# NAME –VICKY OMPRAKASH SHARMA AIM- CICD PIPELINE PROJECT

DEFINATION – BASICQALLY FROM MY POINT OG VIEW CI CD IS A PROCESS TO AUTOMATE THE DELIVERY OF SOFTWARE BY AUTOMATING TASK LIKE BUILD CODE, TESTUING AND DEPLOYMENT.

### SUMMARY OF THESE PROJECT

- 1. Setting up Visual Studio for Python Development:
- Install Visual Studio with the Python workload.
- Create a new Python project in Visual Studio.
- Write your Python code and save it in the local repository.
- 2. Setting up a Local Git Repository:
- Initialize a new Git repository in your project directory.
- Add your Python code files to the Git repository.
- · Commit your changes to the local repository.
- 3. Setting up AWS CodeCommit (GitHub) and ECR:
- Create a new repository on CodeCommit (GitHub) to host your Python code.
- Push your local Git repository to the remote repository on CodeCommit (GitHub).
- Set up an ECR repository to store your Docker images.
- 4. Setting up CI/CD Pipeline:
- Configure a CI/CD pipeline using AWS CodePipeline.
- Connect your CodeCommit (GitHub) repository as the source for the pipeline.
- Set up a build stage to build your Python code into a Docker image.
- · Push the Docker image to the ECR repository.

Optionally, add a deployment stage to deploy the Docker image to AWS services LAST STEP

- 1. Deploy Stage (CodeDeploy):
- Deploy your code to your target environment using AWS CodeDeploy as previously described.
- 2. Elastic Beanstalk Deployment:
- Configure your CI/CD pipeline to trigger an Elastic Beanstalk deployment after the CodeDeploy deployment is successful.
- Use the AWS Elastic Beanstalk CLI or API to deploy your application to Elastic Beanstalk from the artifact stored in S3 or CodeArtifact.

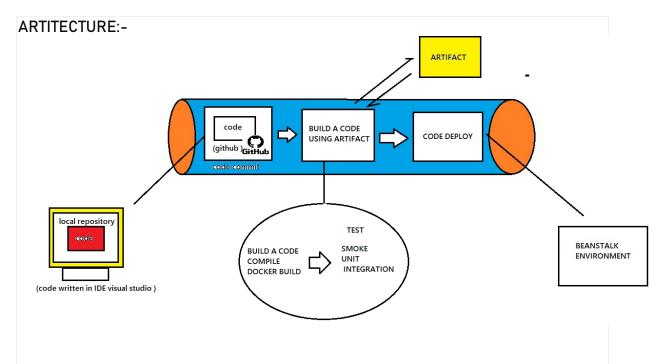
#### what is use of docker image here

- 1. Creating a Docker Image for Your Python Application:
- You would create a Dockerfile in your project that describes how to build your Python application into a Docker image.
- The Dockerfile would typically start with a base Python image and then copy your Python code into the image, install any dependencies, and specify how to run your application.
- 2. Storing the Docker Image in ECR:
- After building your Docker image locally, you would push it to the Elastic Container Registry (ECR) to store it.
- ECR provides a secure and scalable way to store your Docker images, making them accessible to your CI/CD pipeline for deployment.
- Source code is compiled, tested, and packaged into a build artifact (e.g., a Docker image
- Build artifact is uploaded to an artifact repository (e.g., AWS S3 or CodeArtifact).
- Artifact metadata is stored for tracking purposes.

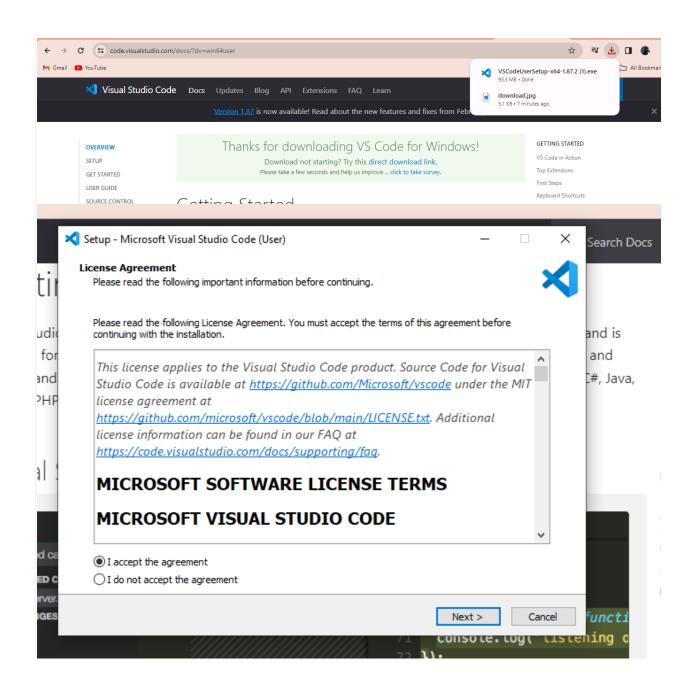
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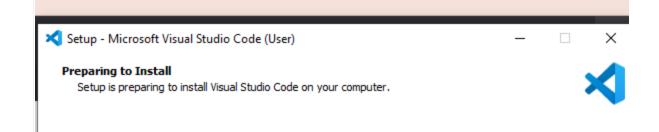
- Deployment group is created with target instances or services.
- Artifact is deployed to the target environment using deployment configurations (e.g., rolling updates, blue-green deployments).
- Deployment status is monitored.

