Pipeline

- A series of steps executed in a sequential and logical manner.
- Example
    - Developer pushes their code in a central repository
    - That code should be fetched automatically by a server
    - Once the code has been fetched, then a build should be created from the fetched code, if needed.
    - Once the build is successful, it will generate an output of file(s) which is considered as an artifact
    - Then a testing script can be attached on the artifact using tools Appium, JUnit, etc to create a test report, if needed, to be sent to developers.
    - Once the code has been approved, meaning it is good for deployment (staging or production), it is sent to the deployment platform
    - The deployment platform can be different based on the requirement (Physical Server, VM, Container Environment, or m a managed Kubernetes environment)

Continuous Integration (CI)
Continuous Delivery (CD)
Continuous Deployment (CD)

Code → Build → Test → Release → Deploy → Ops → Monitor

QA Pipeline

Fetch Code From Repo → Create a build → Attach the testing script → Deploy to a testing environment → Generate Report → Share report with developers → Developer pushes a new version to repo

Code → Build → Test → Release → Manual Approval (Release Gate)→ Deploy (Staging/Testing/Production)

Code → Build → Test → Release → Automated Deployment (Staging/Testing/Production)

Microservice Architecture

POM.xml

Java
– payment/payment.java
– notiifcation/notifcation.java
– catalog/catalog.java

- **Payment Service (Service 01) - Artifact 01**
- **Notification Service (Service 02) - Artifact 02**
- **Catalog Service (Service 03) - Artifact 03**

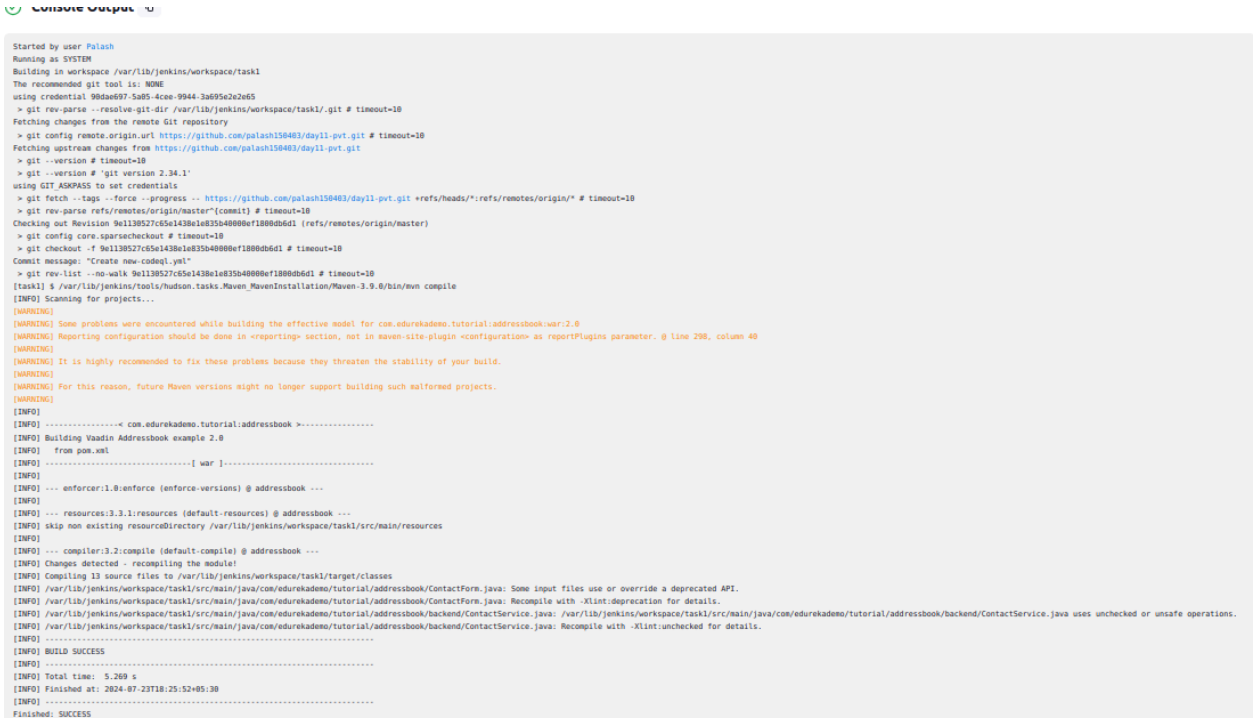
Backward Compatibility

- The current version of code can work with a higher version of the tool installed.
- **Example -** Code built on 2.5 can work with any version later than 2.5 of that tool.

