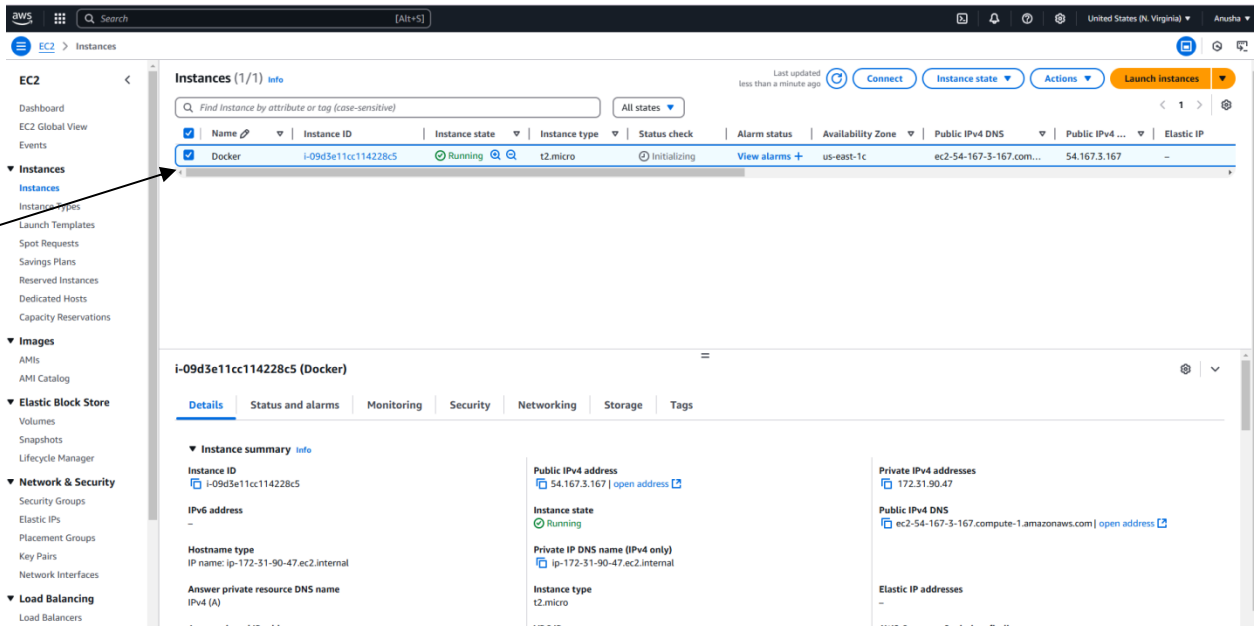

EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Instances Info
Last updated less than a minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Elastic IP
No instances
You do not have any instances in this region
Launch instances
Select an instance

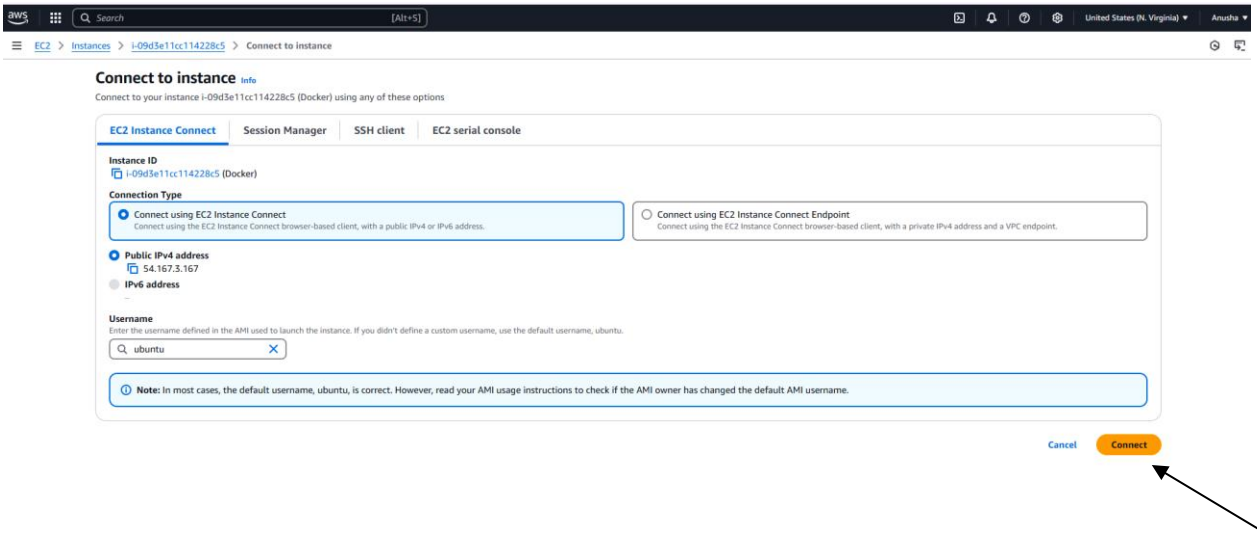

EC2 > Instances > Launch an instance
Launch an instance
Name and tags
Name
Docker
Add additional tags
Application and OS Images (Amazon Machine Image)
Recents
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Linux
Debian
Browse more AMIs
Amazon Machine Image (AMI)
Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
Free tier eligible
Description
Summary
Number of instances
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier AMIs, 750 hours per month of public IPv4 address usage, 30 GiB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet.
Cancel
Launch instance
Preview code