IN SIMPLE TERM

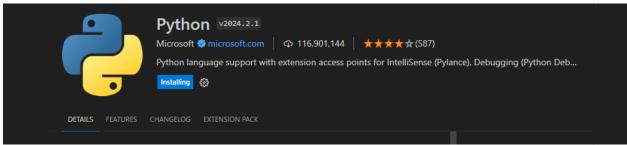


STEPS 1 – PREPARING A HELLO WORLD CODE IN LOCAL RESPOSITORY I.E IN VISUAL STUDIO AND PSUH IT TO GITHUB

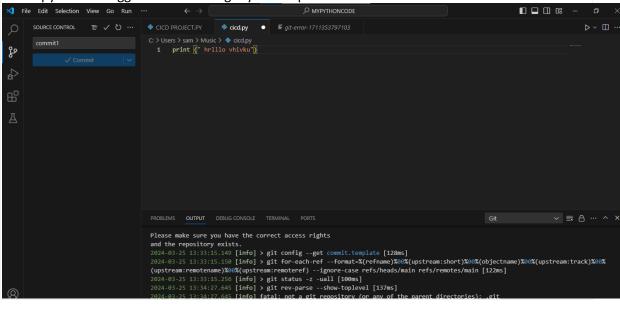




#### NOW CREATE NEW FILE AND WRITE YOUR CODE HERE WHICH IS A PYTHON CODE

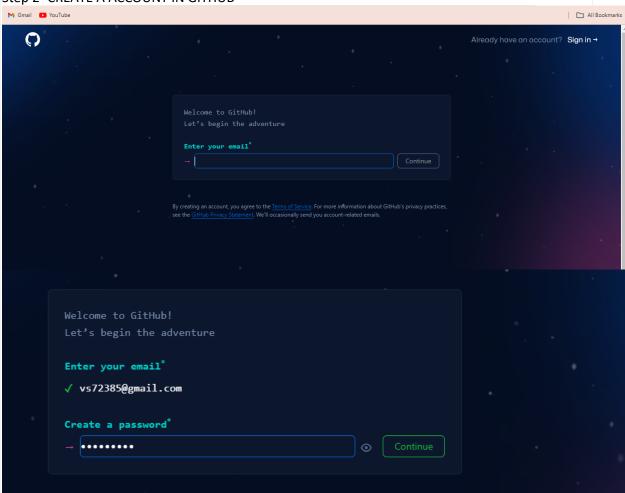


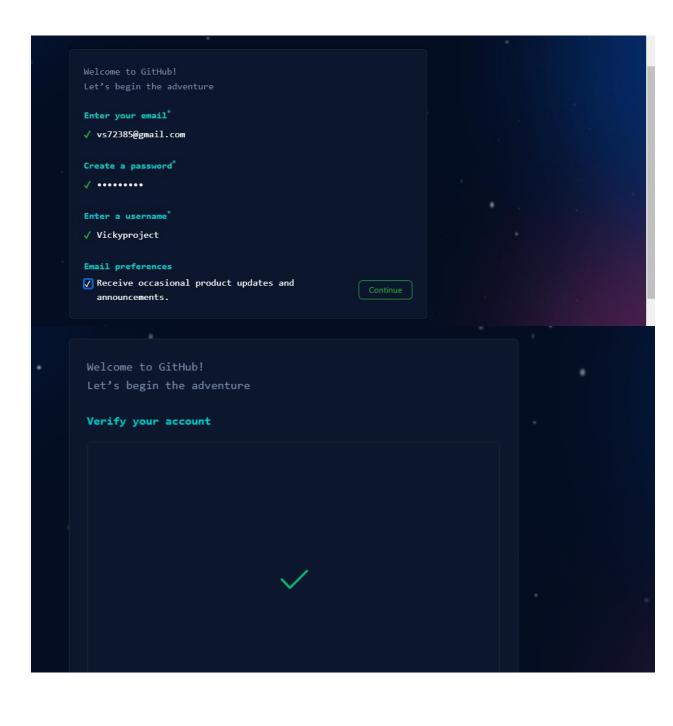
Install python debugger extension to get your output



#### SAVE THESE TO LOCAL REPOSITORY

Step 2- CREATE A ACCOUNT IN GITHUB





# Unlock advanced features with GitHub Team or cor

## **Free**

- > Unlimited public/private repositories
- > 2,000 CI/CD minutes/month

Free for public repositories

> 500MB of Packages storage

Free for public repositories

- > 120 core-hours of Codespaces compute
- > 15GB of Codespaces storage
- > Community support





Dashboard

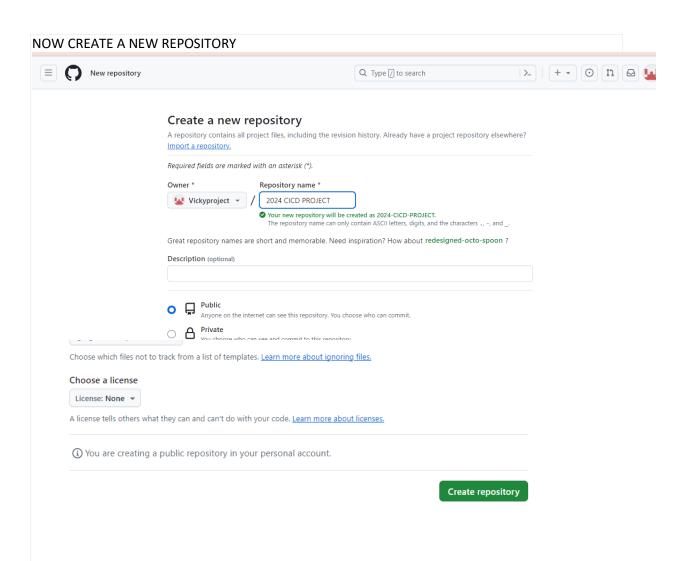
#### Create your first project

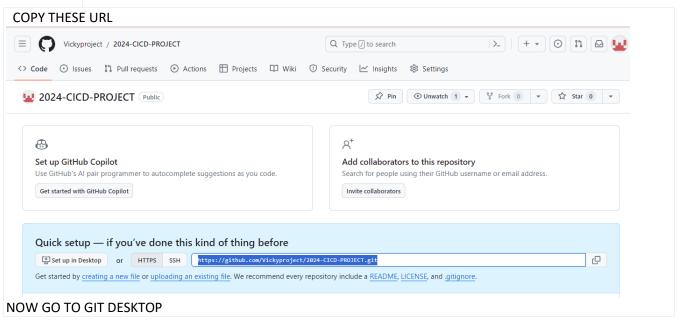
Ready to start building? Create a repository for a new idea or bring over an existing repository to keep contributing to it.

