# **Experiment 05**

**Aim:** Experiment 5:To Build the pipeline of jobs using Maven / Gradle / Ant in Jenkins, create a pipeline script to Test and deploy an application over the tomcat server

#### Theory:

#### **Programming in Jenkins:**

Continuous Integration is a software development practice where members of a team integrate their work frequently, usually each person integrates at least daily leading to multiple integrations per day. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible." In simple way, Continuous integration (CI) is the practice of frequently building and testing each change done to your code automatically.

Jenkins is a self-contained, open-source automation server which can be used to automate all sorts of tasks related to building, testing, and delivering or deploying software.

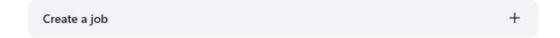
Our first job will execute the shell commands. The freestyle project provides enough options and features to build the complex jobs that you will need in your projects.

#### Example 1

#### Example 1.1: Deploying a freestyle app

in Jenkins Creating a job:

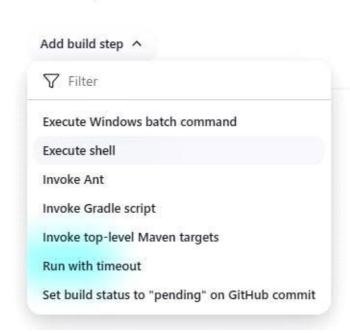
#### Start building your software project



Naming the job and setting it as freestyle:

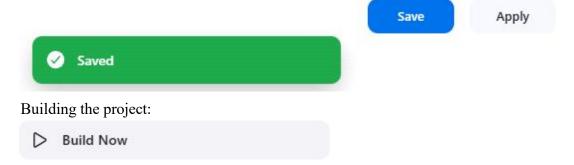
Selecting build type as "Execute shell":

# **Build Steps**



Entering a simple command for the shell execution:

Applying and saving the project configuration:



Console output (after building):

.



Example 1.2: Taking parameters

through files Contents of script

example1.cmd:

Executing script example1.cmd on the terminal:

```
Microsoft Windows [Version 10.0.22621.3296]
(c) Microsoft Corporation. All rights reserved.

C:\Users\AI&DS 202>Microsoft Windows [Version 10.0.22631.3155) (c) Microsoft Corporation. All rights reserved.
'Microsoft' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\AI&DS 202>C:\Admin\Academics\TSEC\Start3\SEPM>example1.cmd
The system cannot find the path specified.

C:\Users\AI&DS 202>"Hello... Your address is "
'"Hello... Your address is "' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\AI&DS 202>C:\Admin\Academics\TSEC\Start3\SEPM>example1.cad Tanishq
The system cannot find the path specified.

C:\Users\AI&DS 202>"Hello Tanihsq... Your address is "
'"Hello Tanihsq... Your address is "' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\AI&DS 202>C:\Admin\Academics\TSEC\Start3\SEPM>example1.cmd Tanishq Girgaon "Helle Tanishq... Your address is Gi
rgaon"
The system cannot find the path specified.
```

Modifying the Jenkins project to execute the script while supplying required parameters:



Console output after building the modified project:



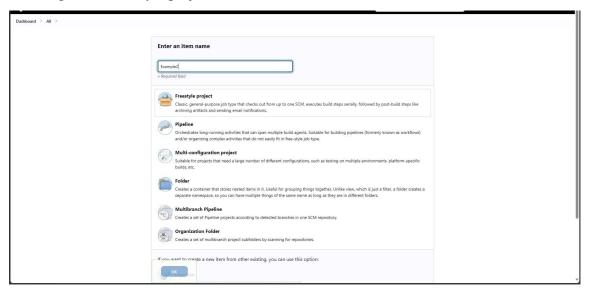
#### Running a Java program under Jenkins

Creating a simple Java program:

Compiling and running the program on the terminal:

```
C:\Users\richminds\Desktop\sepm>javac 24.java
C:\Users\richminds\Desktop\sepm>java 24.java
This is T12
C:\Users\richminds\Desktop\sepm>
```

#### Creating a new freestyle project:



## Configure new project:

#### Command

See the list of available environment variables

javac C:\Users\richminds\Desktop\sepm\24.java
java C:\Users\richminds\Desktop\sepm\24.java