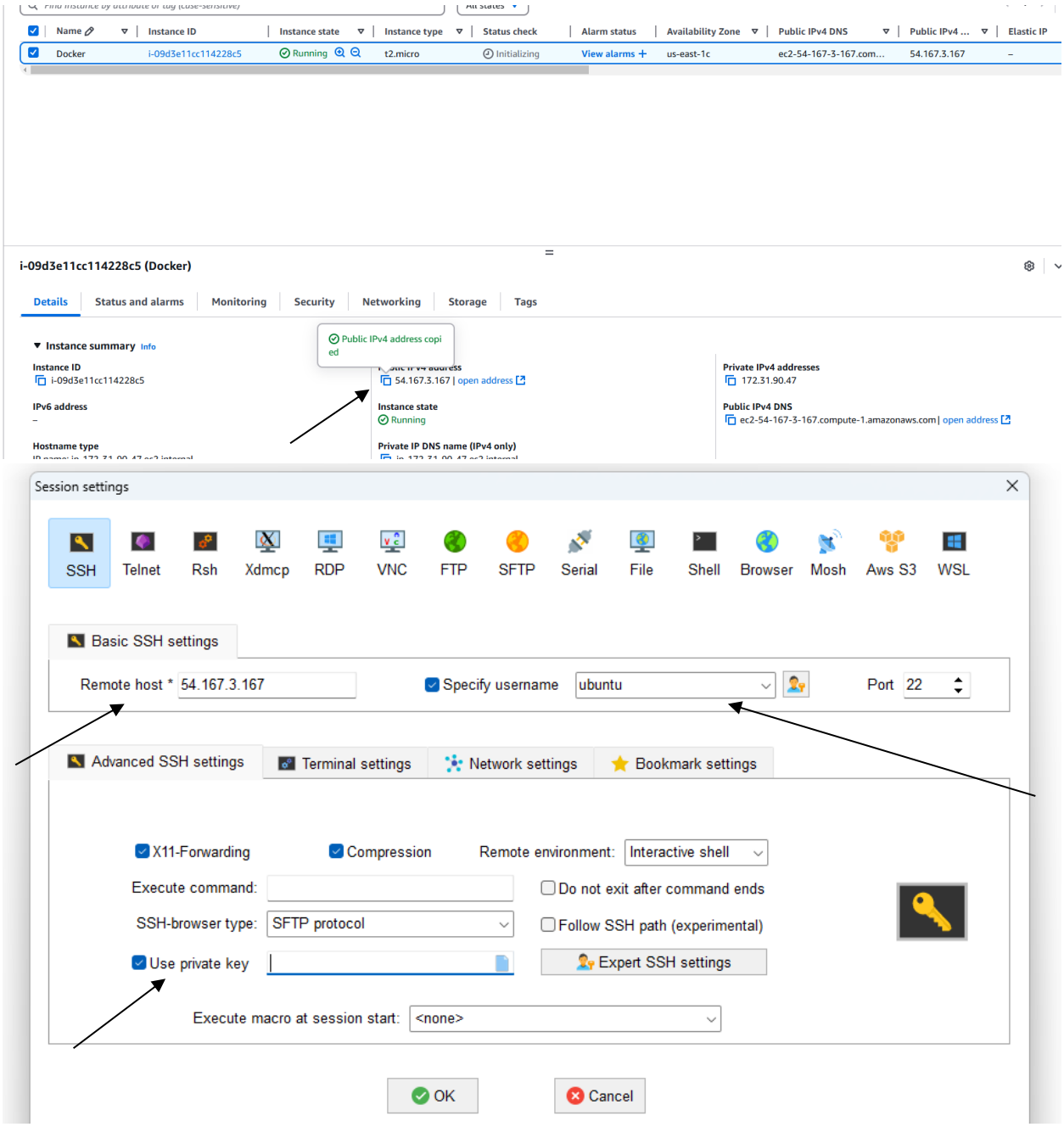

Create key pair
Key pair name
Key pairs allow you to connect to your instance securely.
p5
The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.
Key pair type
RSA
RSA encrypted private and public key pair
ED25519
ED25519 encrypted private and public key pair
Private key file format
.pem
For use with OpenSSH
.ppk
For use with PuTTY
When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. Learn more
Cancel
Create key pair