Forward Compatibility

- The current version of code can work with a lower version of the tool installed.
- **Example -** Code built on 3.0 can work with any version later than 2.5 of that tool.

TASK-1



```
Started by user Palash
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/task1
The recommended git tool is: NONE
using credential 90dae697-5a05-4cee-9944-3a695e2e2e65
 > git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/task1/.git # timeout=10
Fetching changes from the remote Git repository
 > git config remote.origin.url https://github.com/palash150403/day11-pvt.git # timeout=10
Fetching upstream changes from https://github.com/palash150403/day11-pvt.git
 > git --version # timeout=10
 > git --version # 'git version 2.34.1'
using GIT_ASKPASS to set credentials
 > git fetch --tags --force --progress -- https://github.com/palash150403/day11-pvt.git +refs/heads/*:refs/remotes/origin/* # timeout=10
 > git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision 9e1130527c65e1438e1e835b40000ef1800db6d1 (refs/remotes/origin/master)
 > git config core.sparsecheckout # timeout=10
 > git checkout -f 9e1130527c65e1438e1e835b40000ef1800db6d1 # timeout=10
Commit message: "Create new-codeql.yml"
 > git rev-list --no-walk 9e1130527c65e1438e1e835b40000ef1800db6d1 # timeout=10
[task1] $ /var/lib/jenkins/tools/hudson.tasks.Maven_MavenInstallation/Maven-3.9.0/bin/mvn compile
[INFO] Scanning for projects...
[WARNING]
[WARNING] Some problems were encountered while building the effective model for com.edurekademo.tutorial:addressbook:war:2.0
[WARNING] Reporting configuration should be done in <reporting> section, not in maven-site-plugin <configuration> as reportPlugins parameter. @ line 298, column 40
[WARNING]
[WARNING] It is highly recommended to fix these problems because they threaten the stability of your build.
[WARNING]
[WARNING] For this reason, future Maven versions might no longer support building such malformed projects.
[WARNING]
[INFO]
[INFO] ---------------< com.edurekademo.tutorial:addressbook >---------------
[INFO] Building Vaadin Addressbook example 2.0
[INFO]   from pom.xml
[INFO] --------------------------------[ war ]---------------------------------
[INFO]
[INFO] --- enforcer:1.0:enforce (enforce-versions) @ addressbook ---
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ addressbook ---
[INFO] skip non existing resourceDirectory /var/lib/jenkins/workspace/task1/src/main/resources
[INFO]
[INFO] --- compiler:3.2:compile (default-compile) @ addressbook ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 13 source files to /var/lib/jenkins/workspace/task1/target/classes
[INFO] /var/lib/jenkins/workspace/task1/src/main/java/com/edurekademo/tutorial/addressbook/ContactForm.java: Some input files use or override a deprecated API.
[INFO] /var/lib/jenkins/workspace/task1/src/main/java/com/edurekademo/tutorial/addressbook/ContactForm.java: Recompile with -Xlint:deprecation for details.
[INFO] /var/lib/jenkins/workspace/task1/src/main/java/com/edurekademo/tutorial/addressbook/backend/ContactService.java: /var/lib/jenkins/workspace/task1/src/main/java/com/edurekademo/tutorial/addressbook/backend/ContactService.java uses unchecked or unsafe operations.
[INFO] /var/lib/jenkins/workspace/task1/src/main/java/com/edurekademo/tutorial/addressbook/backend/ContactService.java: Recompile with -Xlint:unchecked for details.
[INFO] ------------------------------------------------------------------------
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  5.269 s
[INFO] Finished at: 2024-07-23T18:25:52+05:30
[INFO] ------------------------------------------------------------------------
Finished: SUCCESS
```

ration

Discard old builds

GitHub project

This project is parameterized

Throttle builds

Execute concurrent builds if necessary

Advanced

Source Code Management

None

Git

Repositories

Repository URL

https://github.com/palash150403/day11-pvt.git

Credentials

ghp_TbAZlnlmqlBnVB3LMxKHFDpqcBh0Be1knli6/******

+ Add

Advanced

Add Repository

Branches to build

Branch Specifier (blank for 'any')

