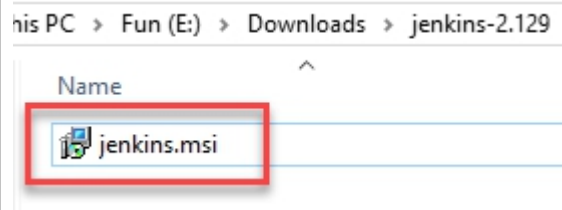


<b>Semester</b>	Semester VIII
<b>Subject</b>	DevOps Lab
<b>Subject Professor In-charge</b>	Prof. Yash Shah
<b>Laboratory</b>	L11B
<b>Student Name</b>	Ashwini Jadhav
<b>Roll Number</b>	17101B0038
<b>Grade and Subject Teacher's Signature</b>	

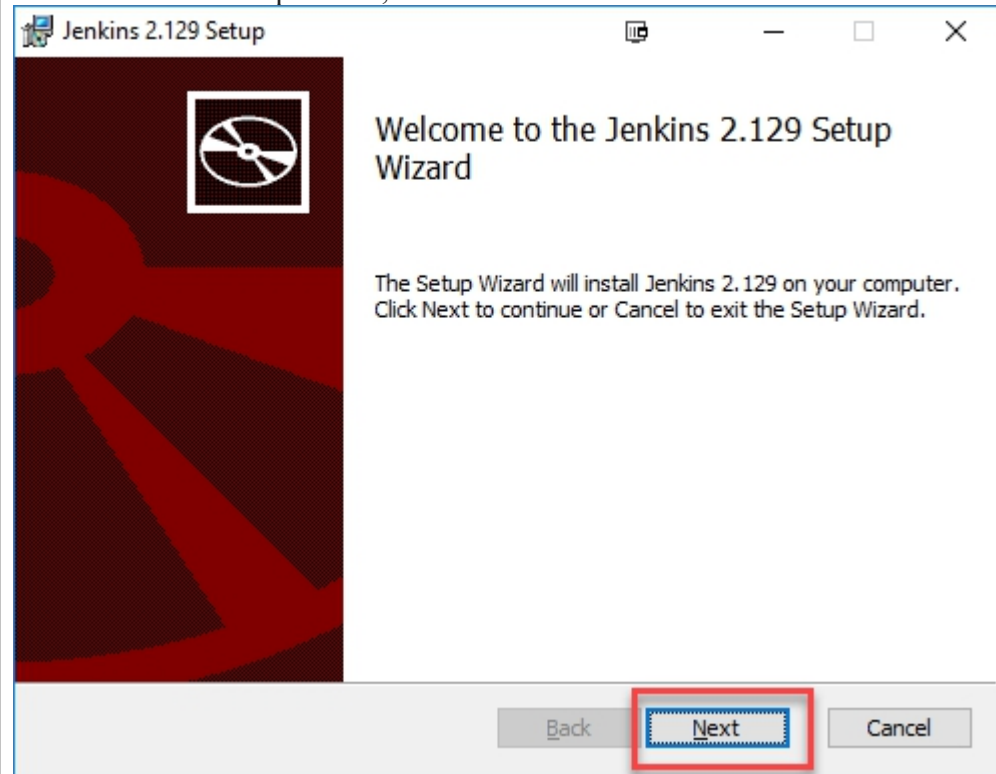
<b>Experiment Number</b>	6
<b>Experiment Title</b>	To carry out pipelining through Jenkins
<b>Resources / Apparatus Required</b>	Hardware: Compatible Computer System
	Java Development Kit (JDK) v.11
<b>Objectives</b>	Explore and implement pipelines and GUI pipelines on Jenkins
<b>Theory</b>	<p><b>What is Jenkins?</b> Jenkins is an open source Continuous Integration server capable of orchestrating a chain of actions that help to achieve the Continuous Integration process (and not only) in an automated fashion. Jenkins is a widely used application around the world that has around 300k installations and growing day by day.</p> <p><b>Need of Jenkins:</b> The reason Jenkins became so popular is that of its monitoring of repeated tasks which arise during the development of a project. For example, if your team is developing a project, Jenkins will continuously test your project builds and show you the errors in early stages of your development. By using Jenkins, software companies can accelerate their software development process, as Jenkins can automate build and test at a rapid rate. Jenkins supports the complete development lifecycle of software from building, testing, documenting the software, deploying and other stages of a software development lifecycle.</p>