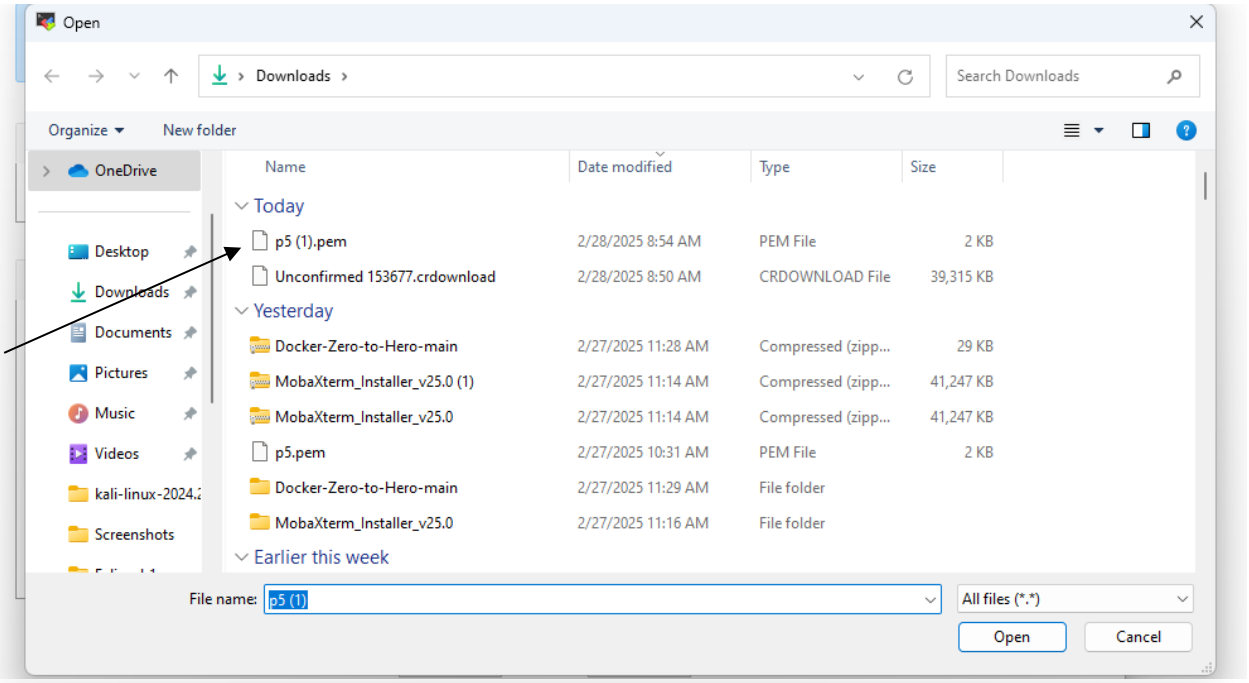


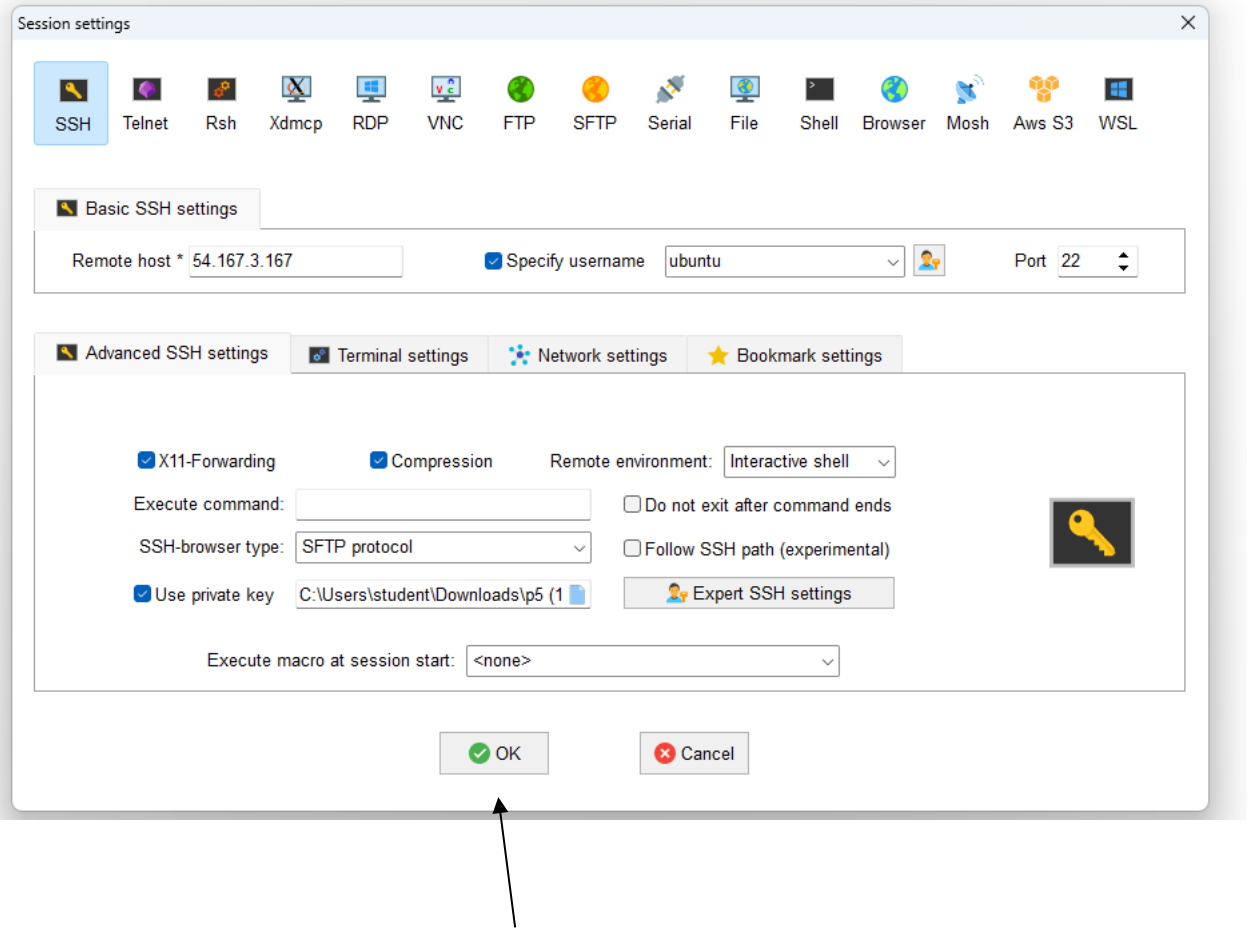
Here you can Directly connect Ubuntu also but better use mobaxterm