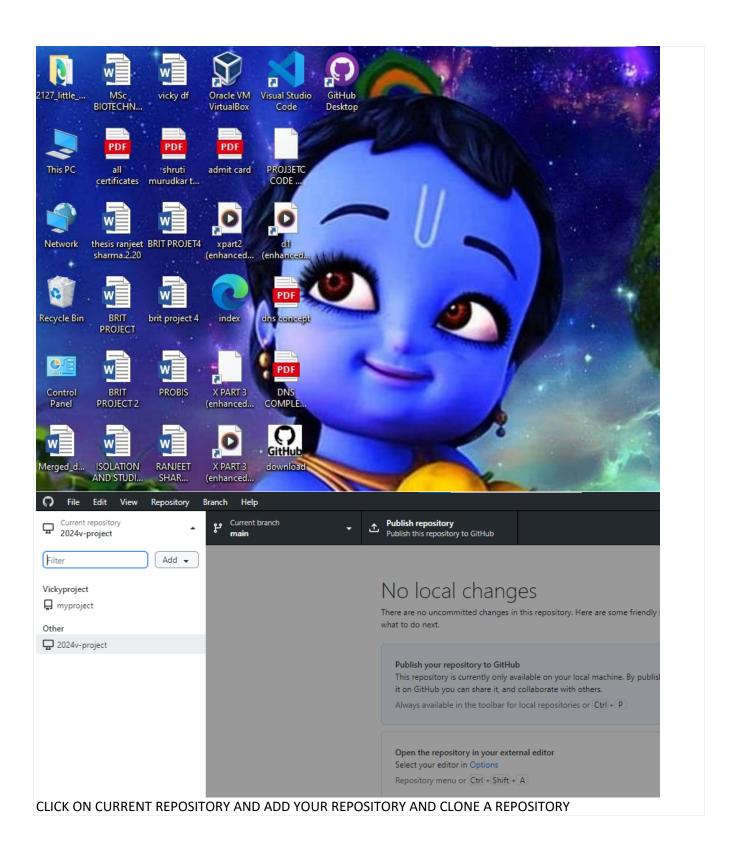
Create repository

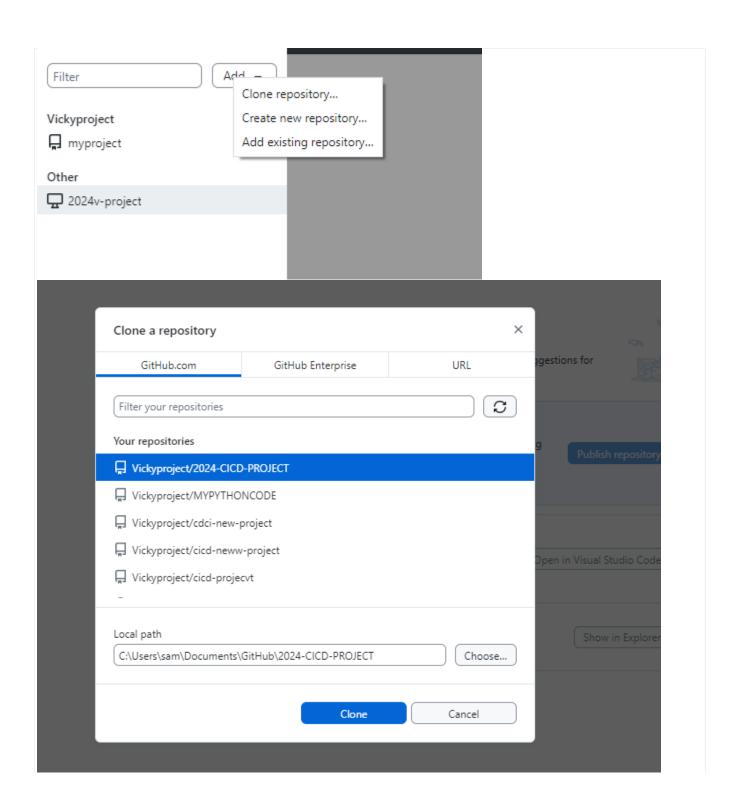
Import repository

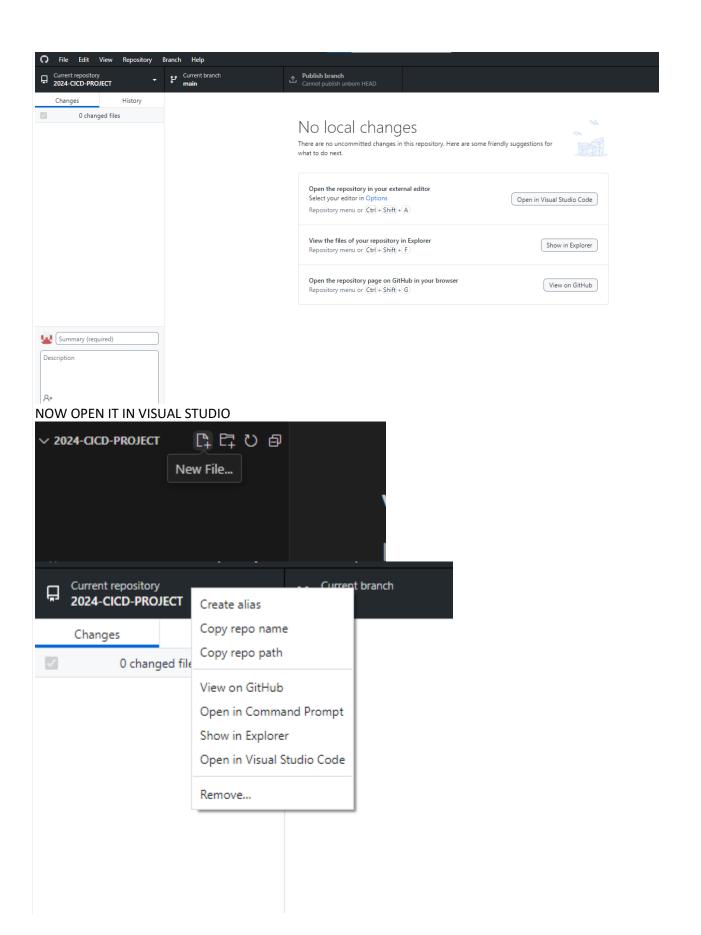
Recent activity

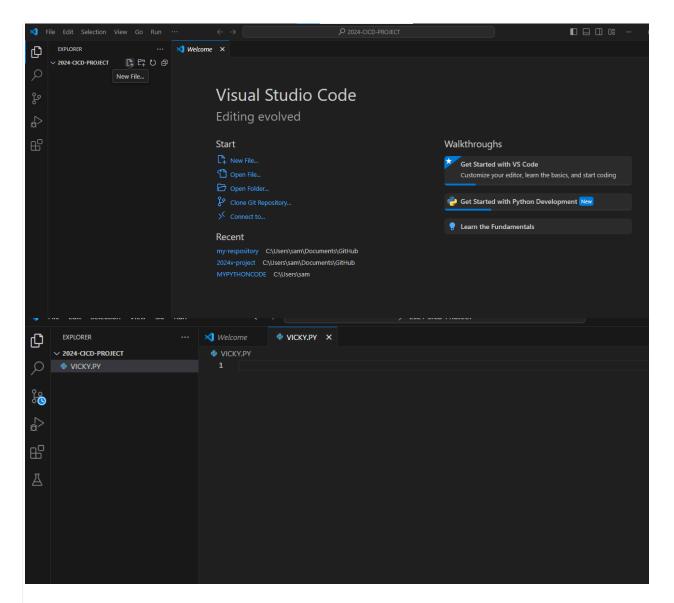




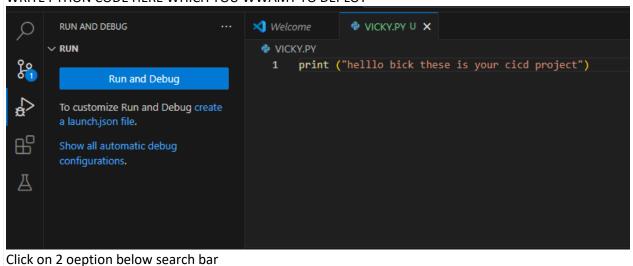


