Week 9: Pipeline Creation using script

1. Evaluation of Jenkins pipeline.
2. **WORKING ON BUILD TRIGGERS FOR LAST JENKINS PIPILINE**
3. Hands-on practice on creation of scripted Jenkins pipeline.
4. Take the screenshots for above task

Procedure

General :

Description :- provide the description of the project

Build triggers: here we can provide with build triggers of you choice

Advance project option:

Definition:

Choose pipeline script

Here code for pipeline -script

Copy the code there

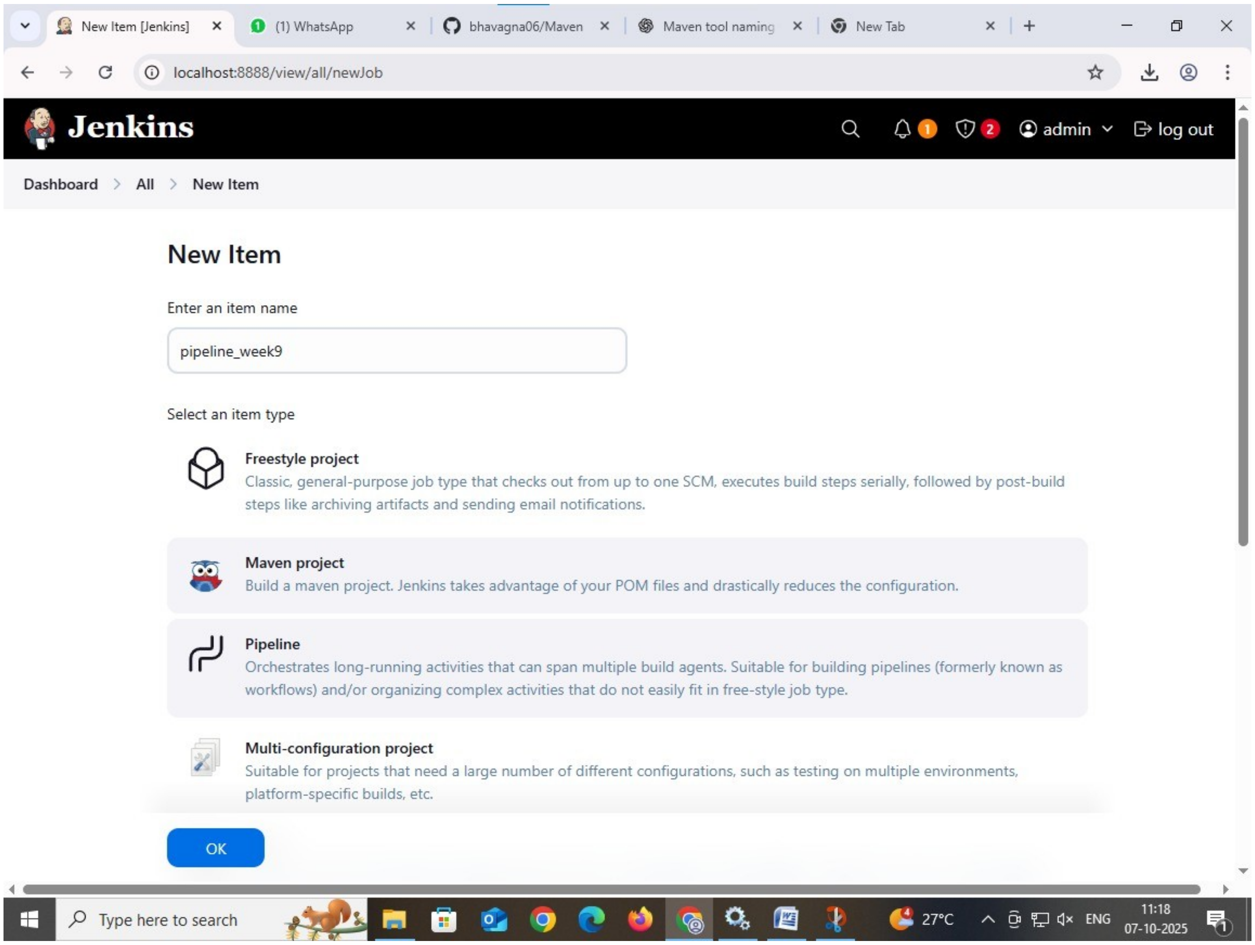
```
----------------------------------------------------------------------------------------------------------------
pipeline {
    agent any
    tools{
        maven 'MAVEN-HOME'
    }
    stages {
        stage('git repo & clean') {
            steps {
                //bat "rmdir  /s /q mavenjava"
                bat "git clone provide your github link"
                bat "mvn clean -f mavenjava"
            }
        }
        stage('install') {
            steps {
                bat "mvn install -f mavenjava" #project name#
            }
        }
        stage('test') {
            steps {
```

```
        bat "mvn test -f mavenjava"
      }
    }
    stage('package') {
      steps {
        bat "mvn package -f mavenjava"
      }
    }
  }
}
```