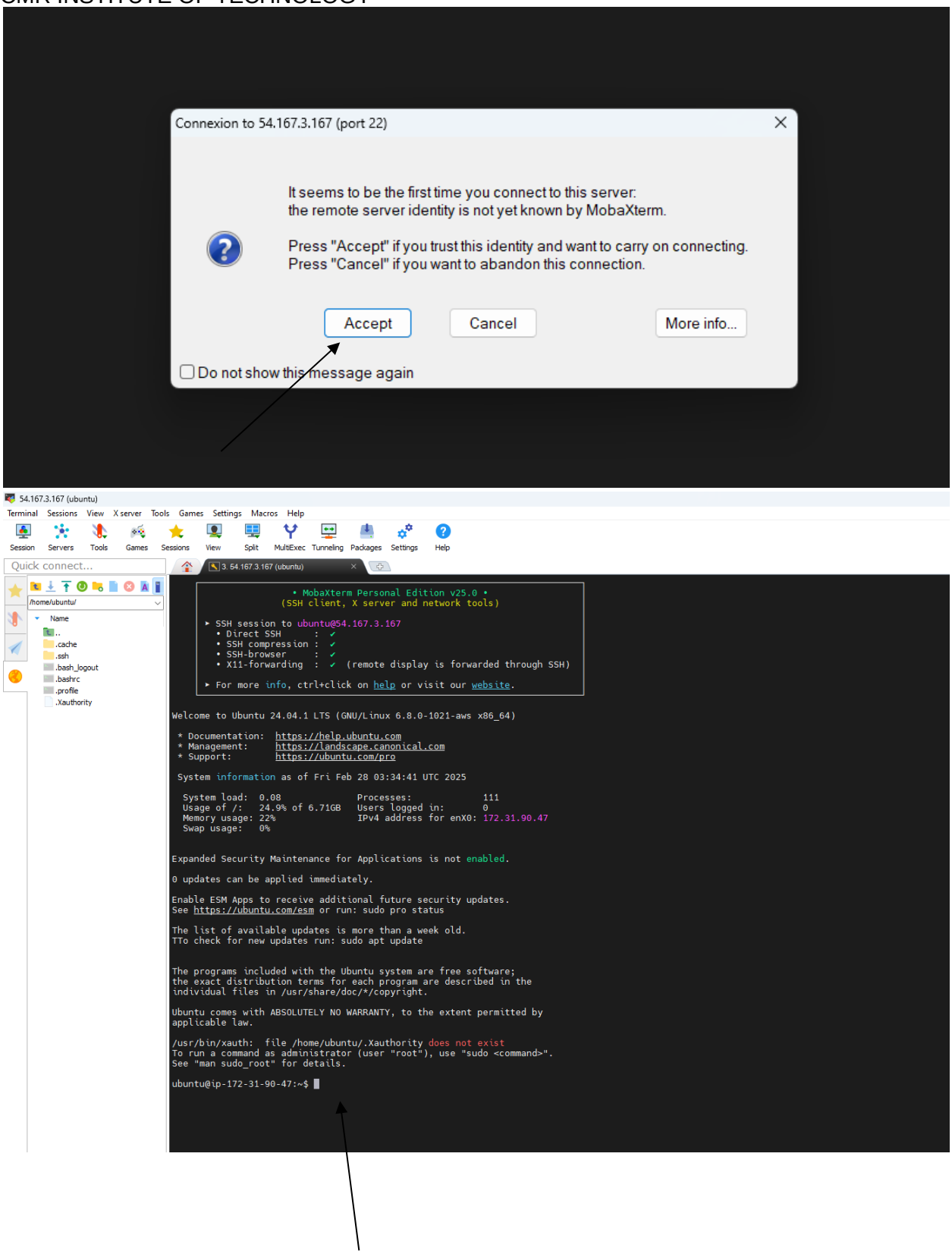




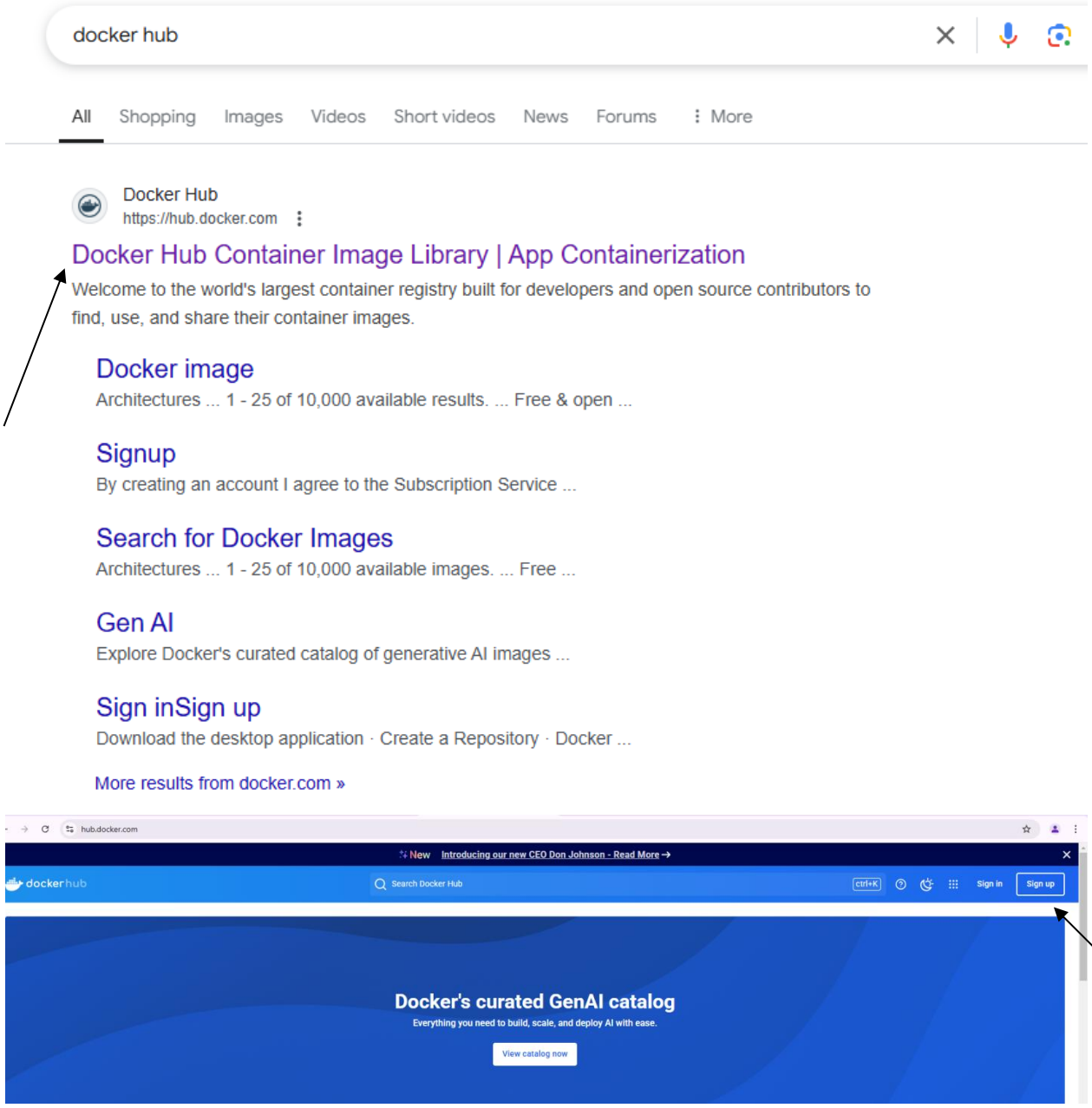

Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Elastic IP
Docker
i-09d3e11cc114228c5
Running
t2.micro
Initializing
View alarms
us-east-1c
ec2-54-167-3-167.com...
54.167.3.167
i-09d3e11cc114228c5 (Docker)
Details
Status and alarms
Monitoring
Security
Networking
Storage
Tags
Instance summary Info
Public IPv4 address copied
Instance ID
i-09d3e11cc114228c5
IPv6 address
Hostname type
54.167.3.167 | open address
Instance state
Running
Private IP DNS name (IPv4 only)
Private IPv4 addresses
172.31.90.47
Public IPv4 DNS
ec2-54-167-3-167.compute-1.amazonaws.com | open address
Session settings
SSH
Telnet
Rsh
Xdmcp
RDP
VNC
FTP
SFTP
Serial
File
Shell
Browser
Mosh
Aws S3
WSL
Basic SSH settings
Remote host * 54.167.3.167
Specify username
ubuntu
Port 22
Advanced SSH settings
Terminal settings
Network settings
Bookmark settings
X11-Forwarding
Compression
Remote environment: Interactive shell
Execute command:
Do not exit after command ends
SSH-browser type: SFTP protocol
Follow SSH path (experimental)
Use private key
Expert SSH settings
Execute macro at session start: <none>
OK
Cancel


Open
Downloads
Search Downloads
Organize
New folder
OneDrive
Desktop
Downloads
Documents
Pictures
Music
Videos
kali-linux-2024.2
Screenshots
Name
Date modified
Type
Size
Today
p5 (1).pem 2/28/2025 8:54 AM PEM File 2 KB
Unconfirmed 153677.crdownload 2/28/2025 8:50 AM CRDOWNLOAD File 39,315 KB
Yesterday
Docker-Zero-to-Hero-main 2/27/2025 11:28 AM Compressed (zipp... 29 KB
MobaXterm_Installer_v25.0 (1) 2/27/2025 11:14 AM Compressed (zipp... 41,247 KB
MobaXterm_Installer_v25.0 2/27/2025 11:14 AM Compressed (zipp... 41,247 KB
p5.pem 2/27/2025 10:31 AM PEM File 2 KB
Docker-Zero-to-Hero-main 2/27/2025 11:29 AM File folder
MobaXterm_Installer_v25.0 2/27/2025 11:16 AM File folder
Earlier this week
File name: p5 (1)
All files (*.*)
Open
Cancel