**Installation steps:**

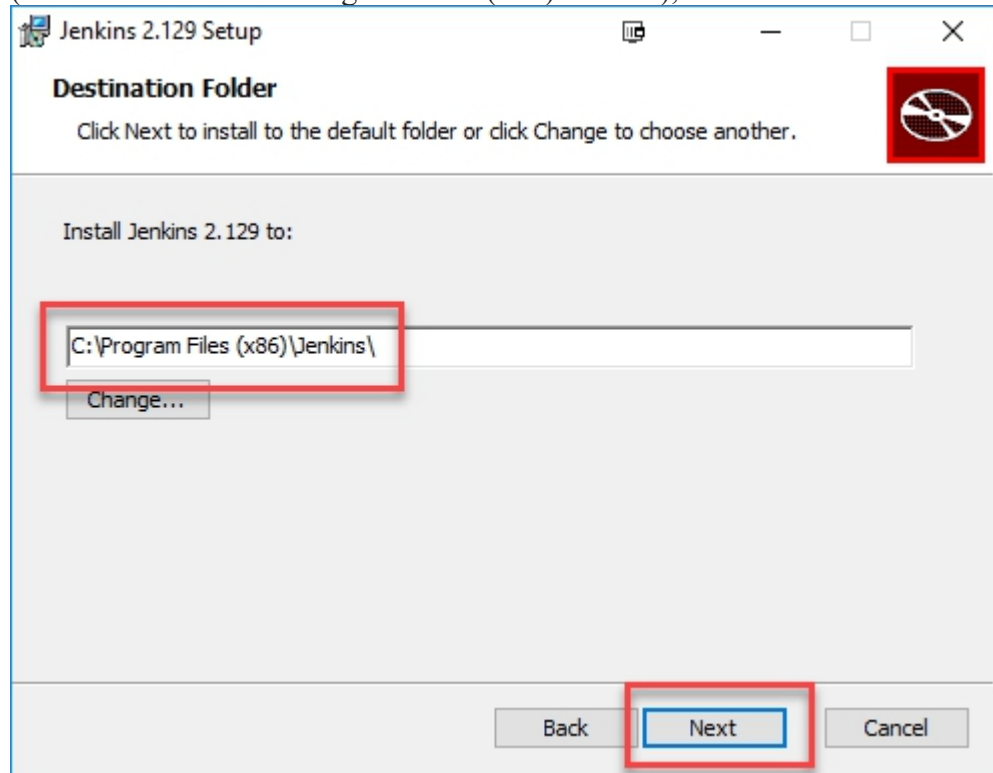
**1. Double-click on unzipped jenkins.msi. You can also install Jenkins using a WAR (Web application ARchive) but that is not recommended.**



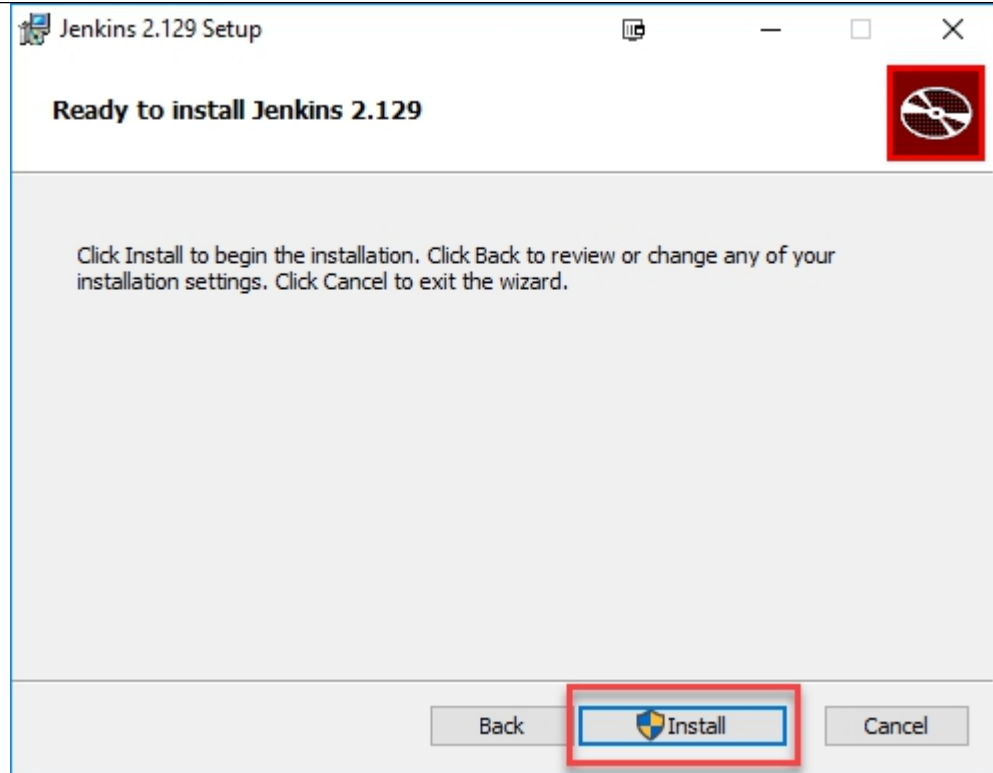
**2. In the Jenkins Setup screen, click Next.**



3. Choose the location where you want to have the Jenkins instance installed (default location is C:\Program Files (x86)\Jenkins), then click on **Next** button.