Apply and save

Pipeline creation

Step 1: click on new item and select Pipeline



New Item

Enter an item name

pipeline_week9

Select an item type

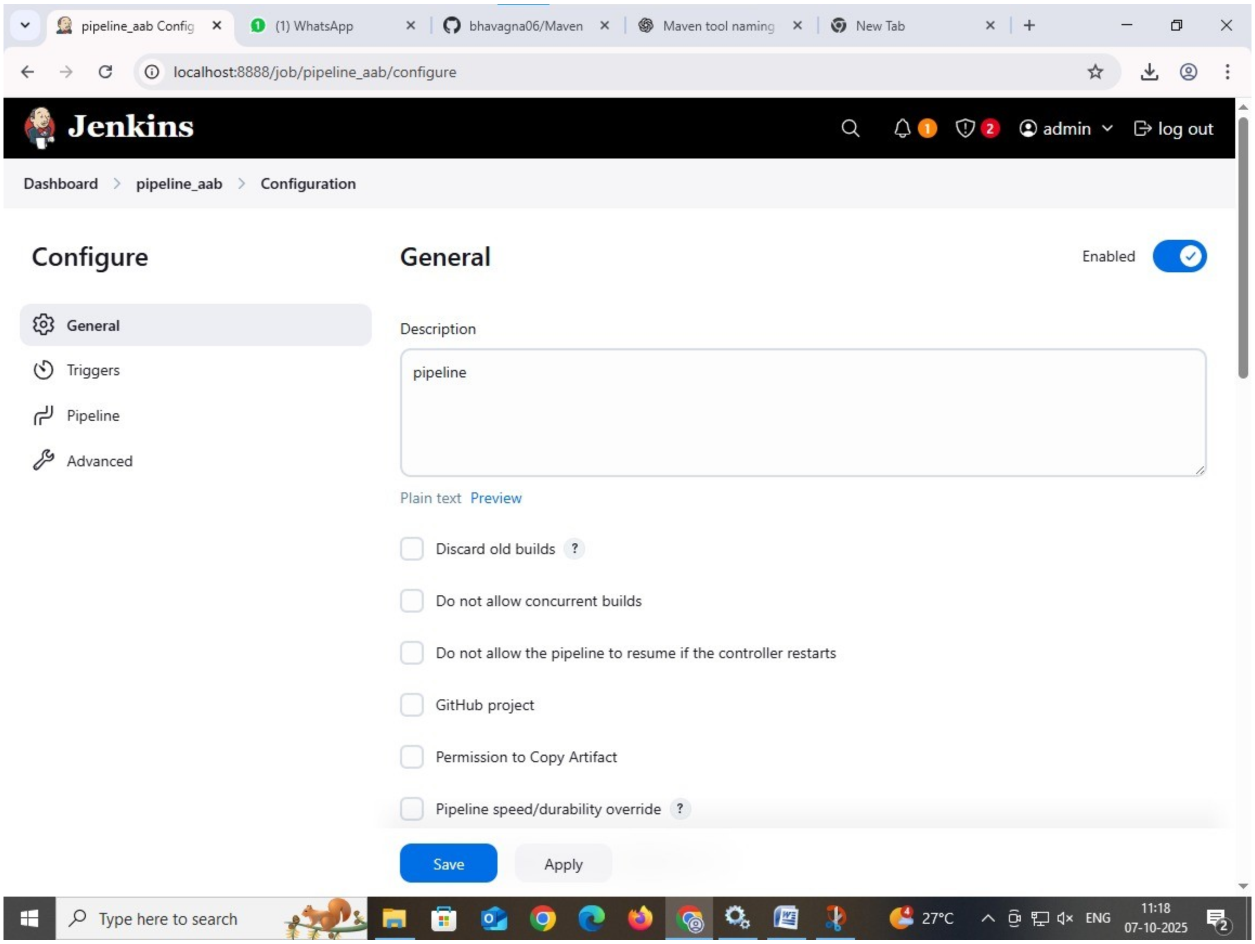
Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