*/master

Add Branch

Repository browser

(Auto)

ration

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

Build Environment

- Delete workspace before build starts
- Use secret text(s) or file(s)
- Add timestamps to the Console Output
- Inspect build log for published build scans
- Terminate a build if it's stuck
- With Ant

Build Steps

Invoke top-level Maven targets

Maven Version: Maven-3.9.0

Goals: compile

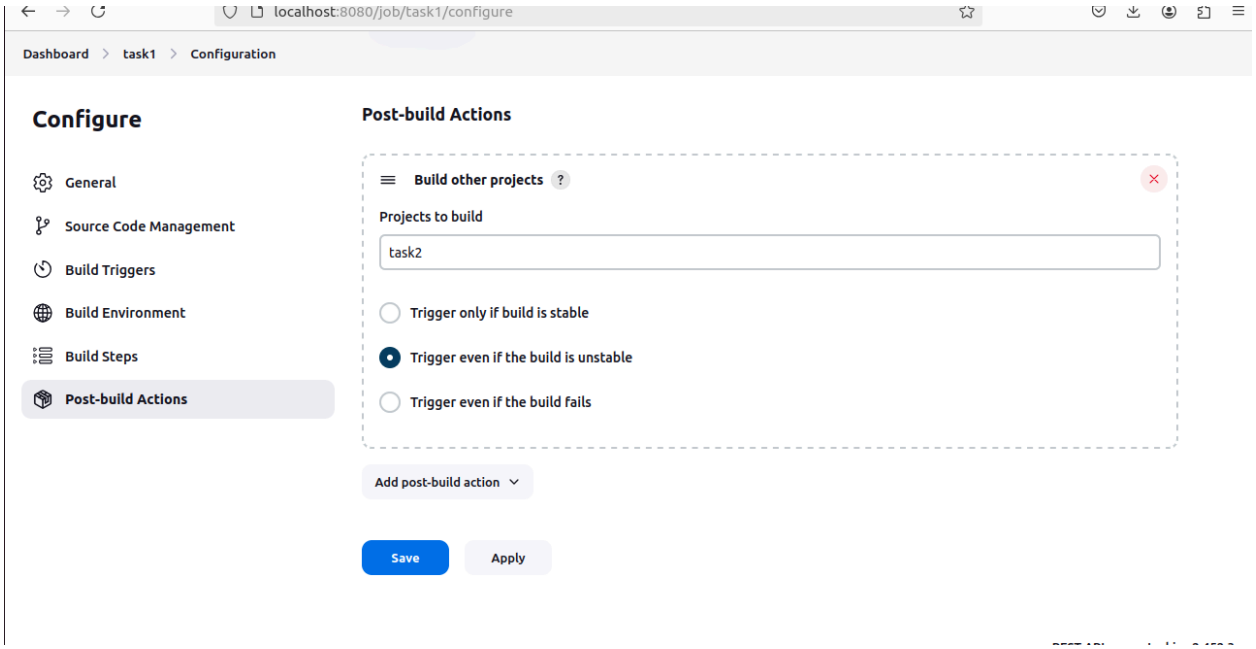
Advanced

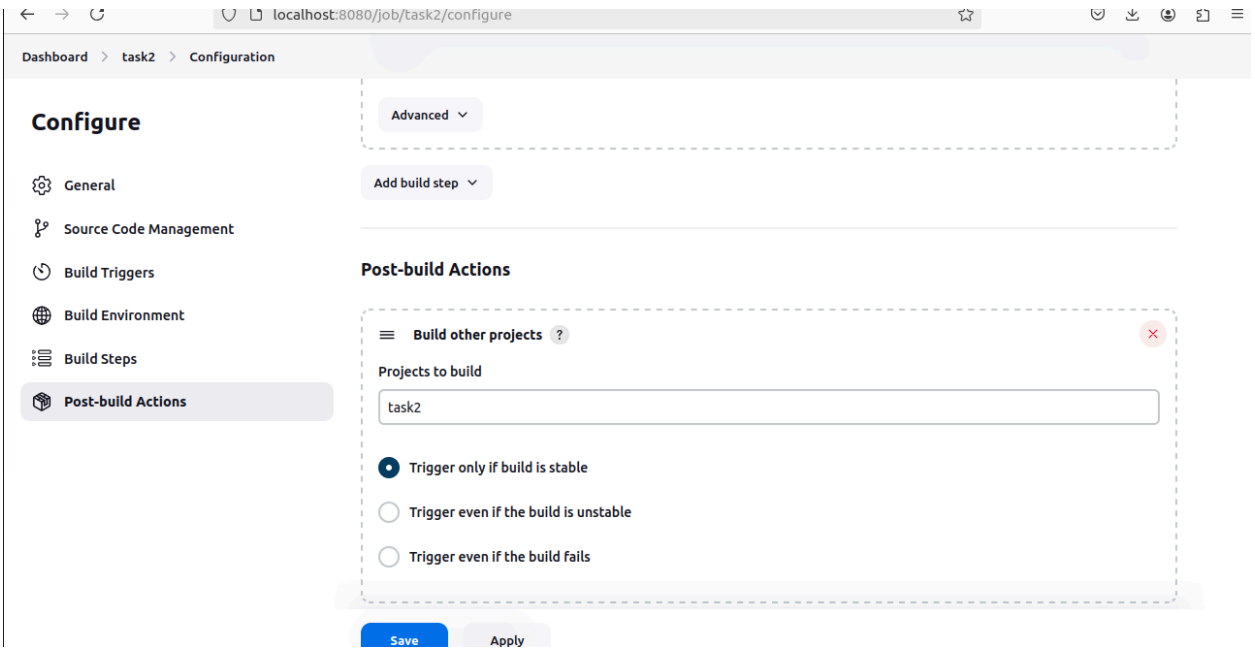
Add build step

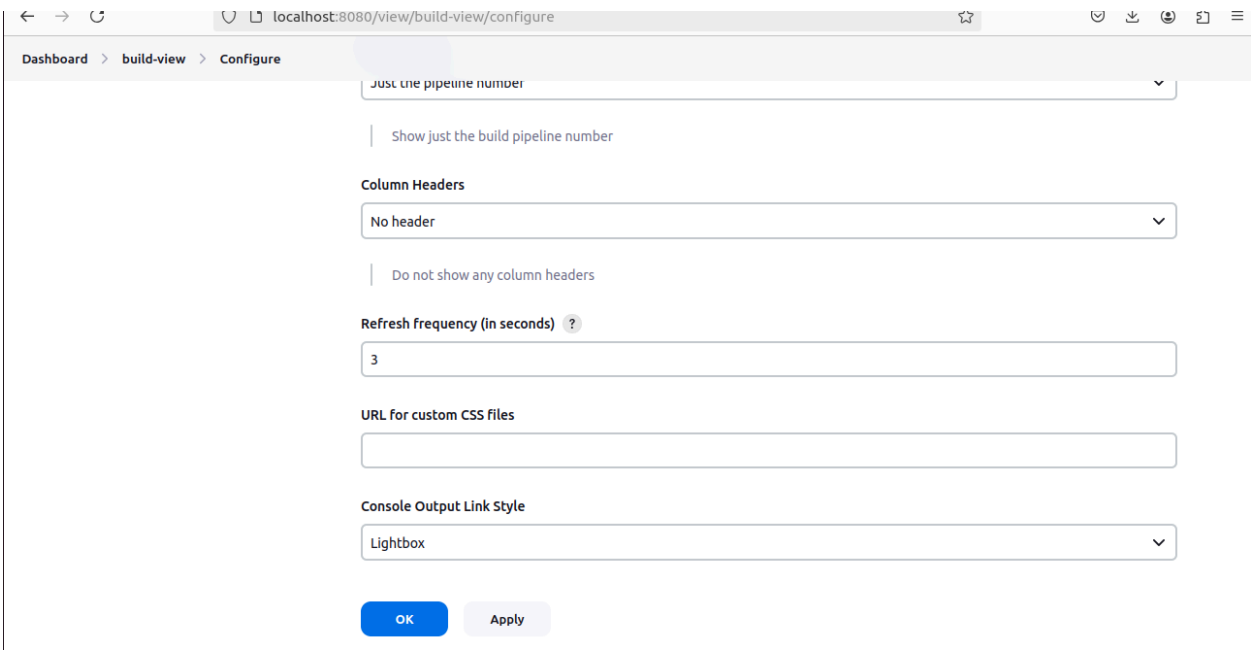
Post-build Actions

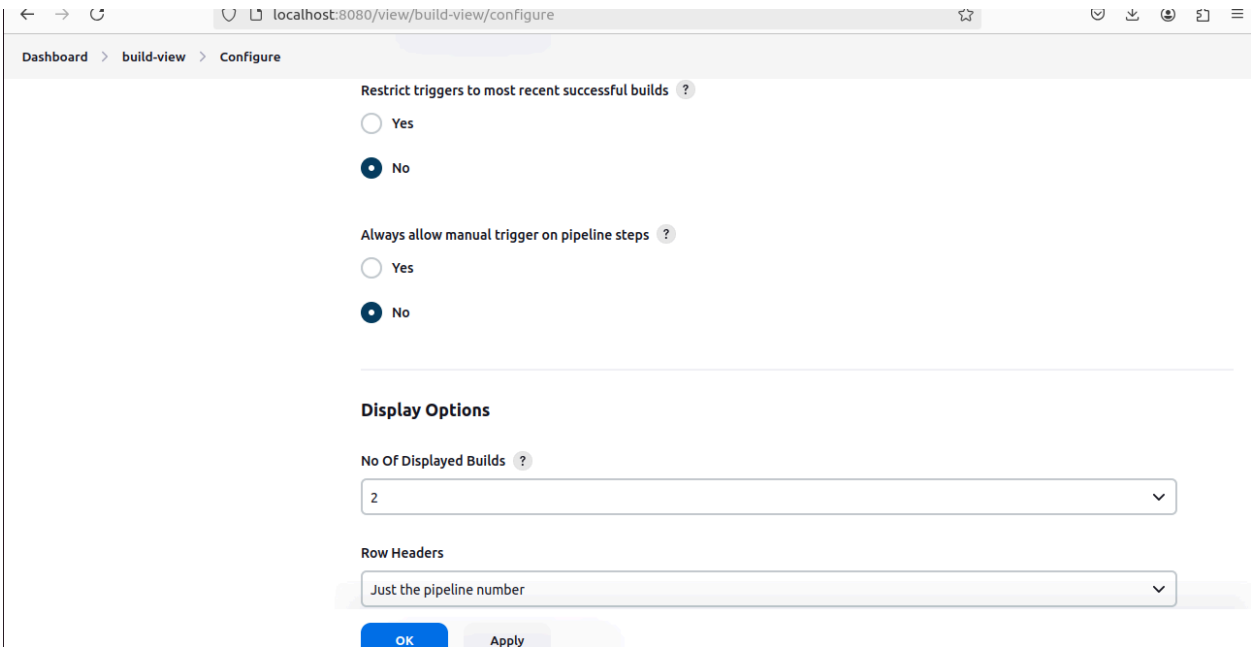
Add post-build action