4. Click on the Install button.

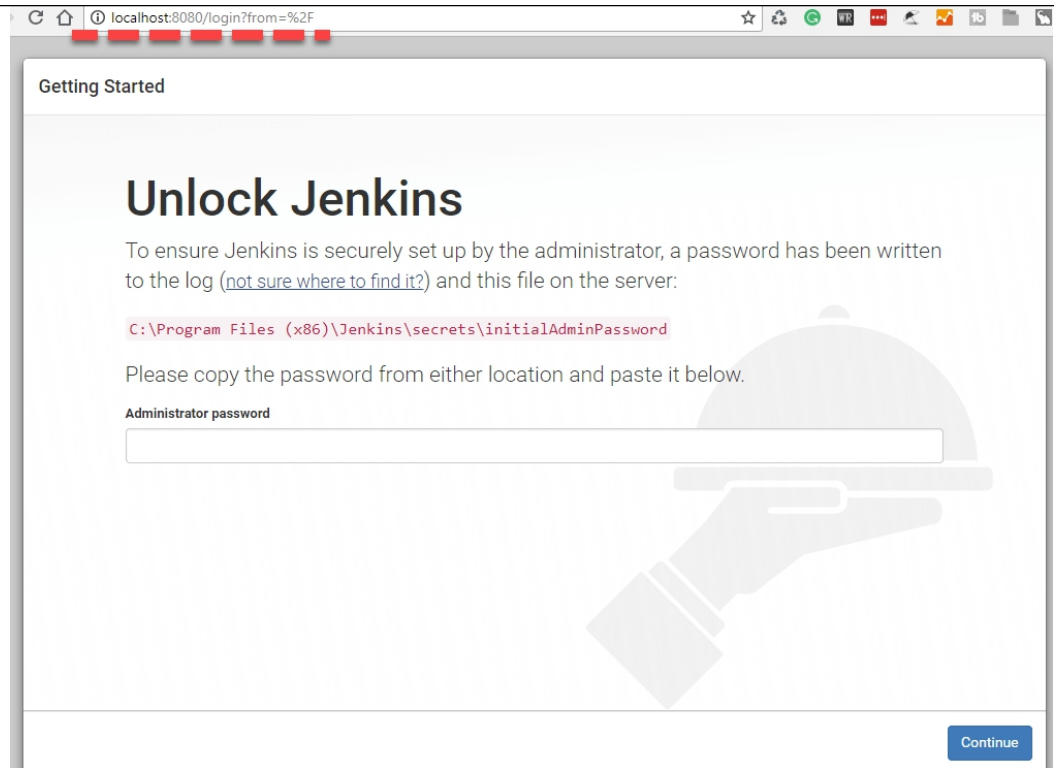


5. Once install is complete, click Finish.

6. After completing the Jenkins installation process, a browser tab will pop-up asking for the initial Administrator password. To access Jenkins, you need to go to browse the following path in your web browser.

<http://localhost:8080>

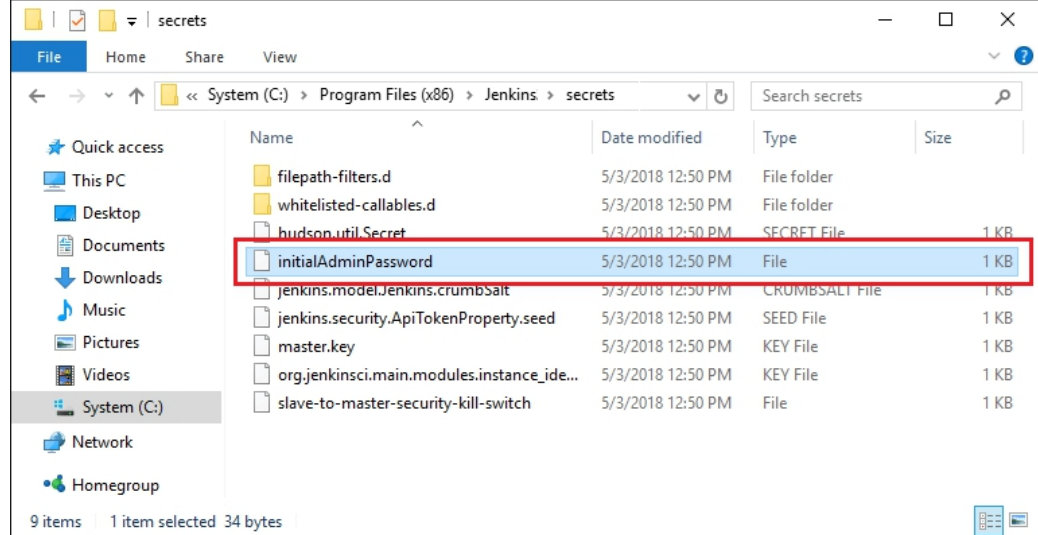
If you can access the above URL, then it confirms that Jenkins is successfully installed in your system.