Maven project
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Step2:Provide description



General

Enabled ✓

Description

pipeline

Plain text Preview

□ Discard old builds ?

□ Do not allow concurrent builds

□ Do not allow the pipeline to resume if the controller restarts

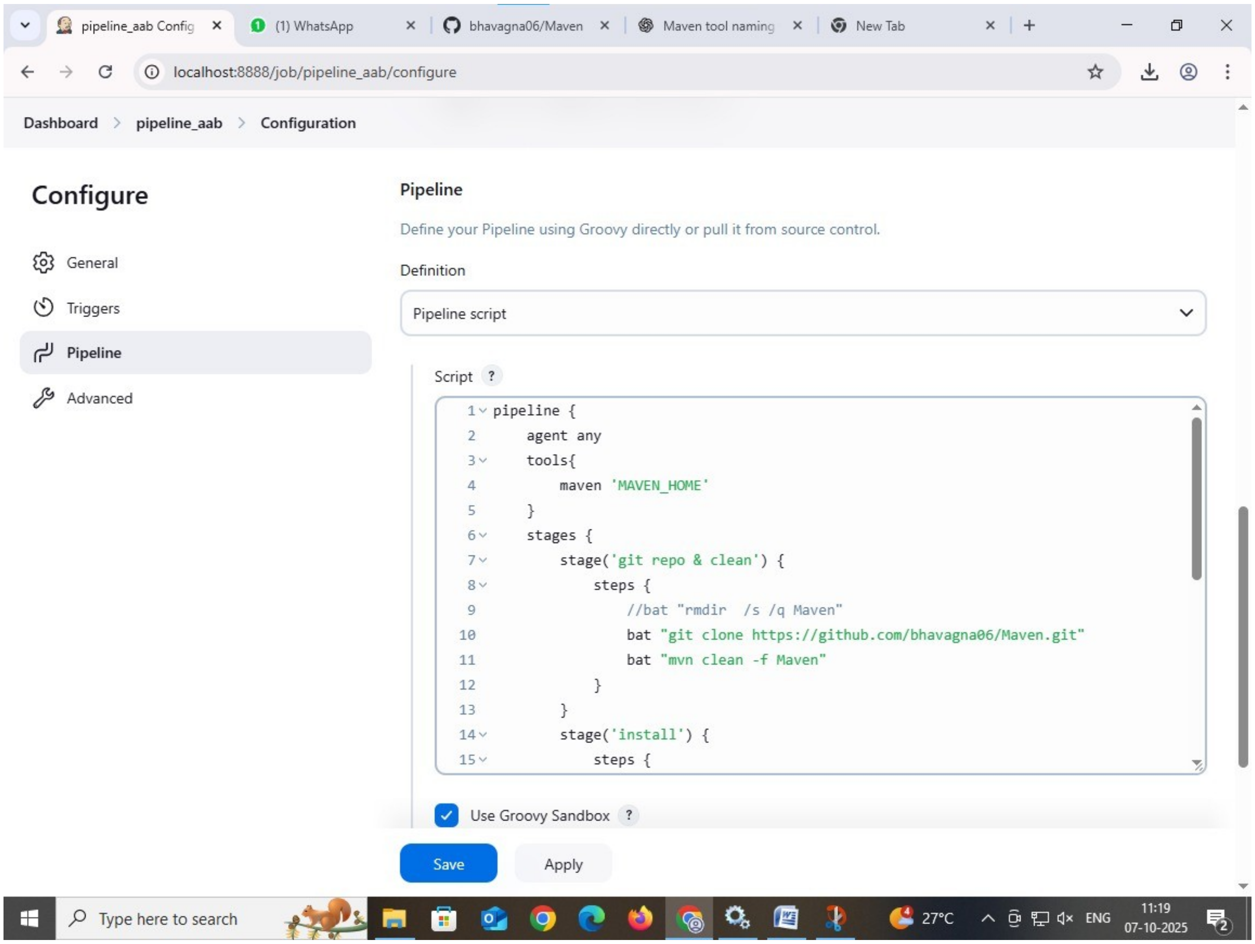
□ GitHub project

□ Permission to Copy Artifact

□ Pipeline speed/durability override ?

