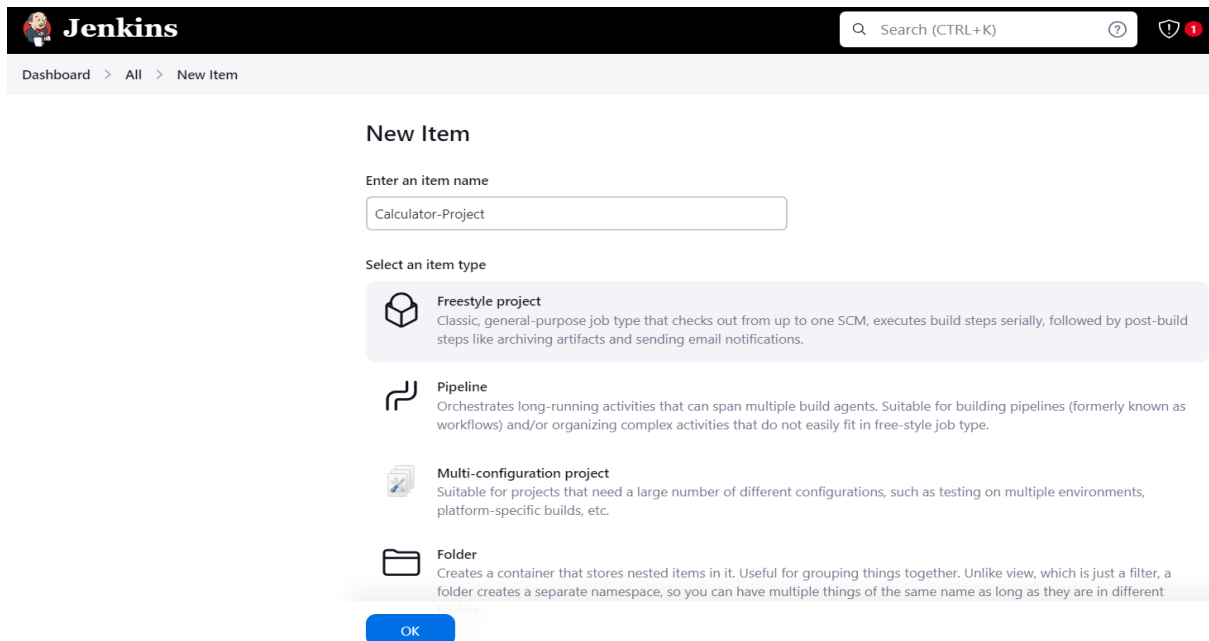


Experiment No. 5

Title : Applying CI/CD Principles to Web Development Using Jenkins, Git, and LocalHTTP Server.

Step 1) Creating a Jenkins Job using “ Freestyle Project ” type :



The screenshot shows the Jenkins 'New Item' page. At the top, there's a header with the Jenkins logo, a search bar, and a notification icon. Below the header, a breadcrumb trail reads 'Dashboard > All > New Item'. The main section is titled 'New Item'. It has a text input field for 'Enter an item name' with the value 'Calculator-Project'. Below this is a section 'Select an item type' with four options: 'Freestyle project' (selected), 'Pipeline', 'Multi-configuration project', and 'Folder'. Each option has a brief description. At the bottom, there is an 'OK' button.

New Item

Enter an item name

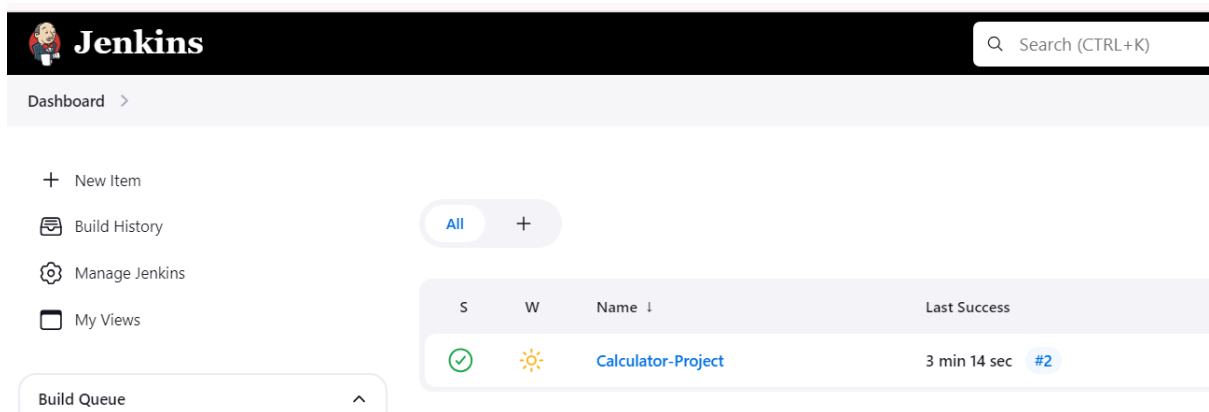
Calculator-Project

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.
- 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.
- Folder**
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different namespaces.

