

Q2:Python application using pytest

Created all required files

```
master@master-vm:~/Desktop/q2$ cd retest-jenkins-1/
master@master-vm:~/Desktop/q2/retest-jenkins-1$ ls
app  Jenkinsfile  README.md  requirements.txt  tests
master@master-vm:~/Desktop/q2/retest-jenkins-1$ cd app
master@master-vm:~/Desktop/q2/retest-jenkins-1/app$ nano calculator.py
master@master-vm:~/Desktop/q2/retest-jenkins-1/app$ cd ..
master@master-vm:~/Desktop/q2/retest-jenkins-1$ cd tests/
master@master-vm:~/Desktop/q2/retest-jenkins-1/tests$ nano test_calculator.py
master@master-vm:~/Desktop/q2/retest-jenkins-1/tests$ cd ..
master@master-vm:~/Desktop/q2/retest-jenkins-1$ nano Jenkinsfile
master@master-vm:~/Desktop/q2/retest-jenkins-1$ nano requirements.txt
master@master-vm:~/Desktop/q2/retest-jenkins-1$
```

Calculator.py

```
GNU nano 6.2
def add(a, b):
    return a + b

def subtract(a, b):
    return a - b

def multiply(a, b):
    return a * b

def divide(a, b):
    if b == 0:
        raise ValueError("Division by zero is not allowed.")
    return a / b
```

Test_calculator.py

```
GNU nano 6.2
import pytest
from app import calculator

def test_add():
    assert calculator.add(2, 3) == 5

def test_subtract():
    assert calculator.subtract(5, 2) == 3

def test_multiply():
    assert calculator.multiply(3, 4) == 12

def test_divide():
    assert calculator.divide(10, 2) == 5

def test_divide_by_zero():
    with pytest.raises(ValueError):
        calculator.divide(10, 0)
```

Jenkinsfile

```
master@master-vm: ~/Desktop/q2/retest
GNU nano 6.2 Jenkinsfile
pipeline {
  agent any

  environment {
    VENV = 'venv'
  }

  stages {
    stage('Checkout') {
      steps {
        git url: 'https://github.com/Bhargavkulla/retest-jenkins-1.git', branch: 'main'
      }
    }

    stage('Install virtualenv and Set Up Virtual Environment') {
      steps {
        sh '''
          # Install virtualenv if it's not installed
          python3 -m pip install --user virtualenv

          # Create the virtual environment using virtualenv
          python3 -m virtualenv $VENV

          # Upgrade pip inside the virtual environment
          $VENV/bin/pip install --upgrade pip

          # Install dependencies from requirements.txt
          $VENV/bin/pip install -r requirements.txt
        '''
      }
    }

    stage('Run Pytest') {
      steps {
        sh '''
          # Run pytest and generate a JUnit XML report
          $VENV/bin/python -m pytest --junitxml=pytest-report.xml
        '''
      }
    }

    stage('Publish Test Results') {
      steps {
        junit '**/pytest-report.xml' // Look for the generated XML report
      }
    }
  }

  post {
    always {
      // Clean up by removing the virtual environment after the pipeline finishes
      sh 'rm -rf $VENV || true'
    }
  }
}
```

Requirements.txt

```
GNU nano 6.2
pytest
coverage
```

Lets move to Github

Githuburl: <https://github.com/Bhargavkulla/retest-jenkins-1>

The screenshot shows the GitHub repository page for 'retest-jenkins-1'. The repository is public and has 16 commits. The commit history is as follows:

File	Commit Message	Time
app	Create calculator.py	1 hour ago
tests	Create test_calculator.py	1 hour ago
Jenkinsfile	Added the files	7 minutes ago
README.md	Initial commit	1 hour ago
requirements.txt	Create requirements.txt	1 hour ago

Output

The screenshot shows the Jenkins console output for the 'python-pipeline #2' build. The output is as follows:

```
Started by user admin
Obtained Jenkinsfile from git https://github.com/Bhargavkulla/retest-jenkins-1.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/lib/jenkins/workspace/python-pipeline
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
Selected Git installation does not exist. Using Default
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/python-pipeline/.git #
timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/Bhargavkulla/retest-jenkins-1.git #
timeout=10
Fetching upstream changes from https://github.com/Bhargavkulla/retest-jenkins-1.git
> git --version # timeout=10
> git --version # 'git version 2.25.1'
```

Activities Workstation python-pipeline #2 Console Bhargavkulla/retest-jenk: Master Worker1 Worker2

localhost:8080/job/python-pipeline/2/console

Jenkins / python-pipeline / #2

```

[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Publish Test Results)
[Pipeline] junit
Recording test results
[Checks API] No suitable checks publisher found.
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Declarative: Post Actions)
[Pipeline] sh
+ rm -rf venv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS

```

Activities Workstation python-pipeline - Jenkins Bhargavkulla/retest-jenk: Master Worker1 Worker2

localhost:8080/job/python-pipeline/

Jenkins / python-pipeline

pages

Rename

Pipeline Syntax

Builds

Filter

Today

#2 2:49 PM

#1 2:47 PM

Average stage times: (full run time: ~22s)

	Declarative: Checkout SCM	Checkout	Install virtualenv and Set Up Virtual Environment	Run Pytest	Publish Test Results	Declarative: Post Actions
#2 May 03 14:49 No Changes	1s	1s	16s	675ms	584ms	441ms
#1 May 03 14:47 No Changes	1s	835ms	496ms failed	326ms failed	138ms failed	499ms

Latest Test Result (no failures)

Permalinks

- Last build (#2), 5 min 9 sec ago