Save Apply

Step 3: write script for pipeline



Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

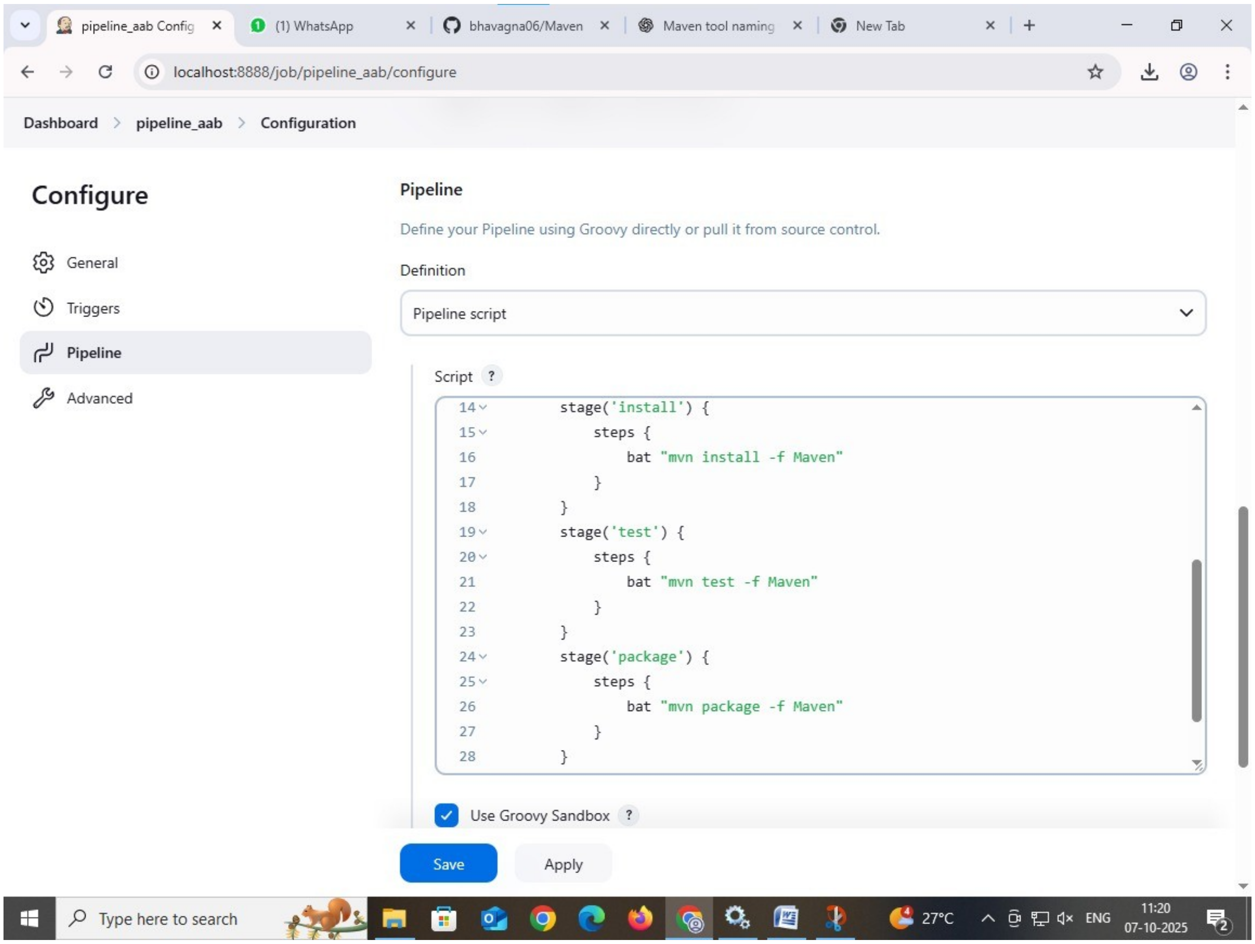
Definition

Pipeline script

Script ?