### Console output after building:

# Console Output Download Copy View as plain text

Started by user Aditya Dikonda
Running as SYSTEM
Building in workspace C:\ProgramData\Jenkins\.jenkins\workspace\24\_34\_31\_45\_40\_42\_37\_41
[24\_34\_31\_45\_40\_42\_37\_41] \$ cmd /c call C:\WINDOWS\TEMP\jenkins3970528995341461278.bat

C:\ProgramData\Jenkins\.jenkins\workspace\24\_34\_31\_45\_40\_42\_37\_41>javac C:\Users\richminds\Desktop\sepm\24.java

C:\ProgramData\Jenkins\.jenkins\workspace\24\_34\_31\_45\_40\_42\_37\_41>java C:\Users\richminds\Desktop\sepm\24.java

This is T12

C:\ProgramData\Jenkins\.jenkins\workspace\24\_34\_31\_45\_40\_42\_37\_41>exit 0

Finished: SUCCESS

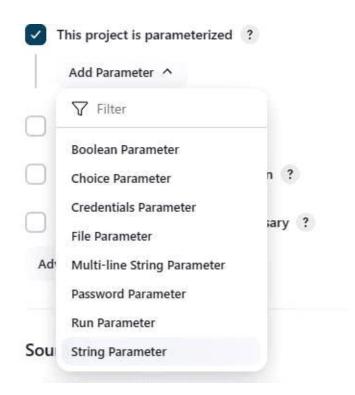
# Example 3

### Example 3.1: Parameterise

**build** Creating a new

freestyle project:

Enabling parameterisation and adding a String parameter:



Configuring the string parameter as Fname:



Adding a choice parameter and configuring it as City with the following choices:



## Configuring build steps:



# Entering parameters for build:



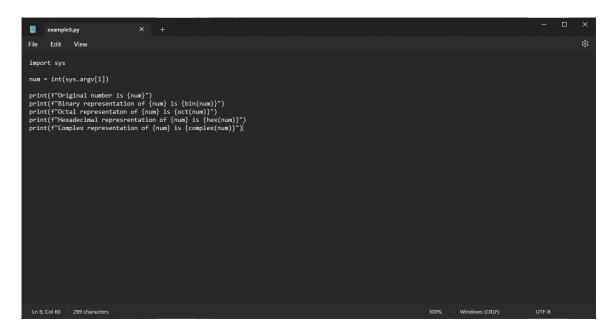
# Console output after building:

#### **⊘** Console Output

```
Started by user Siddhant Chetlur
Running as SYSTEN
[EnvInject] - Loading node environment variables.
Building in workspace (C:\ProgramData\]enkins\,jenkins\workspace\[Example3\]
[Example3] $ cmd /c call c:\UXINDOMS\TEMP\]enkins14094536153150986151.bat

C:\ProgramData\]enkins\,jenkins\workspace\[Example3\]C:\Admin\Academics\TSEC\Start3\SEPN\example3.cmd Siddhant Bandra
Hello your name is Siddhant and your city is Bandra
Finished: SUCCESS
```

# Example 5



Example 5.1: Running a Python

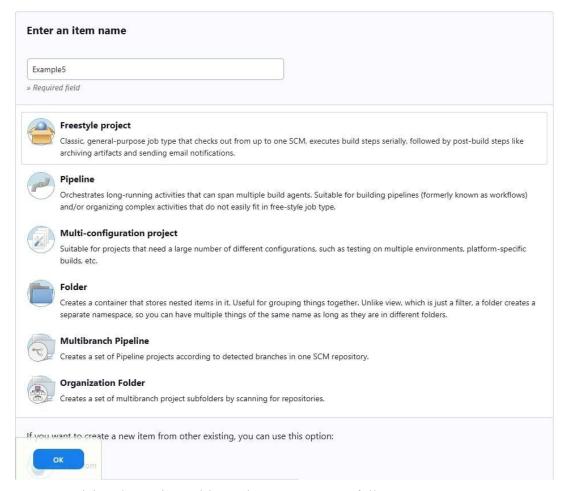
program Creating a simple Python

script:

Running the Python script on the terminal:

```
::\Users\richminds\Desktop\sepm>python 24.py 10
Number is 10
::\Users\richminds\Desktop\sepm>_
```

Creating a new freestyle project:



### Parameterising the project with a string parameter as follows:



Configuring the build steps:

Command
See the list of available environment variables
<pre>python C:\Users\richminds\Desktop\sepm\24.py</pre>

Setting the parameter for the build:

**Conclusion:** Thus, we have successfully studied Continuous Integration and installed, configured, and understood programming with Jenkins.