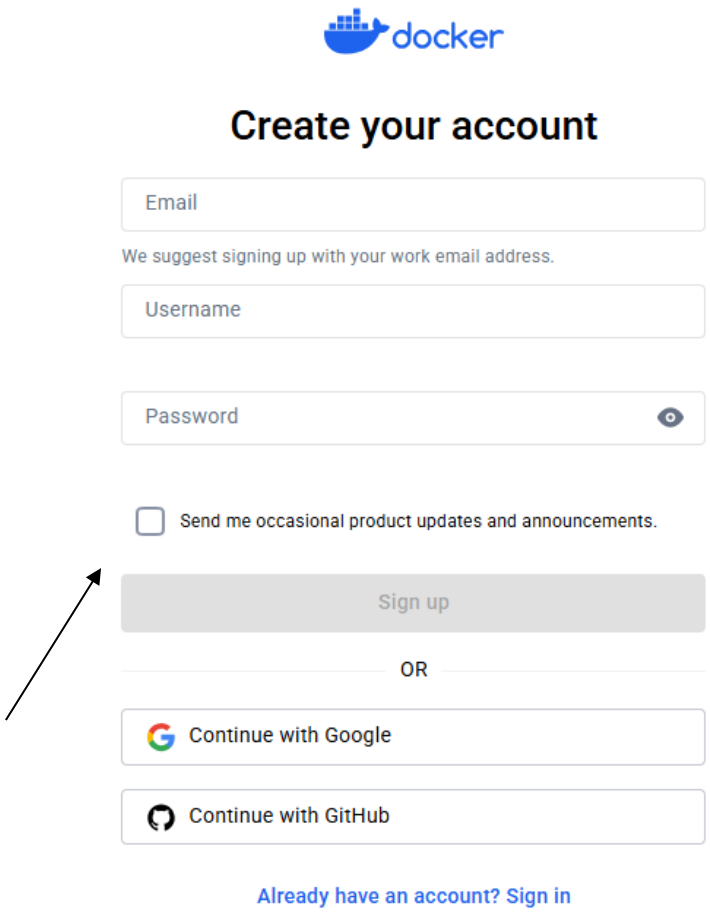

Session settings
SSH
Telnet
Rsh
Xdmcp
RDP
VNC
FTP
SFTP
Serial
File
Shell
Browser
Mosh
Aws S3
WSL
Basic SSH settings
Remote host * 54.167.3.167
Specify username
ubuntu
Port 22
Advanced SSH settings
Terminal settings
Network settings
Bookmark settings
X11-Forwarding
Compression
Remote environment: Interactive shell
Execute command:
Do not exit after command ends
SSH-browser type: SFTP protocol
Follow SSH path (experimental)
Use private key
C:\Users\student\Downloads\p5 (1
Expert SSH settings
Execute macro at session start: <none>
OK
Cancel

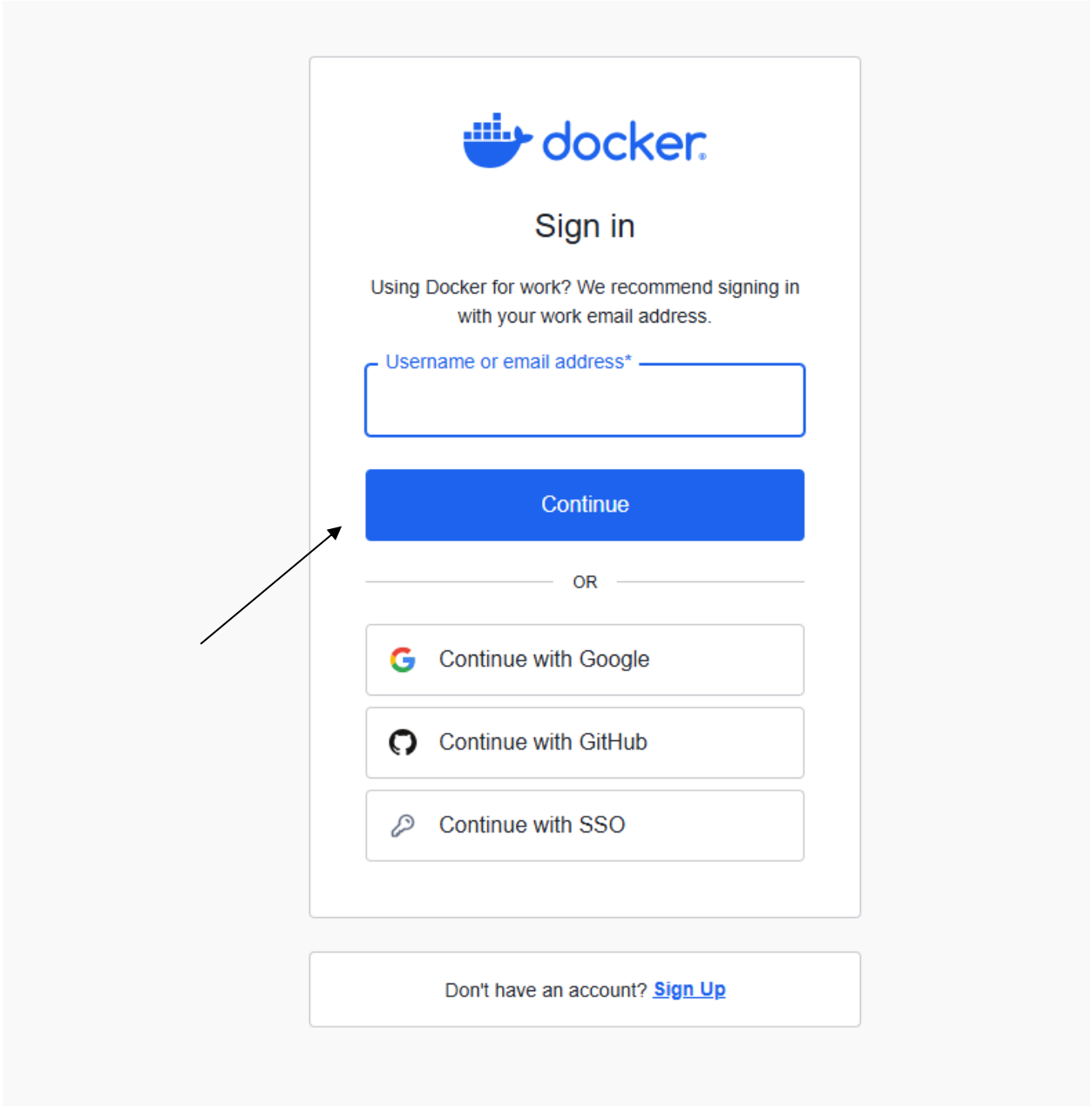


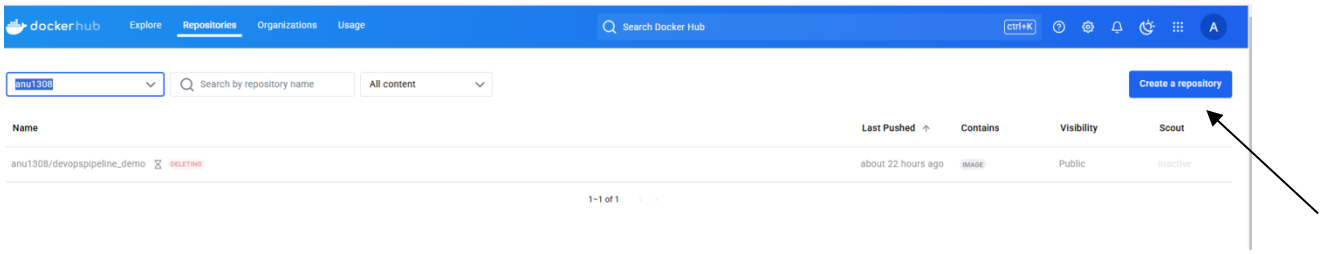
Create Docker Hub Account and create repository in Docker Hub