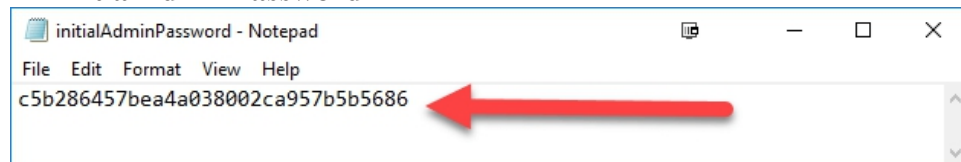
7. The initial Administrator password should be found under the Jenkins installation path (set at Step 4 in Jenkins Installation).

For default installation location to C:\Program Files (x86)\Jenkins, a file called **initialAdminPassword** can be found under C:\Program Files (x86)\Jenkins\secrets.

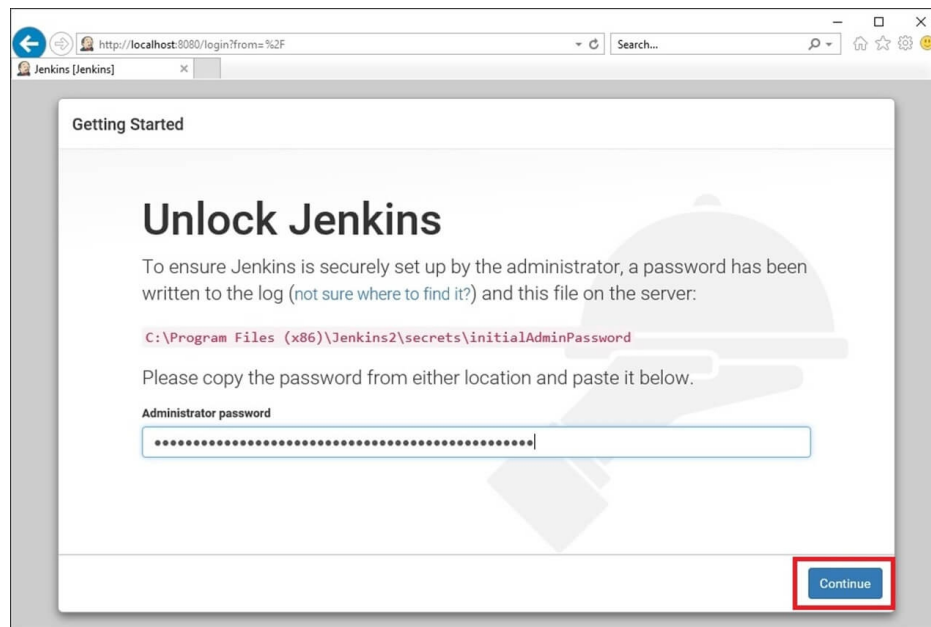
However, If a custom path for Jenkins installation was selected, then you should check that location for **initialAdminPassword** file.



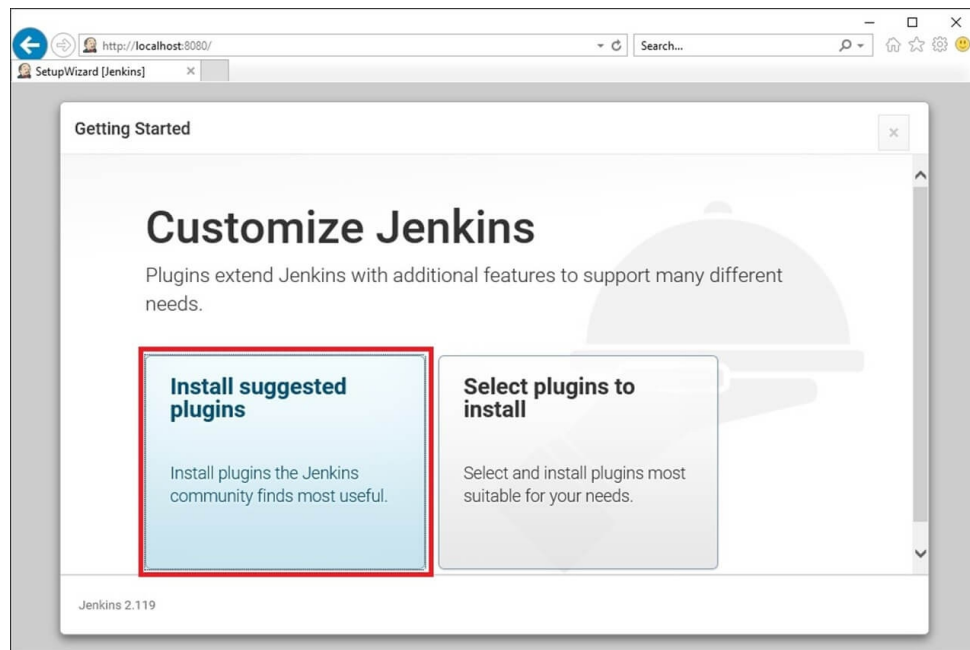
8. Open the highlighted file and copy the content of the **initialAdminPassword** file.