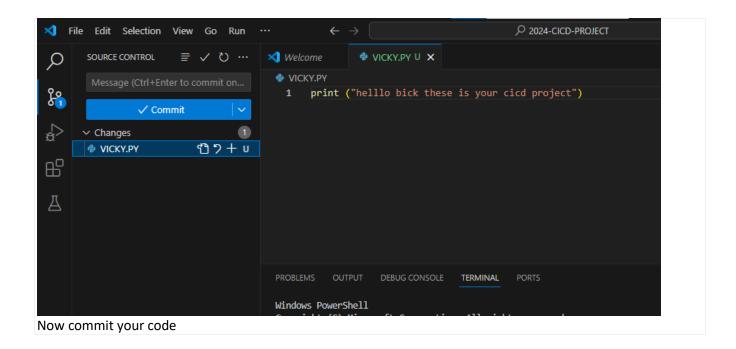


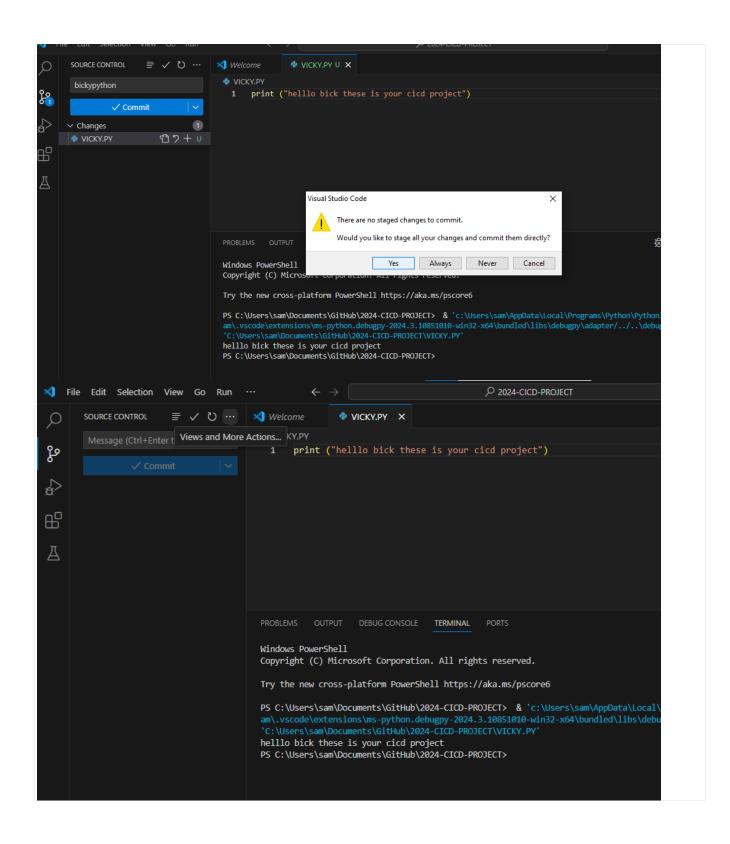


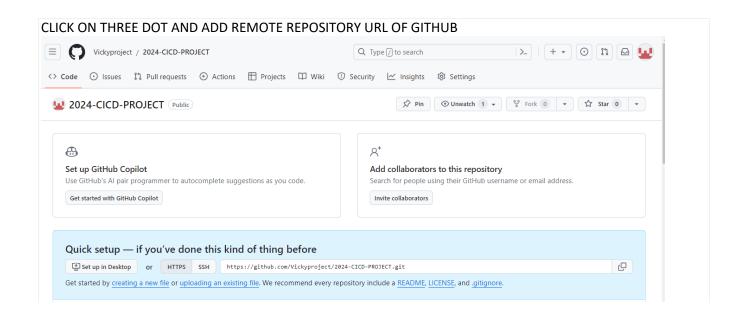


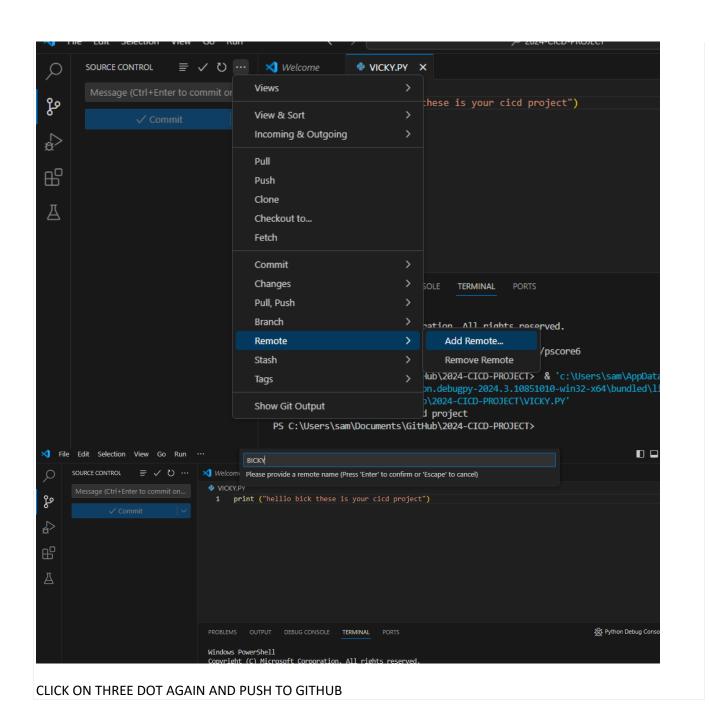
#### WRITE PYHON CODE HERE WHICH YOU WWAMT TO DEPLOY