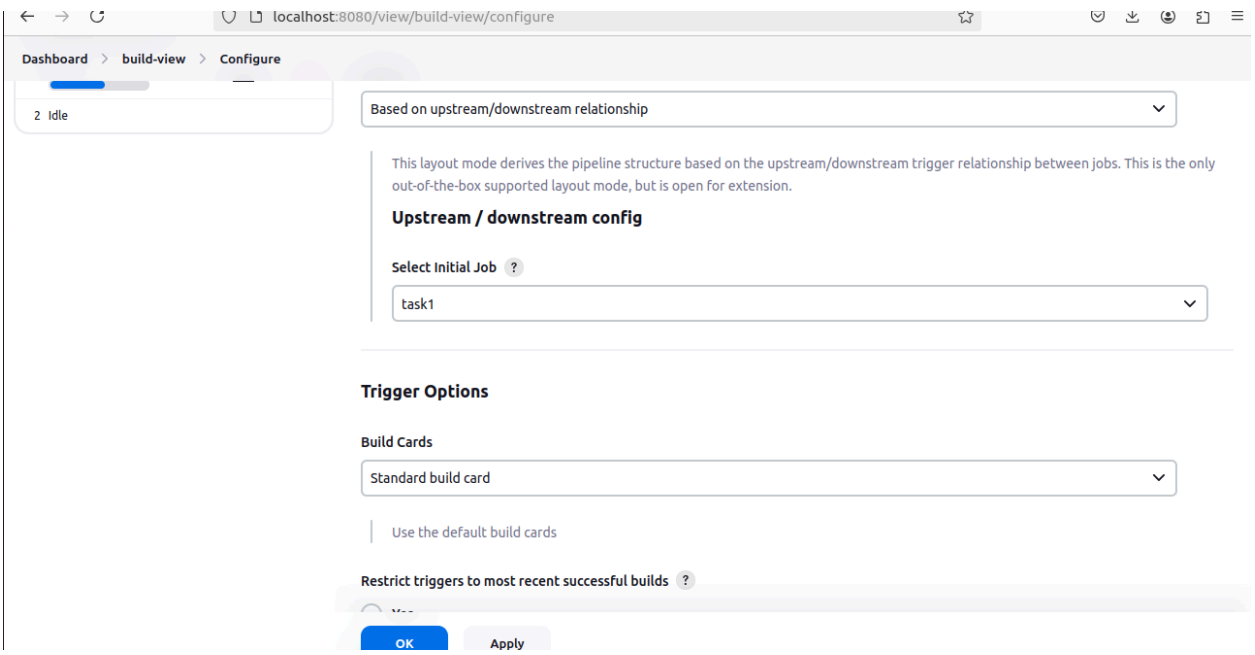
TASK-2

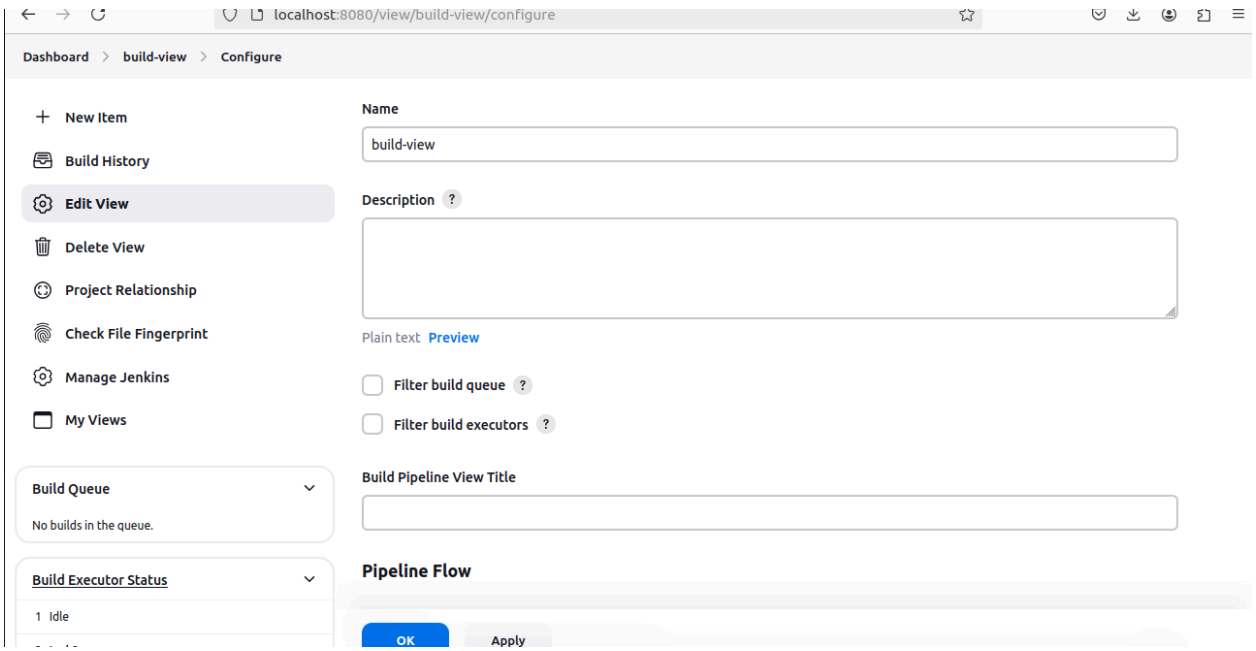


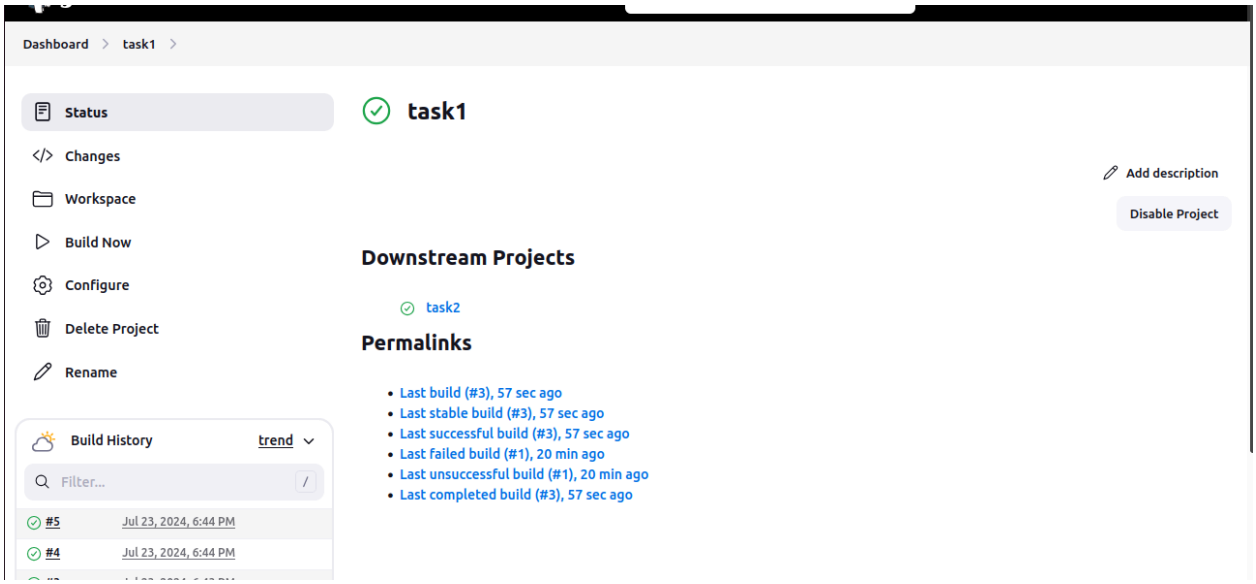

localhost:8080/job/task2/configure
Dashboard
task2
Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
Advanced
Add build step
Post-build Actions
Build other projects
Projects to build
task2
Trigger only if build is stable
Trigger even if the build is unstable
Trigger even if the build fails
Save
Apply