9. Paste the password it into browser's pop-up tab (<http://localhost:8080/login?from=%2F>) and click on Continue button.



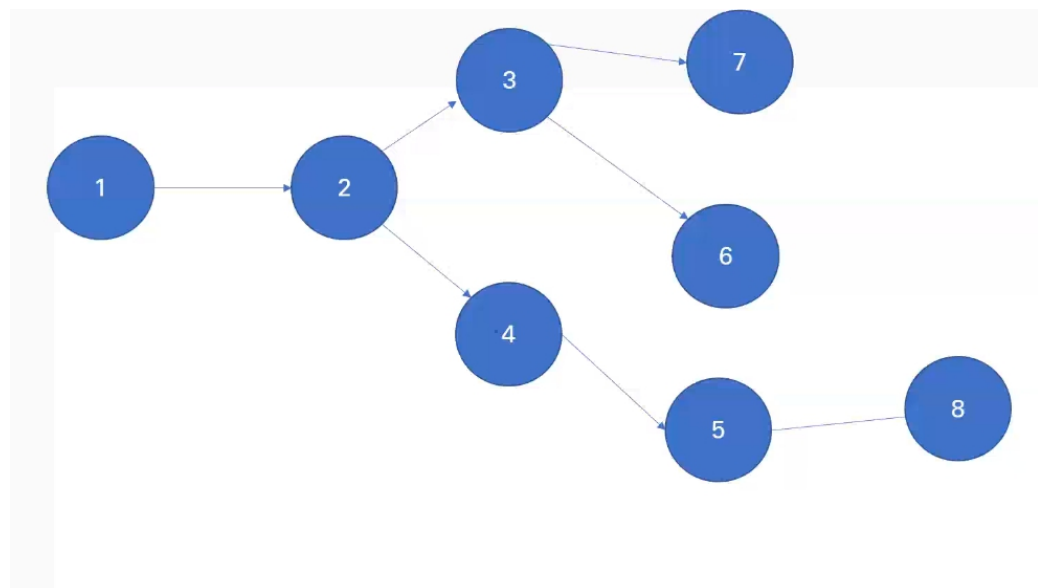
10. Click on the "Install suggested plugins button" so Jenkins will retrieve and install the essential plugins



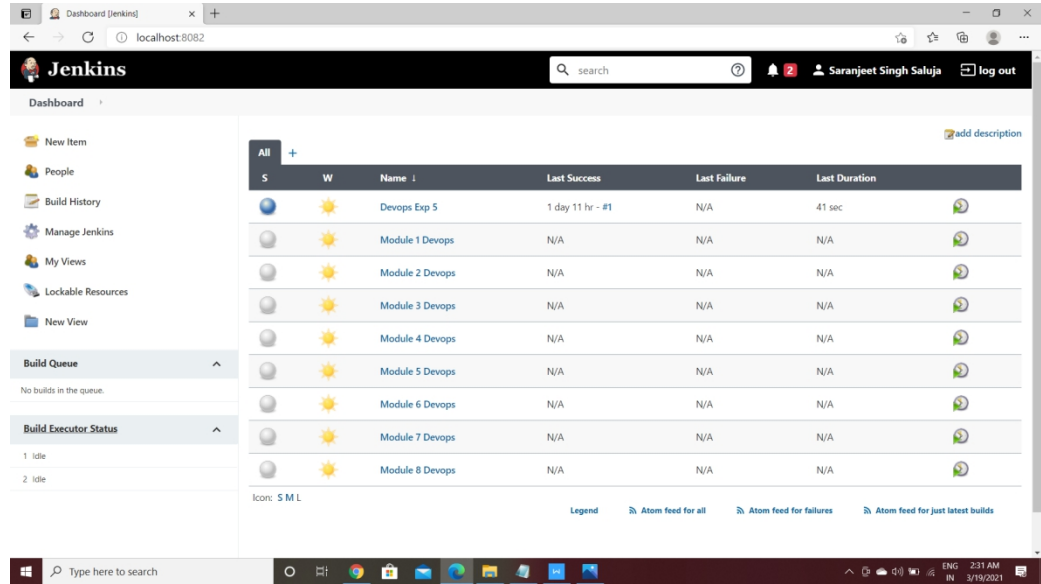
11. Jenkins will start to download and install all the necessary plugins needed to create new Jenkins Jobs.