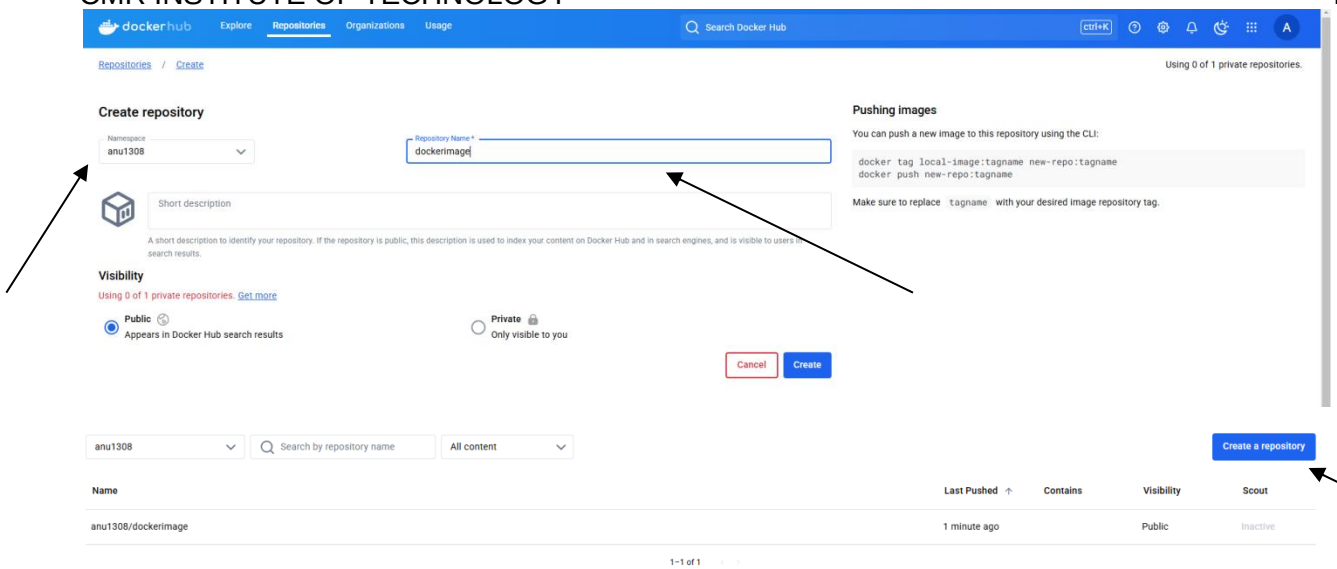

docker hub
All
Shopping
Images
Videos
Short videos
News
Forums
More
Docker Hub
https://hub.docker.com
Docker Hub Container Image Library | App Containerization
Welcome to the world's largest container registry built for developers and open source contributors to find, use, and share their container images.
Docker image
Architectures ... 1 - 25 of 10,000 available results. ... Free & open ...
Signup
By creating an account I agree to the Subscription Service ...
Search for Docker Images
Architectures ... 1 - 25 of 10,000 available images. ... Free ...
Gen AI
Explore Docker's curated catalog of generative AI images ...
Sign inSign up
Download the desktop application · Create a Repository · Docker ...
More results from docker.com »

hub.docker.com
New
Introducing our new CEO Don Johnson - Read More
dockerhub
Search Docker Hub
ctrl+K
Sign in
Sign up
Docker's curated GenAI catalog
Everything you need to build, scale, and deploy AI with ease.
View catalog now

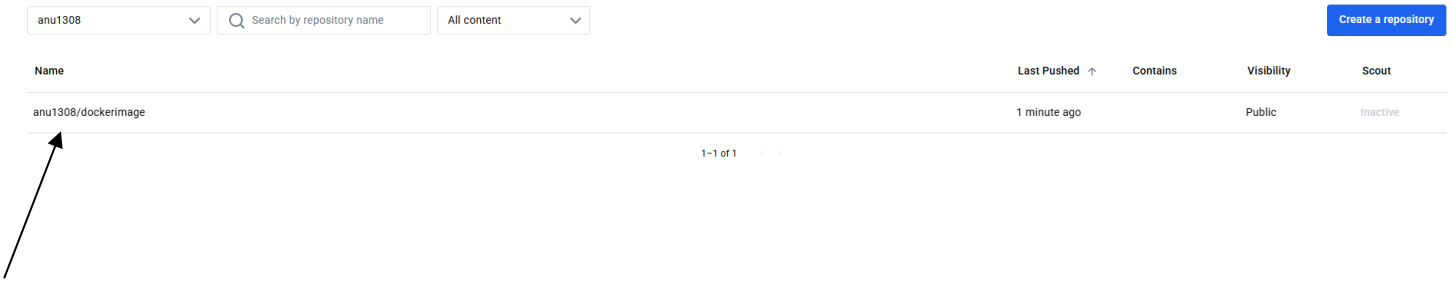

docker
Create your account
Email
We suggest signing up with your work email address.
Username
Password
Send me occasional product updates and announcements.
Sign up
OR
Continue with Google
Continue with GitHub
Already have an account? Sign in


docker
Sign in
Using Docker for work? We recommend signing in with your work email address.
Username or email address*
Continue
OR
Continue with Google
Continue with GitHub
Continue with SSO
Don't have an account? Sign Up


dockerhub
Explore
Repositories
Organizations
Usage
Search Docker Hub
ctrl+K
anu1308
Search by repository name
All content
Create a repository
Name
Last Pushed
Contains
Visibility
Scout
anu1308/devopspipeline_demo
DELETING
about 22 hours ago
IMAGE
Public
1–1 of 1


dockerhub
Explore
Repositories
Organizations
Usage
Search Docker Hub
Repositories / Create
Using 0 of 1 private repositories.
Create repository
Namespace
anu1308
Repository Name *
dockerimage
Short description
A short description to identify your repository. If the repository is public, this description is used to index your content on Docker Hub and in search engines, and is visible to users in search results.
Visibility
Using 0 of 1 private repositories. Get more
Public
Appears in Docker Hub search results
Private
Only visible to you
Cancel
Create
Pushing images
You can push a new image to this repository using the CLI:
docker tag local-image:tagname new-repo:tagname
docker push new-repo:tagname
Make sure to replace tagname with your desired image repository tag.

anu1308
Search by repository name
All content
Create a repository
Name
Last Pushed
Contains
Visibility
Scout
anu1308/dockerimage
1 minute ago
Public
Inactive
1–1 of 1


anu1308
Search by repository name
All content
Create a repository
Name
Last Pushed
Contains
Visibility
Scout
anu1308/dockerimage
1 minute ago
Public
Inactive
1–1 of 1

Experiment 11

Aim:-Setup Grafana for Devops.