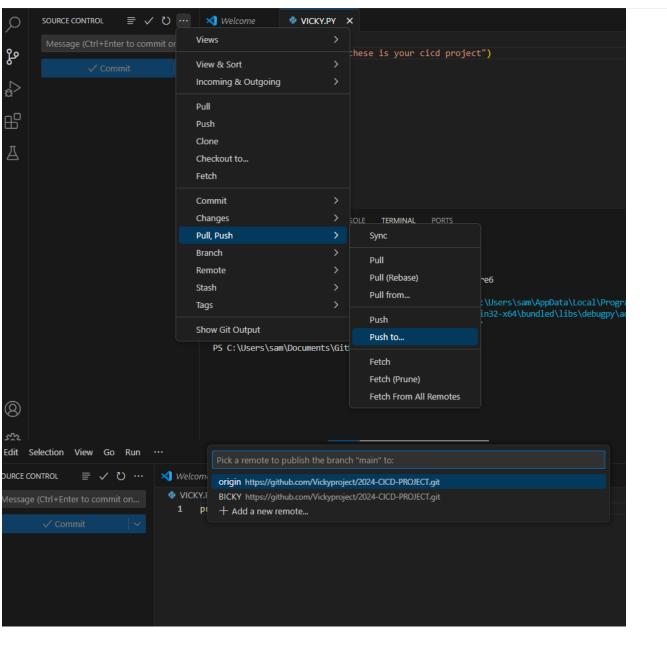




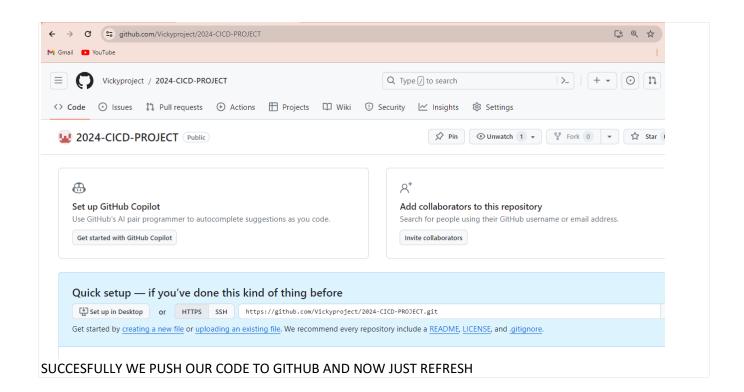


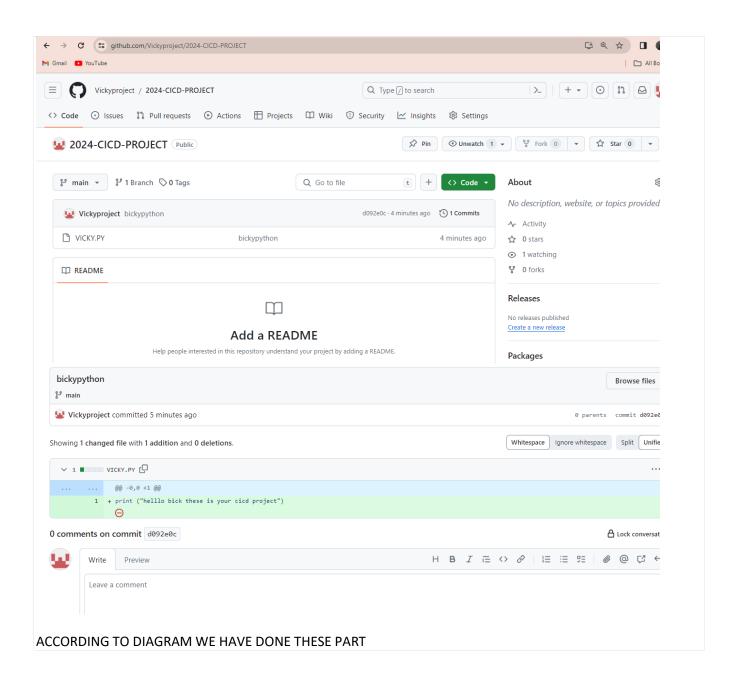


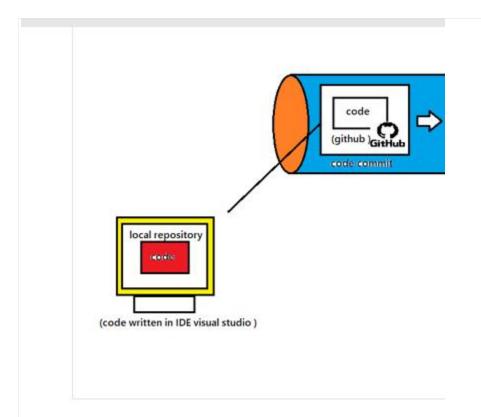




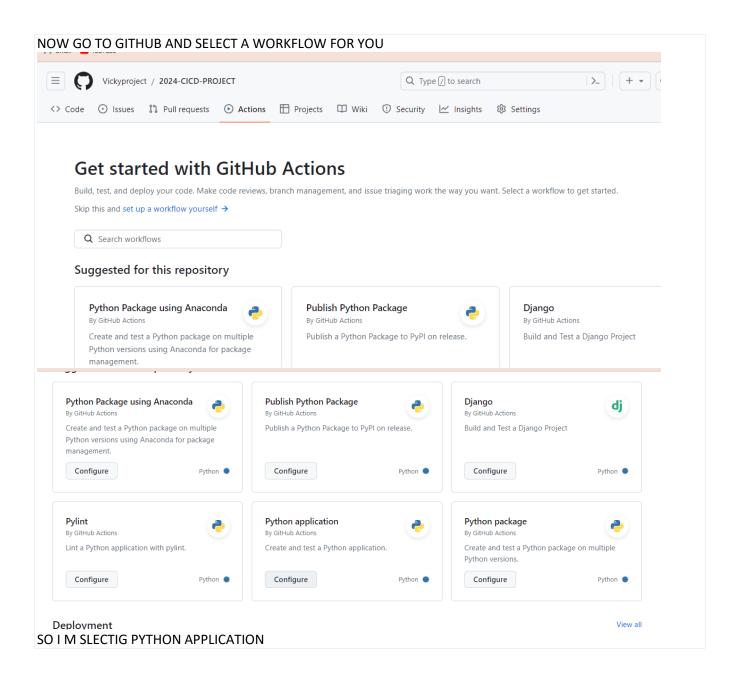
SELECT YPOUR REMOTE REPOSITORY



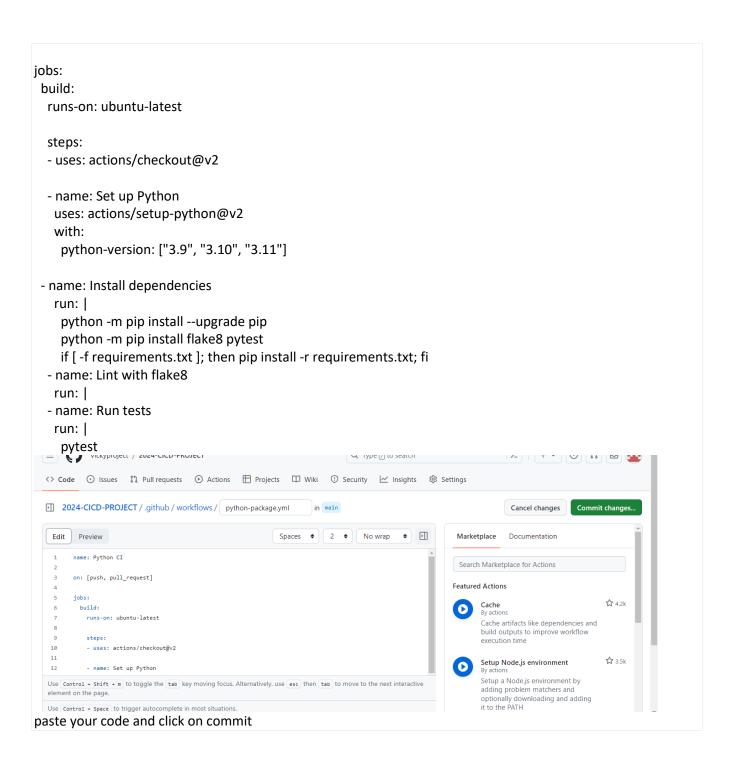


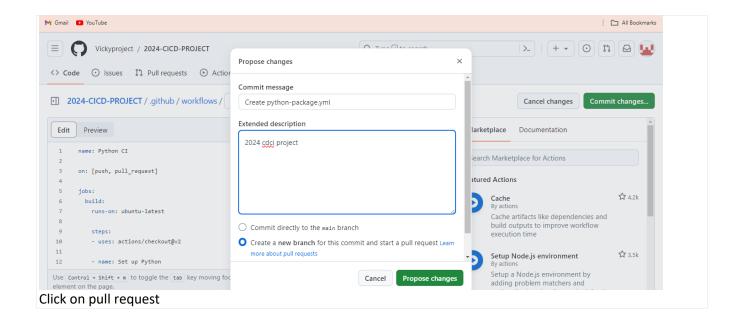


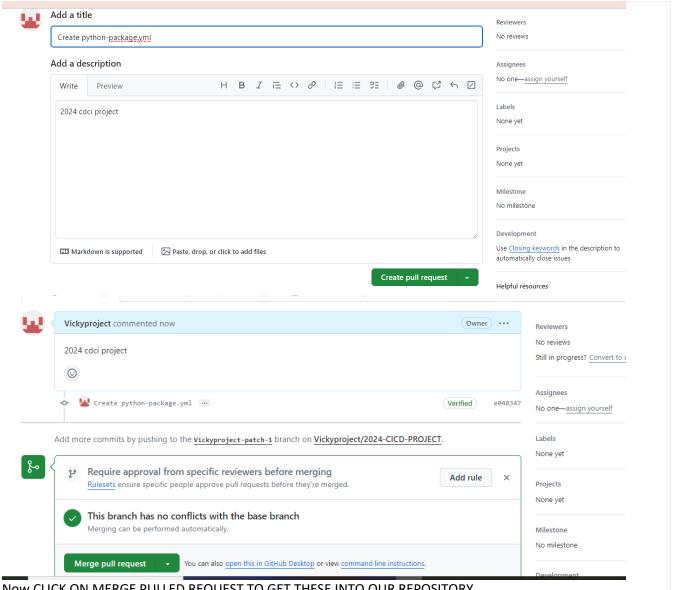
NOW STEP 2- CODE COMMIT TO BUILD CODE , TESTING AND COMPILING



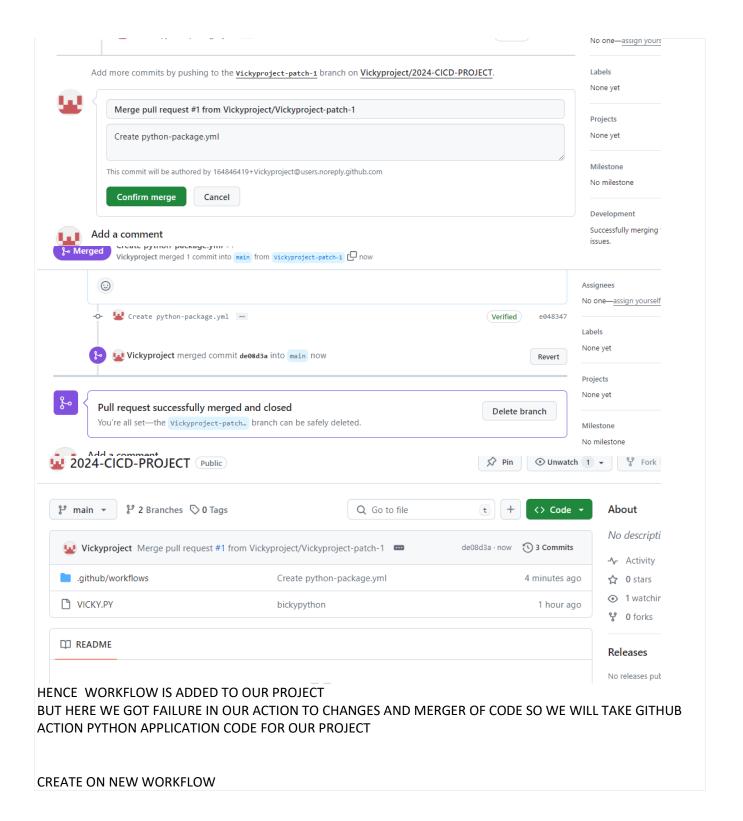
```
2024-CICD-PROJECT / .github / workflows / python-app.yml
                                                                         in main
   Edit
          Preview
                                                                       Spaces ♦
                                                                                              No wrap
         \sharp This workflow will install Python dependencies, run tests and lint with a single version of Python
    1
         # For more information see: https://docs.github.com/en/actions/automating-builds-and-tests/building-and-testing-pyt
   2
         name: Python application
            branches: [ "main" ]
          pull_request:
            branches: [ "main" ]
   10
   11
   12
         permissions:
  Use Control + Shift + m to toggle the tab key moving focus. Alternatively, use esc then tab to move to the next interactive element
  on the page.
 Use Control + Space to trigger autocomplete in most situations
Basically for python code hello world I used chatgpt and github action combination and prepare a yml file
*Untitled - Notepad
File Edit Format View Help
name: Python CI
on: [push, pull_request]
jobs:
  build:
     runs-on: ubuntu-latest
     steps:
     - uses: actions/checkout@v2
     - name: Set up Python
       uses: actions/setup-python@v2
         python-version: ["3.9", "3.10", "3.11"]
   - name: Install dependencies
       run:
         python -m pip install --upgrade pip
         python -m pip install flake8 pytest
         if [ -f requirements.txt ]; then pip install -r requirements.txt; fi
     - name: Lint with flake8
       run:
     - name: Run tests
       run:
         pytest
Code-name: Python CI
on: [push, pull_request]
```