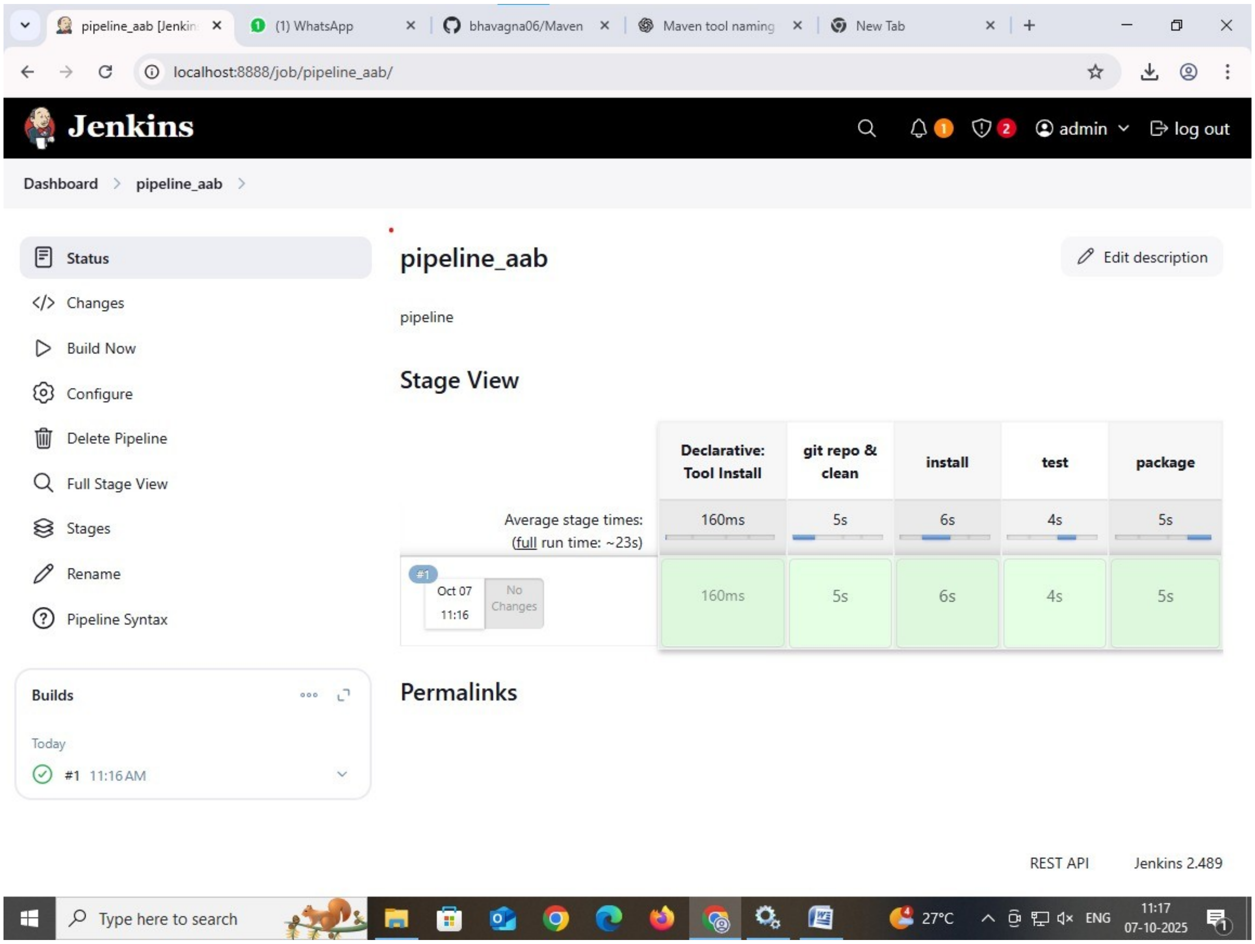
```
pipeline {
    agent any
    tools{
        maven 'MAVEN_HOME'
    }
    stages {
        stage('git repo & clean') {
            steps {
                //bat "rmdir  /s /q Maven"
                bat "git clone https://github.com/bhavagna06/Maven.git"
                bat "mvn clean -f Maven"
            }
        }
        stage('install') {
            steps {
```