ACCESS GRAFANA :

kubectl get secret prometheus-grafana -n monitoring -o jsonpath="{.data.admin-user}" | base64 --decode ; echo

If you run the above command u can see the username for grafana (**admin**)

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get secret prometheus-grafana -n monitoring -o jsonpath="{.data.admin-user}" | base64 --decod
e ; echo
admin
```

kubectl get secret prometheus-grafana -n monitoring -o jsonpath="{.data.admin-password}" | base64 --decode ; echo

If you run the abvoe command u can see the password for grafana (**prom-operator**)

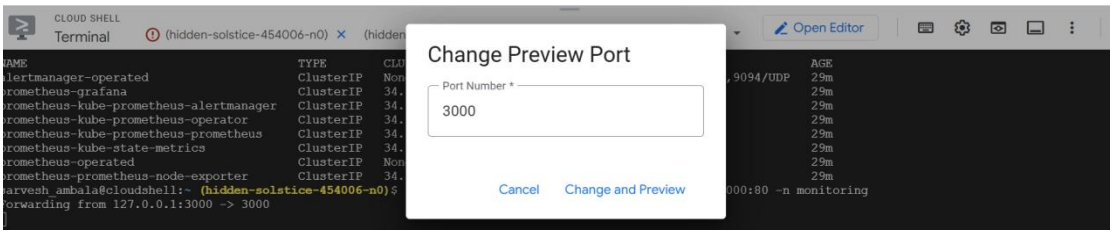
```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get secret prometheus-grafana -n monitoring -o jsonpath="{.data.admin-password}" | base64 --d
ecode ; echo
prom-operator
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

PORT FORWARDING

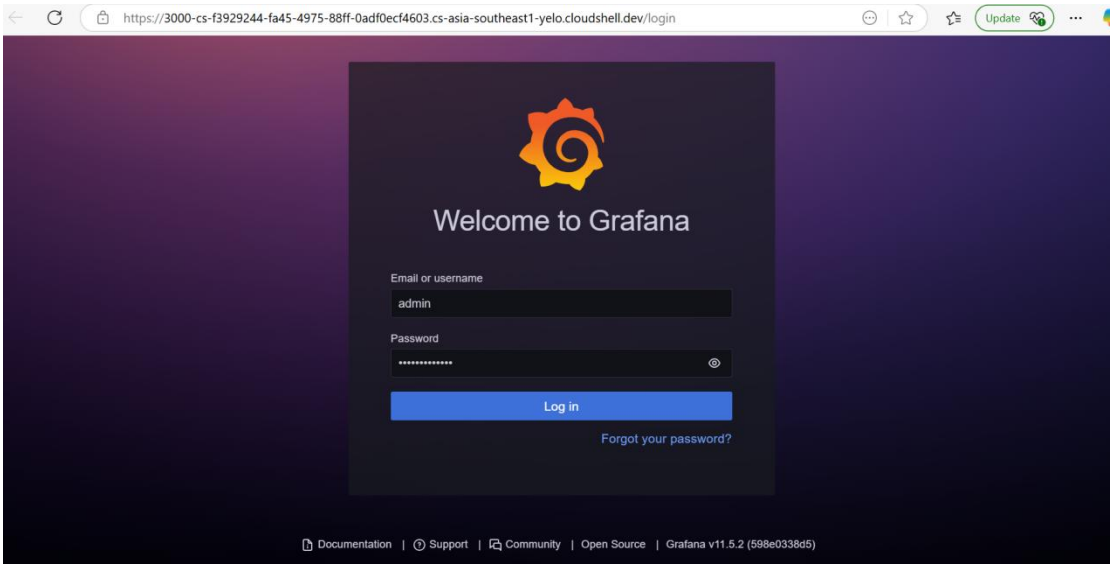
kubectl port-forward svc/prometheus-grafana 3000:80 -n monitoring

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl port-forward svc/prometheus-grafana 3000:80 -n monitoring
Forwarding from 127.0.0.1:3000 -> 3000
```

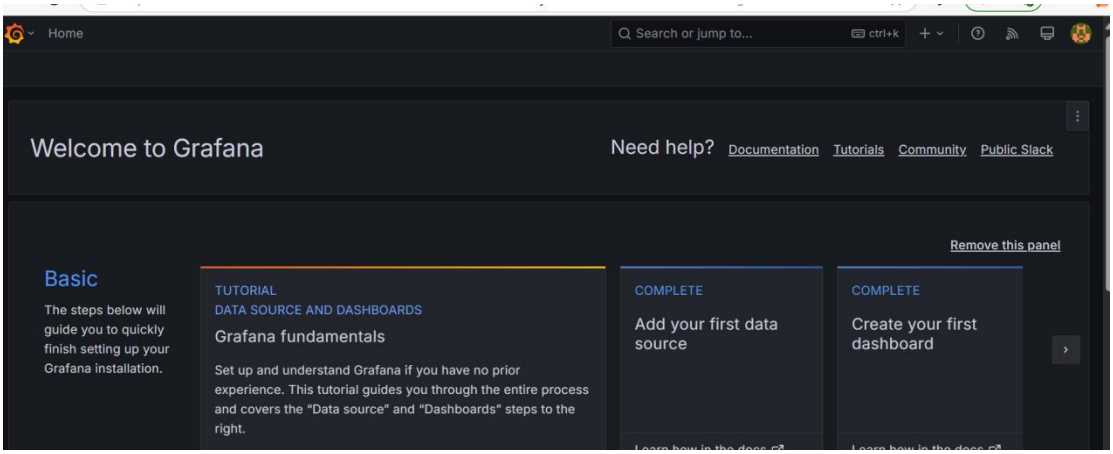
Click on the web preview give the port no 3000 and click on change and preview u can see the grafana



Output:-



You can login with admin and prom-operator



Experiment 12

Aim:-Setup Prometheus for Devops.

PROMETHEUS SETUP:

helm repo add prometheus https://prometheus-community.github.io/helm-charts

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ helm repo add prometheus  https://prometheus-community.github.io/helm-charts
"prometheus" has been added to your repositories
```

helm repo update

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "grafana" chart repository
...Successfully got an update from the "prometheus1" chart repository
...Successfully got an update from the "prometheus" chart repository
...Successfully got an update from the "prometheus-community" chart repository
...Successfully got an update from the "pc" chart repository
```

helm install prometheus prometheus-community/kube-prometheus-stack --namespace monitoring --create-namespace

This will install prometheus,alermanager and grafana

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ helm install prometheus prometheus-community/kube-prometheus-stack --namespace monitoring --create-na
mespace
```