## Output

Implementation of the following pipeline:



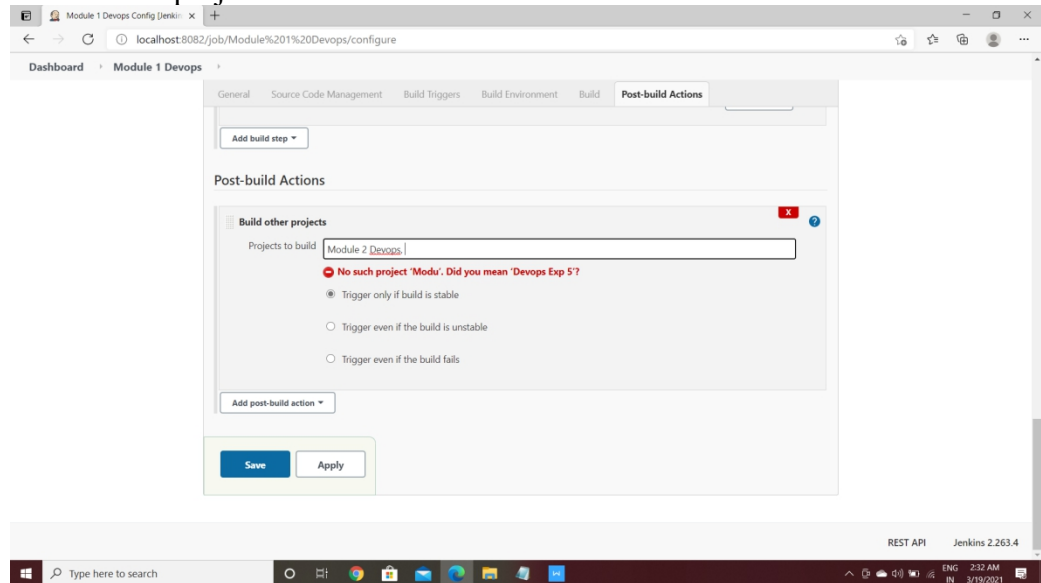
## 1. Create 8 new projects by clicking on New Item on the Dashboard



The screenshot shows the Jenkins Dashboard at localhost:8082. The left sidebar contains navigation links: New Item, People, Build History, Manage Jenkins, My Views, Lockable Resources, and New View. The main area displays a table of 8 projects, all with a status of 'Success' (green sun icon). The table columns are: S (Status), W (Webhook), Name, Last Success, Last Failure, and Last Duration. The projects are: Devops Exp 5, Module 1 Devops, Module 2 Devops, Module 3 Devops, Module 4 Devops, Module 5 Devops, Module 6 Devops, and Module 7 Devops. The last success time for all projects is '1 day 11 hr - #1'. The last duration for all projects is '41 sec'. The bottom of the dashboard shows the 'Build Queue' and 'Build Executor Status' sections.

S	W	Name	Last Success	Last Failure	Last Duration
Success	Yes	Devops Exp 5	1 day 11 hr - #1	N/A	41 sec
Success	Yes	Module 1 Devops	N/A	N/A	N/A
Success	Yes	Module 2 Devops	N/A	N/A	N/A
Success	Yes	Module 3 Devops	N/A	N/A	N/A
Success	Yes	Module 4 Devops	N/A	N/A	N/A
Success	Yes	Module 5 Devops	N/A	N/A	N/A
Success	Yes	Module 6 Devops	N/A	N/A	N/A
Success	Yes	Module 7 Devops	N/A	N/A	N/A

## 2. In order to create Pipeline from first module, click on Configure, and add 'Build other projects' in Post-Build Actions



The screenshot shows the Jenkins configuration page for 'Module 1 Devops' at localhost:8082/job/Module%201%20Devops/configure. The 'Post-build Actions' tab is selected. The 'Build other projects' action is added, with the 'Projects to build' field set to 'Module 2 Devops'. A red error message is displayed: 'No such project 'Modu'. Did you mean 'Devops Exp 5?'. The 'Trigger only if build is stable' option is selected. The 'Save' and 'Apply' buttons are visible at the bottom.

Post-build Actions

Build other projects

Projects to build: Module 2 Devops

No such project 'Modu'. Did you mean 'Devops Exp 5'?

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails

Save Apply



3. Similarly, Post-Build actions for Module 2, 3, 4 and 5 respectively.

The image displays two screenshots of the Jenkins configuration interface, specifically the 'Post-build Actions' tab for two different modules.

**Top Screenshot: Module 2 DevOps**

- The browser address bar shows `localhost:8082/job/Module%202%20DevOps/configure`.
- The 'Post-build Actions' tab is selected.
- Under 'Build other projects', the 'Projects to build' field contains `Module 3 DevOps, Module 4 DevOps`.
- A red error message is displayed: **No such project 'Module': Did you mean 'Module 1 DevOps'?**
- Below the error, three radio button options are available:
  - ☒ Trigger only if build is stable
  - ☐ Trigger even if the build is unstable
  - ☐ Trigger even if the build fails
- Buttons for 'Save' and 'Apply' are at the bottom.