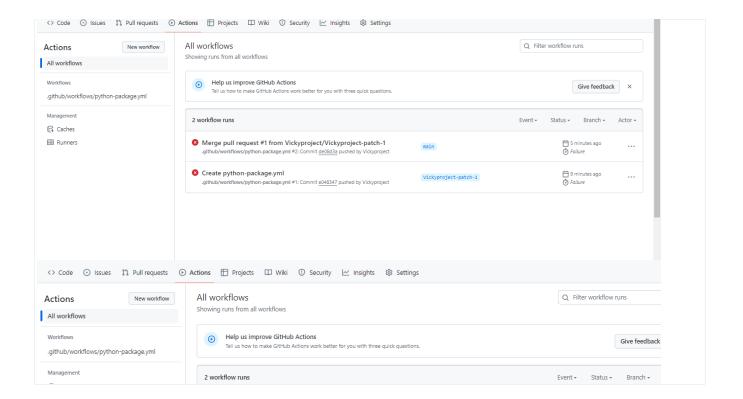


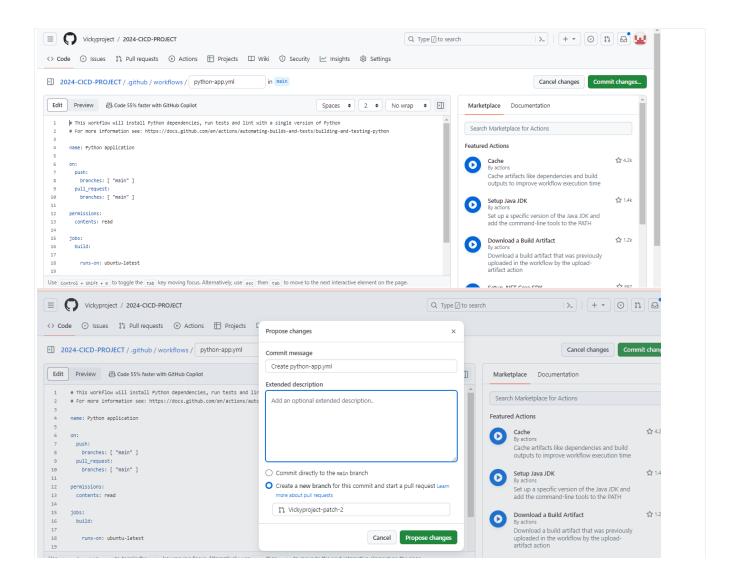


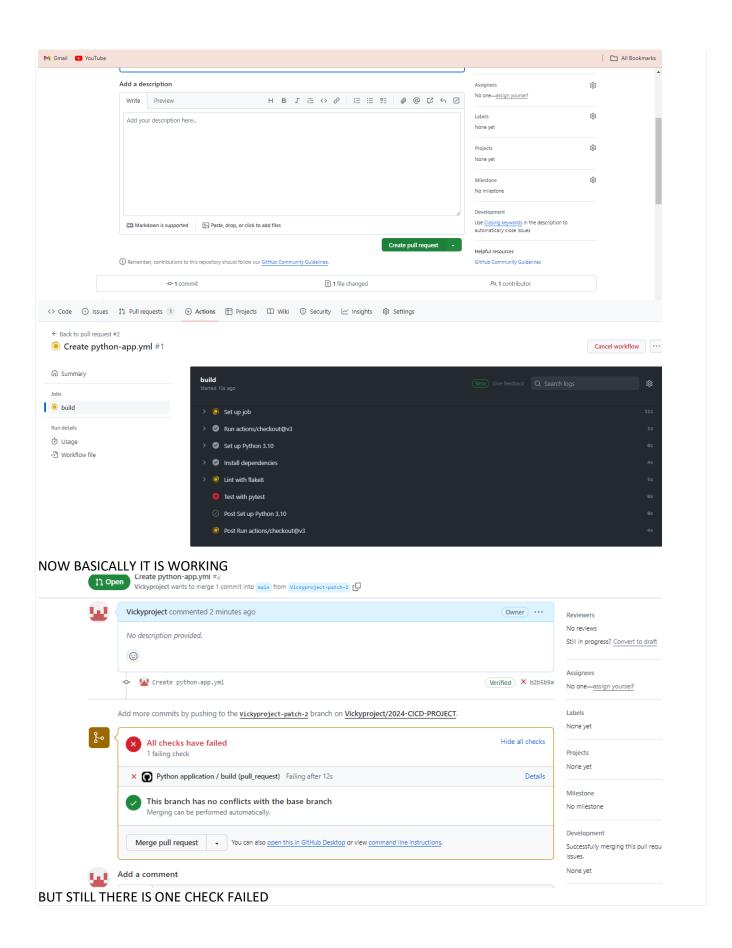


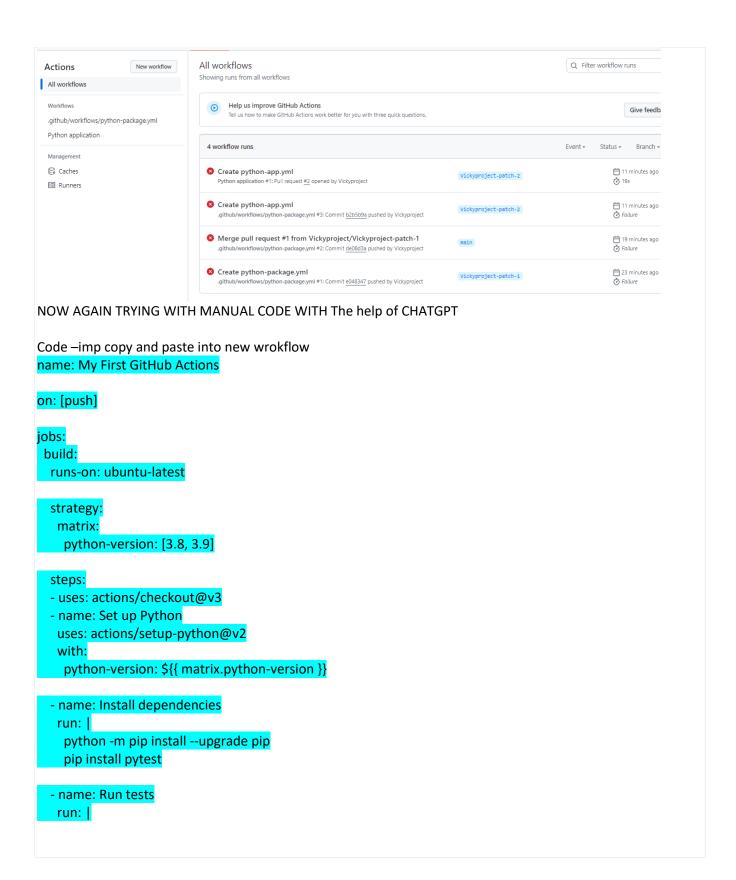
Now CLICK ON MERGE PULLED REQUEST TO GET THESE INTO OUR REPOSITORY

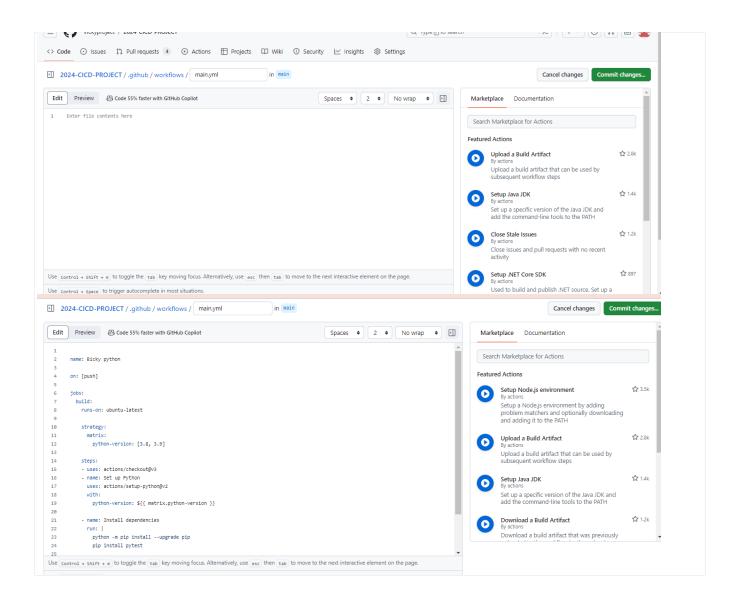