OK

Set up the Jenkins job ;



The screenshot shows the Jenkins Dashboard. On the left, there's a sidebar with links: '+ New Item', 'Build History', 'Manage Jenkins', and 'My Views'. The main area shows a table of jobs. The table has columns: 'S' (Status), 'W' (Icon), 'Name', and 'Last Success'. There is one job listed: 'Calculator-Project' with a status of 'Success' (green checkmark) and a duration of '3 min 14 sec'. A 'Build Queue' section is visible at the bottom left.

Dashboard >

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

S	W	Name ↓	Last Success
✓	☀	Calculator-Project	3 min 14 sec #2

Running Jenkins job;

S	W	Name ↓	Last Success	Last Failure	Last Duration
✓	☀	Calculator-Project	3 min 14 sec #2	N/A	1.5 sec

Step 2) Set up a Webhook in Git Repository

Actions

Projects

Wiki

Security

Insights

Settings

General

Access

Collaborators

Moderation options

Code and automation

Branches

Tags

Rules

Actions

Webhooks

Environments

Codespaces

Pages

Security

Code security

Deploy keys

Secrets and variables

Integrations

Webhooks / Manage webhook

SettingsRecent Deliveries

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in [our developer documentation](#).

Payload URL *

https://jenkins-server/github-webhook/

Content type *

application/json

Secret

SSL verification

By default, we verify SSL certificates when delivering payloads.

☒ Enable SSL verification ☐ Disable (not recommended)

Which events would you like to trigger this webhook?

☒ Just the push event.

Or

General

Source Code Management

Build Triggers

Build Environment

Build Steps

Post-build Actions

Build Triggers

☐ Trigger builds remotely (e.g., from scripts) ?

☐ Build after other projects are built ?

☐ Build periodically ?

☒ GitHub hook trigger for GITScm polling ?

☐ Poll SCM ?

Step 3) Trigger the CI/CD Pipeline:

Git Repository before push changes;

calculatorPublic

PinUnwatch1

master1 Branch0 Tags

Go to file

Add file

<> Code

Omkar1236-bit	Resolved merge conflicts	0d67e2d · 2 minutes ago	8 Commits
.vscode	Resolved merge conflicts	2 minutes ago	
index.html	changed	yesterday	
script.js	Initial commit	4 days ago	
style.css	Adding change style to Git Repo	5 minutes ago	

Commit the changes;

```
PS D:\Calculator> git init
Reinitialized existing Git repository in D:/Calculator/.git/
PS D:\Calculator> git add insertion_sort.java
PS D:\Calculator> git commit -m "add content insertion_sort.java"
[master b3be40b] add content insertion_sort.java
1 file changed, 40 insertions(+)
create mode 100644 insertion_sort.java
```


Pushing changes to Git Repository;

```
PS D:\Calculator> git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 693 bytes | 693.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/Omkar1236-bit/calculator.git
0d67e2d..b3be40b master -> master
```

After push Git Repository become;


The screenshot shows a GitHub repository named 'calculator' which is public. It has 1 branch (master) and 0 tags. The repository contains 9 commits. The commit history table is as follows:


Commit Message	Commit Hash	Time Ago
add content insertion_sort.java	b3be40b	1 minute ago
Resolved merge conflicts		6 minutes ago
changed		yesterday
add content insertion_sort.java		1 minute ago
Initial commit		4 days ago
Adding change style to Git Repo		8 minutes ago


Jenkins


Search (CTRL+K) ?


Dashboard > Calculator-Project >


 Status


 Changes


 Workspace


 Build Now


 Configure

 Delete Project

 GitHub Hook Log


 GitHub



 Rename




 Calculator-Project



Permalinks



- [Last build \(#2\), 29 sec ago](#)
- [Last stable build \(#2\), 29 sec ago](#)
- [Last successful build \(#2\), 29 sec ago](#)
- [Last completed build \(#2\), 29 sec ago](#)



 calculator Public






 Pin  Unwatch 1


 master  1 Branch  0 Tags

 Go to file 

 Add file  Code

 Omkar1236-bit add content insertion_sort.java b3be40b · 4 minutes ago  9 Commits

 .vscode	Resolved merge conflicts	9 minutes ago
 index.html	changed	yesterday
 insertion_sort.java	add content insertion_sort.java	4 minutes ago
 script.js	Initial commit	4 days ago
 style.css	Adding change style to Git Repo	11 minutes ago

 README

Hence the local HTTP server to verify that the web application has been updated with the latest changes.