**Bottom Screenshot: Module 3 DevOps**

- The browser address bar shows `localhost:8082/job/Module%203%20DevOps/configure`.
- The 'Post-build Actions' tab is selected.
- Under 'Build other projects', the 'Projects to build' field contains `Module 6 DevOps, Module 7 DevOps`.
- A red error message is displayed: **No such project 'Module 7': Did you mean 'Module 7 DevOps'?**
- Below the error, three radio button options are available:
  - ☒ Trigger only if build is stable
  - ☐ Trigger even if the build is unstable
  - ☐ Trigger even if the build fails
- Buttons for 'Save' and 'Apply' are at the bottom.

The bottom of the second screenshot shows the Jenkins version `2.263.4` and the REST API endpoint.

Module 4 Devops Config Jenkins

localhost:8082/job/Module%204%20Devops/configure

Dashboard > Module 4 Devops

General Source Code Management Build Triggers Build Environment Build Post-build Actions

Add build step

### Post-build Actions

**Build other projects**

Projects to build: Module 5 Devops

No such project 'Module 5'. Did you mean 'Module 5 Devops'?

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails

Add post-build action

Save Apply

REST API Jenkins 2.263.4

Type here to search

Module 5 Devops Config Jenkins

localhost:8082/job/Module%205%20Devops/configure

Dashboard > Module 5 Devops

General Source Code Management Build Triggers Build Environment Build Post-build Actions

Add build step

### Post-build Actions

**Build other projects**

Projects to build: Module 8 Devops

No such project 'Module 8'. Did you mean 'Module 8 Devops'?