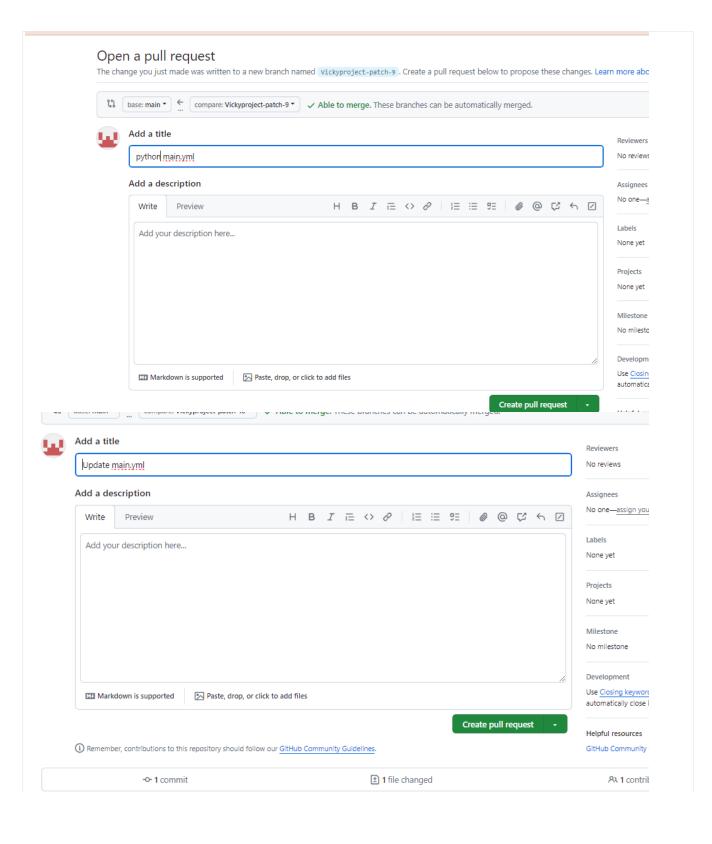


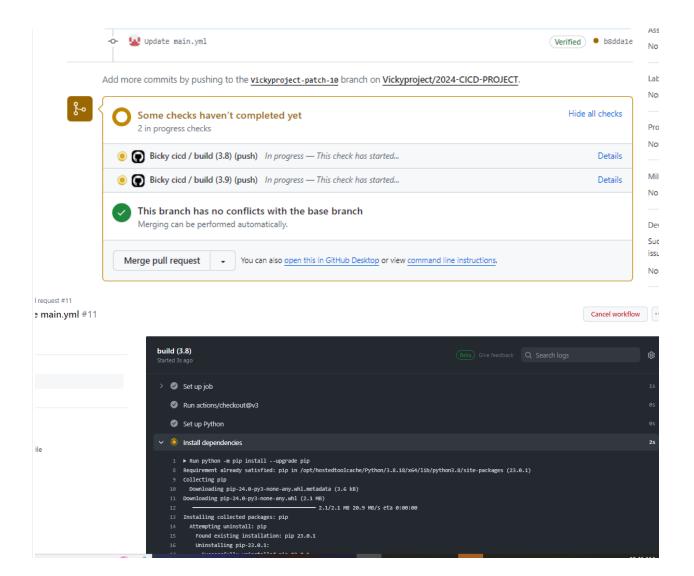


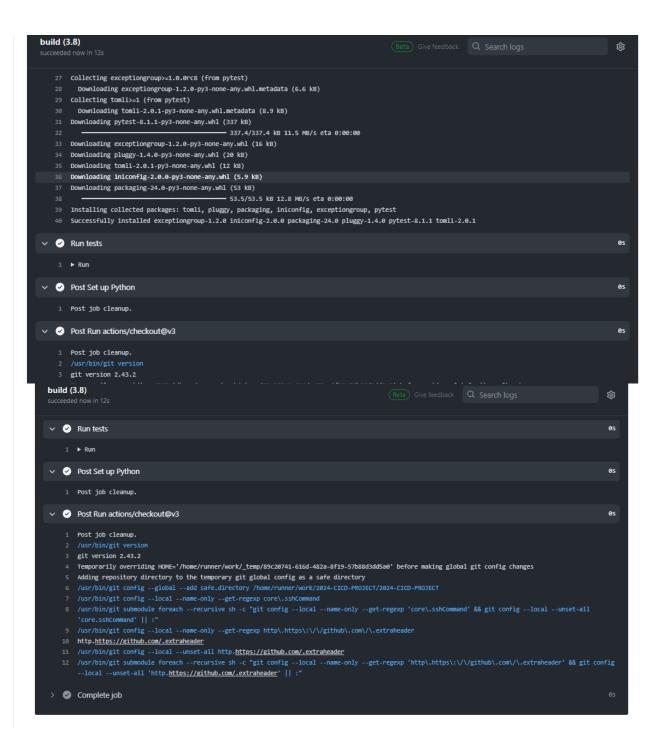


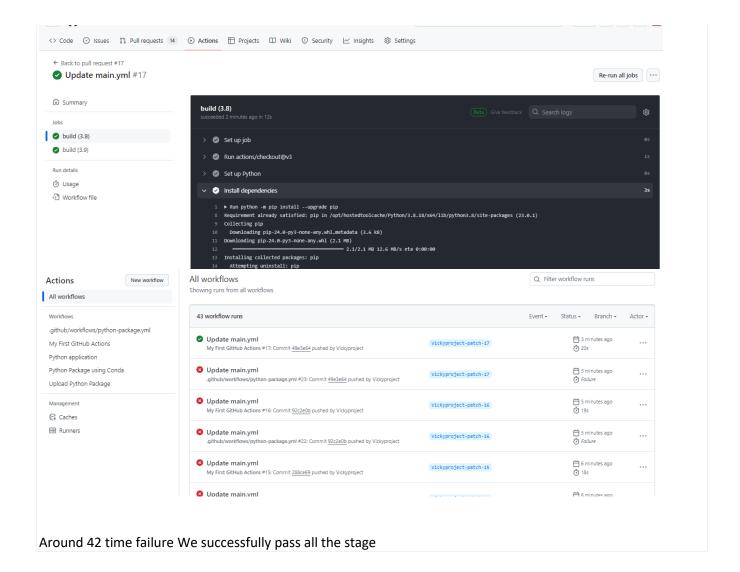


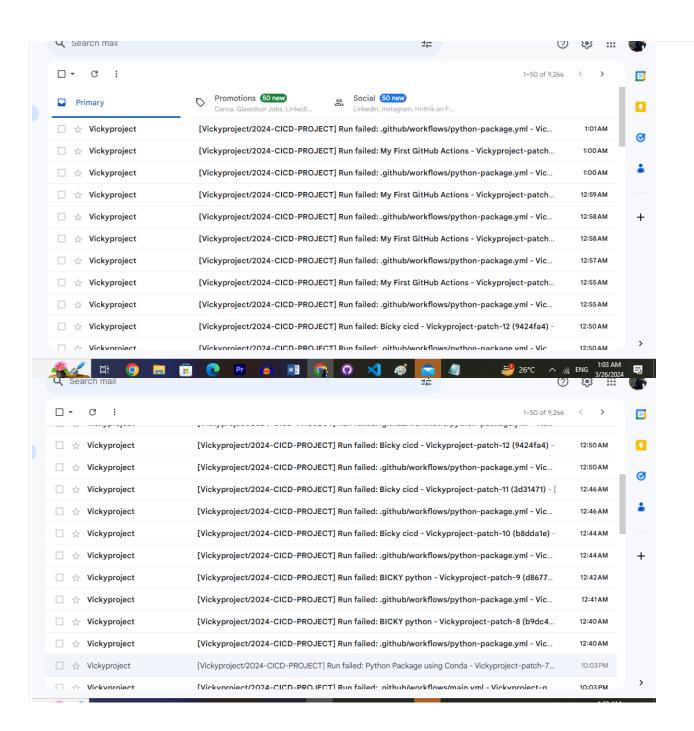












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