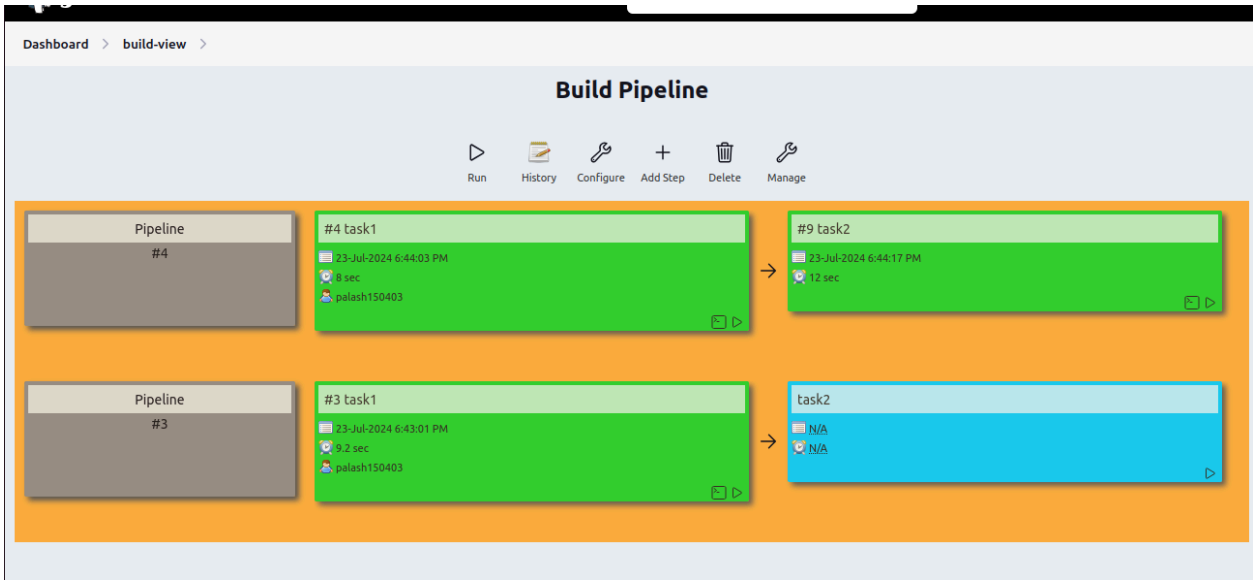

localhost:8080/view/build-view/configure
Dashboard
build-view
Configure
Show just the build pipeline number
Column Headers
No header
Do not show any column headers
Refresh frequency (in seconds)
3
URL for custom CSS files
Console Output Link Style
Lightbox
OK
Apply


localhost:8080/view/build-view/configure
Dashboard
build-view
Configure
Restrict triggers to most recent successful builds
Yes
No
Always allow manual trigger on pipeline steps
Yes
No
Display Options
No Of Displayed Builds
2
Row Headers
Just the pipeline number
OK
Apply


localhost:8080/view/build-view/configure
Dashboard
build-view
Configure
2 Idle
Based on upstream/downstream relationship
This layout mode derives the pipeline structure based on the upstream/downstream trigger relationship between jobs. This is the only out-of-the-box supported layout mode, but is open for extension.
Upstream / downstream config
Select Initial Job
task1
Trigger Options
Build Cards
Standard build card
Use the default build cards
Restrict triggers to most recent successful builds
OK
Apply


localhost:8080/view/build-view/configure
Dashboard
build-view
Configure
New Item
Build History
Edit View
Delete View
Project Relationship
Check File Fingerprint
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status
1 Idle
Name
build-view
Description
Plain text
Preview
Filter build queue
Filter build executors
Build Pipeline View Title
Pipeline Flow
OK
Apply


Dashboard
task1
Status
Changes
Workspace
Build Now
Configure
Delete Project
Rename
Build History
trend
Filter...
#5
Jul 23, 2024, 6:44 PM
#4
Jul 23, 2024, 6:44 PM
task1
Add description
Disable Project
Downstream Projects
task2
Permalinks
Last build (#3), 57 sec ago
Last stable build (#3), 57 sec ago
Last successful build (#3), 57 sec ago
Last failed build (#1), 20 min ago
Last unsuccessful build (#1), 20 min ago
Last completed build (#3), 57 sec ago


Dashboard
build-view
Build Pipeline
Run
History
Configure
Add Step
Delete
Manage
Pipeline
#4
#4 task1
23-Jul-2024 6:44:03 PM
8 sec
palash150403
#9 task2
23-Jul-2024 6:44:17 PM
12 sec
Pipeline
#3
#3 task1
23-Jul-2024 6:43:01 PM
9.2 sec
palash150403
task2
N/A
N/A