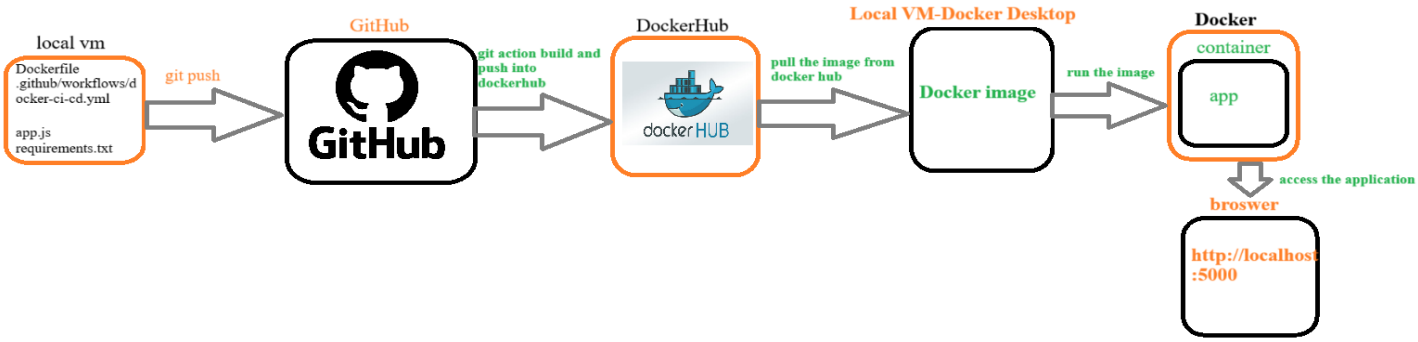
CI/CD Pipeline with GitHub Actions & Docker

Tools

- GitHub Action (CI/CD)
- Docker and DockerHub (Image build and push)
- Local VM or Minikube

Overview:



Step-by-Step Process:

1. **Create Your Application:**

- app.js (python-flask-app)

```
from flask import Flask
import os
app = Flask(__name__)
@app.route("/")
def hello():
    return "Flask sample application!!"
if __name__ == "__main__":
    port = int(os.environ.get("PORT", 5000))
    app.run(debug=True,host='0.0.0.0',port=port)
```

- **requirements.txt:**

```
flask
```

- **Dockerfile:**

```
FROM python:3.6
MAINTAINER veera "Ramakrishna"
COPY . /app
WORKDIR /app
RUN pip install -r requirements.txt
#ENTRYPOINT ["python"]
EXPOSE 5000
CMD ["python", "app.py"]
```

2. **Create GitHub Actions Workflow --- .github/workflows/docker-ci-cd.yml**

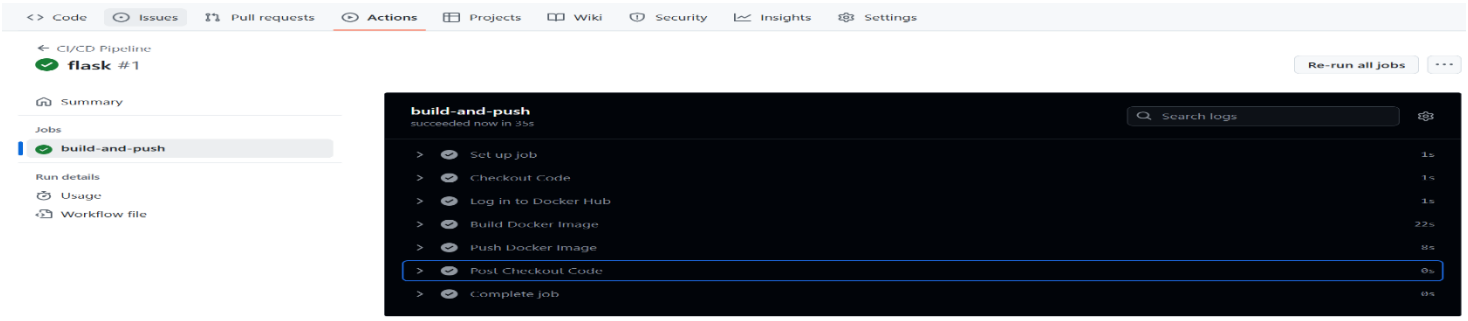
```
name: CI/CD Pipeline

on:

  push:

    branches: [main]

jobs:
```

```
build-and-push:
  runs-on: ubuntu-latest
  steps:
  - name: Checkout Code
    uses: actions/checkout@v3
  - name: Log in to Docker Hub
    run: echo "${{ secrets.DOCKER_PASSWORD }}" | docker login -u "${{ secrets.DOCKER_USERNAME }}" --password-stdin
  - name: Build Docker Image
    run: docker build -t ${{ secrets.DOCKER_USERNAME }}/myapp:latest .
  - name: Push Docker Image
    run: docker push ${{ secrets.DOCKER_USERNAME }}/myapp:latest
```

Set GitHub Secrets:

- DOCKER_USERNAME
- DOCKER_PASSWORD

3. **Push Code to GitHub Repo**



Name	Last Pushed	Contains	Visibility
ramakrishnaragi/python-flask-app	6 minutes ago	IMAGE	Public

4. **Pull & Run Docker Image:**
   - **docker pull your-docker-username/myapp:latest -----** https://hub.docker.com/repository/docker/ramakrishnaragi/python-flask-app/tags/latest/sha256:d7fe0f422c9e6e427f89f571beb7e6664a5d61bd721de223d86a943abbeed754 (docker hub link)
   - **docker run -p 5000:5000 your-docker-username/myapp:latest**

```
CONTAINER ID   IMAGE                                 COMMAND           CREATED          STATUS          PORTS                                       NAME
S
7ed66af00bb3   ramakrishnaragi/python-flask-app:latest   "python app.py"   36 minutes ago   Up 36 minutes   0.0.0.0:5000->5000/tcp, :::5000->5000/tcp   cran
ky_gould
```