☑ Use Groovy Sandbox ?



```
        stage('install') {
            steps {
                bat "mvn install -f Maven"
            }
        }
        stage('test') {
            steps {
                bat "mvn test -f Maven"
            }
        }
        stage('package') {
            steps {
                bat "mvn package -f Maven"
            }
        }
```

Step 4:Build the pipeline and observe the stage view



pipeline_aab

pipeline

Stage View

	Declarative: Tool Install	git repo & clean	install	test	package
Average stage times: (full run time: ~23s)	160ms	5s	6s	4s	5s
#1 Oct 07 11:16 No Changes	160ms	5s	6s	4s	5s

SBQ's:

1. Your manager asks you to clean the workspace before building — which stage in this pipeline takes care of it?

   Stage: git repo & clean

2. he GitHub repository link is missing in the script — where exactly do you provide it?

   Stage: git repo & clean

   bat "git clone url"

3. If Maven is not configured globally in Jenkins, which section of the pipeline will fail first?

   jenkins won't find Maven and the pipeline will stop before running any stage

4. A teammate complains the pipeline is not creating .war files — which stage is responsible?

   Stage:package

5. Your test cases failed, but the pipeline still continued — how will Jenkins behave in the test stage?

jenkins marks the build as failed in the test stage but still continues unless error

6. Instead of running nightly builds, you want this pipeline to trigger only when GitHub changes occur — where will you configure it?

   Configure in: Build Triggers → GitHub hook trigger for GITScm polling

7. If you replace mvn clean with mvn compile, what difference will it make to the project build?

   Mvn clean delete old builds where as compile complies java code without cleaning

8. The project folder name is not mavenjava but studentapp — which parts of the script must you edit?

   stage:clean,install,test,package

9. If the install stage fails, will the test and package stages still run in this pipeline?

   Pipeline stops and later stage won't run

10. A student asks where to add deployment steps to Tomcat after packaging — which is the best place in this script?

    Stage :deploy

    Add new stage after package

11. Why is tools { maven 'MAVEN-HOME' } used in this pipeline?

    It tells Jenkins to use the Maven installation configured as "MAVEN-HOME" in Global Tool Configuration.

12. If GitHub credentials are private, how can you secure them in the git repo & clean stage?

    Add git credentials in jenkins manager and use while providing the link

13. Which Jenkins plugin is needed to recognize the pipeline { ... } structure in this script?

    Pipeline is plugin used to recognize structure

14. In Windows, the script uses bat commands — what change would you make if Jenkins runs on Linux?

    Replace bat with sh

15. How will you modify the pipeline to stop execution if the GitHub clone command fails?

Your project lead asks you to print a welcome message in Jenkins to confirm the pipeline is working — how would you script it?

Add exit after the git hub link so that is git clone is failed then it stop execution and exit

```
stage('msg') {
steps {
echo 'Welcome to Jenkins'
   }
}
```

16. A teammate forgot to pull the latest GitHub code before building; how can you fix this in your pipeline?

    Bat “git pull origin main”

17. Your Java file Hello.java must be compiled every time code is committed — how will you add this step?

    ```
    stage('compile') {
         steps {
              bat "mvn compile -f studentapp"
         }
    }
    ```

18. Tests should stop the pipeline if they fail — where will you put the mvn test command?

    Stage :test

19. Every evening at 6 PM your pipeline should run automatically — how can you set this in Jenkins?

    Corn job : H 18 * * *

20. You only want to package the project if compilation succeeds — how would you connect the stages?

    Add function success in package stage so that if the compile is successful then it go to package stage

21. Your professor wants a .jar file generated for submission — what pipeline stage will you add?

    Stage: jar or modify the pom.xml

22. A Git clone step is failing due to wrong credentials — how would you secure and use them in your script?

    Store in jenkins manager and use in git repo & clean stage

23. A teammate wants to see the build number inside console logs — how do you print it in the pipeline?

    ```
    echo " build number is: ${env.BUILD_NUMBER}"
    ```