Check the prometheus pods and services

kubectl get pods -n monitoring

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get pods -n monitoring
NAME                                                     READY   STATUS    RESTARTS   AGE
alertmanager-prometheus-kube-prometheus-alertmanager-0   2/2     Running   0          3m12s
prometheus-grafana-75bb7d6986-rzg4q                      3/3     Running   0          3m19s
prometheus-kube-prometheus-operator-65c669f8f9-qcjwc     1/1     Running   0          3m19s
prometheus-kube-state-metrics-645c667b6-6bwwl            1/1     Running   0          3m19s
prometheus-prometheus-kube-prometheus-prometheus-0       2/2     Running   0          3m11s
prometheus-prometheus-node-exporter-f87x4                1/1     Running   0          3m20s
prometheus-prometheus-node-exporter-gz8rs                1/1     Running   0          3m20s
prometheus-prometheus-node-exporter-vnb86                1/1     Running   0          3m20s
```

kubectl get svc -n monitoring

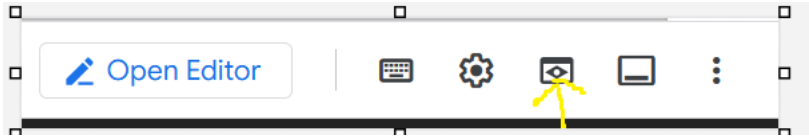
```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl get svc -n monitoring
NAME                                      TYPE        CLUSTER-IP       EXTERNAL-IP   PORT(S)                      AGE
alertmanager-operated                     ClusterIP   None             <none>        9093/TCP,9094/TCP,9094/UDP   4m27s
prometheus-grafana                        ClusterIP   34.118.235.147   <none>        80/TCP                       4m36s
prometheus-kube-prometheus-alertmanager   ClusterIP   34.118.225.122   <none>        9093/TCP,8080/TCP            4m36s
prometheus-kube-prometheus-operator       ClusterIP   34.118.232.165   <none>        443/TCP                      4m36s
prometheus-kube-prometheus-prometheus     ClusterIP   34.118.232.239   <none>        9090/TCP,8080/TCP            4m36s
prometheus-kube-state-metrics             ClusterIP   34.118.228.217   <none>        8080/TCP                     4m36s
prometheus-operated                       ClusterIP   None             <none>        9090/TCP                     4m26s
prometheus-prometheus-node-exporter       ClusterIP   34.118.232.54    <none>        9100/TCP                     4m36s
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$
```

Access prometheus and port forwarding

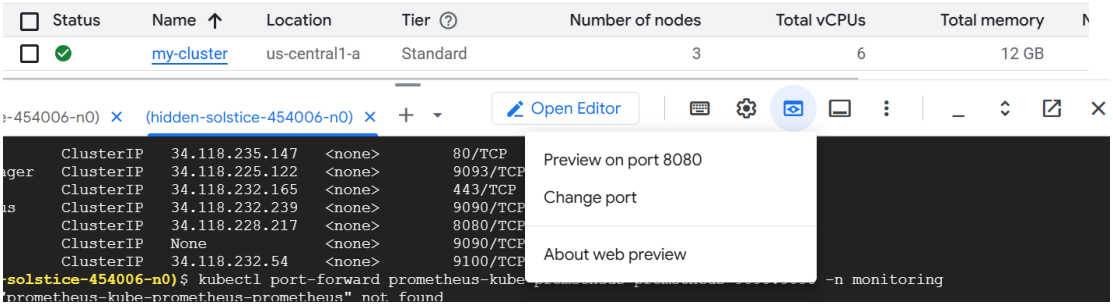
kubectl port-forward svc/prometheus-kube-prometheus-prometheus 9090:9090 -n monitoring

```
sarvesh_ambala@cloudshell:~ (hidden-solstice-454006-n0)$ kubectl port-forward svc/prometheus-kube-prometheus-prometheus 9090:9090 -n monitoring
Forwarding from 127.0.0.1:9090 -> 9090
```

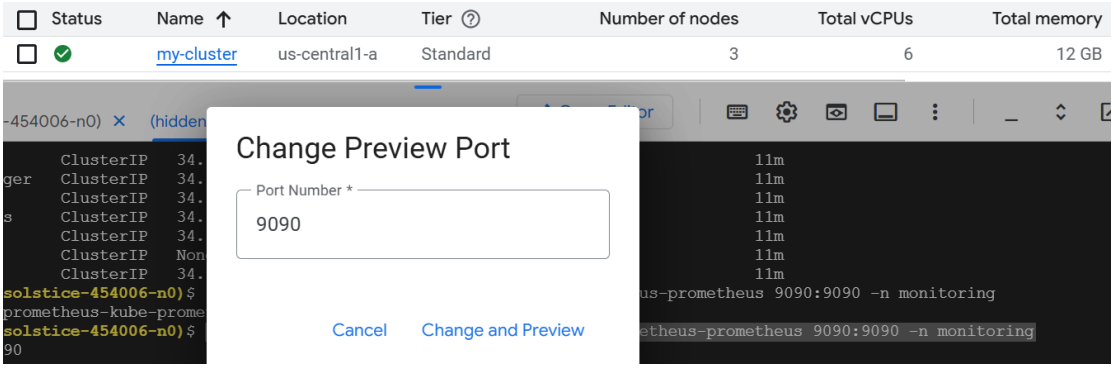
Click on the webpreview



Change port no to 9090

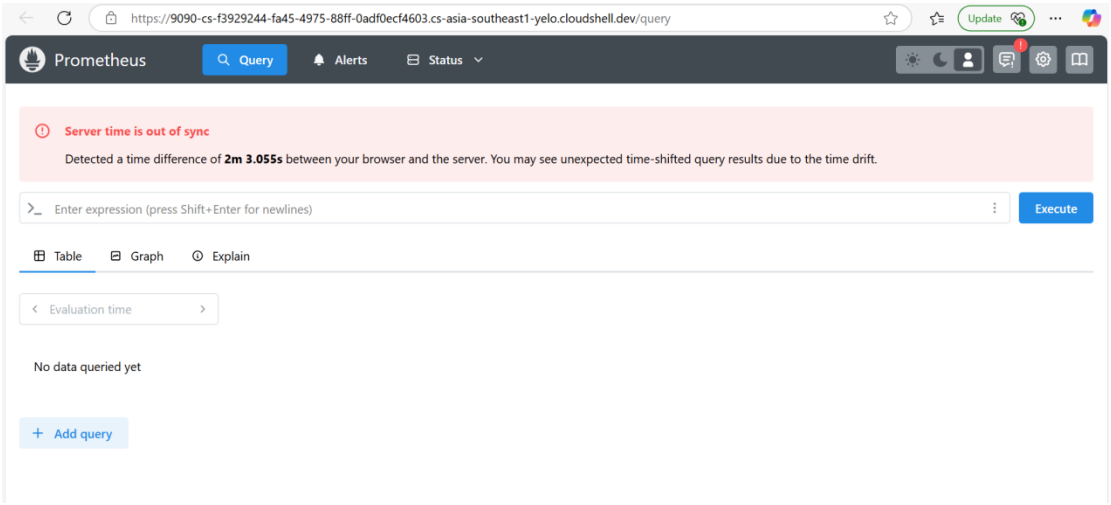


Click on change and preview



Now u can able to see prometheus in the browser

Output:-


https://9090-cs-f3929244-fa45-4975-88ff-0adf0ecf4603.cs-asia-southeast1-yelo.cloudshell.dev/query
Update
Prometheus
Query
Alerts
Status
Server time is out of sync
Detected a time difference of 2m 3.055s between your browser and the server. You may see unexpected time-shifted query results due to the time drift.
Enter expression (press Shift+Enter for newlines)
Execute
Table
Graph
Explain
Evaluation time
No data queried yet
Add query