☒ Trigger only if build is stable

☐ Trigger even if the build is unstable

☐ Trigger even if the build fails

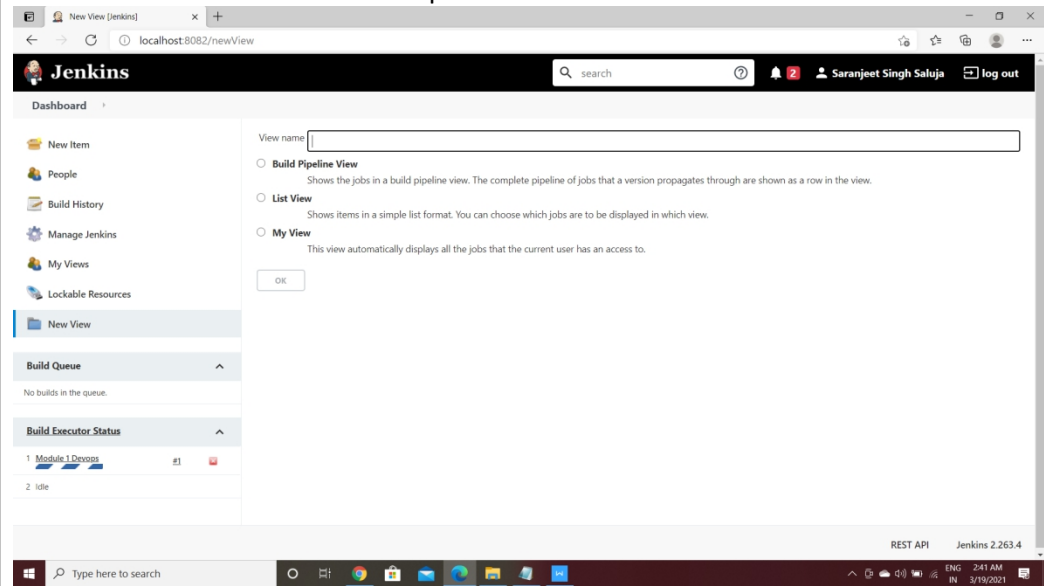
Add post-build action

Save Apply

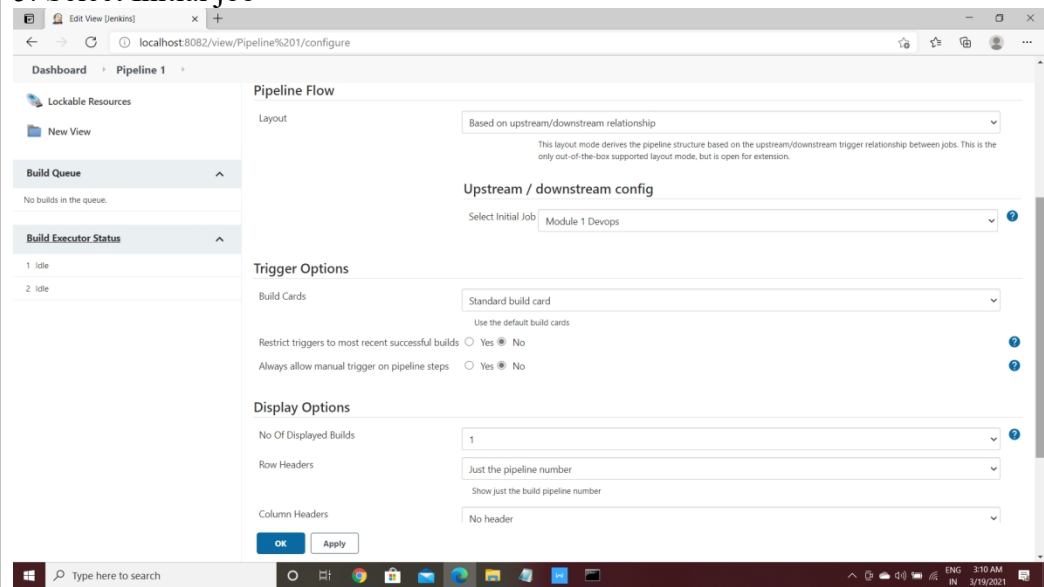
REST API Jenkins 2.263.4

Type here to search

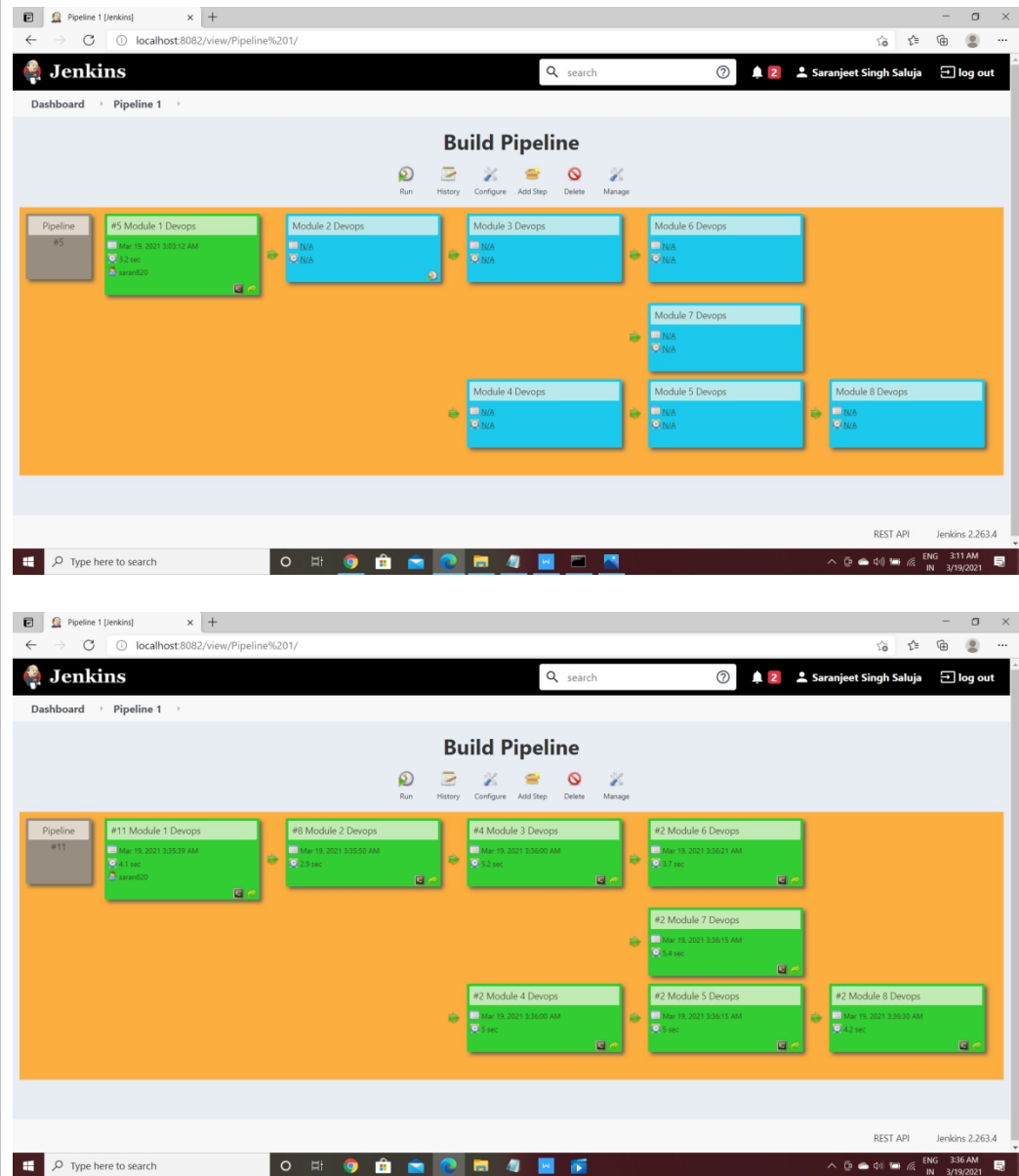
#### 4. Build now Module 1 and Build Pipeline view



#### 5. Select Initial job



## 6. Run Pipeline



### Conclusion

Thus, we have implemented pipelining using Jenkins and created pipeline GUI to Jenkins.