



Beginner Exercise: Build a GitHub Actions Pipeline with Python, pytest, and Heroku Deployment



Goal

Create a **GitHub Actions** pipeline based on the following requirements. The pipeline will:

1. Set up **Python 3.9**.
 2. Install **dependencies** using `pip`.
 3. Run **tests** using `pytest`.
 4. Deploy the application to **Heroku**.
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Requirements

1. Trigger: Manual Workflow

- The pipeline must **only run manually** using the `workflow_dispatch` trigger. This means the workflow will only be triggered when manually started from the GitHub web interface.

2. Jobs and Steps

Job 1: Build and Test the Application

- **Runs on** `ubuntu-latest`.
- **Step 1:** Checkout the repository using `actions/checkout@v4`.
- **Step 2:** Set up **Python 3.9** using `actions/setup-python@v4`.
- **Step 3:** Install dependencies using `pip install -r requirements.txt`.
- **Step 4:** Run **tests** using `pytest`.

Job 2: Deploy to Heroku

- **Runs on** `ubuntu-latest`.
 - **Step 1:** Checkout the repository using `actions/checkout@v4`.
 - **Step 2:** Deploy the application to **Heroku** using `akhileshns/heroku-deploy@v3.12.12`.
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Commands and Actions to Use

Here are the **specific actions** and **commands** you need to use for each step:

Job 1: Build and Test

1. Checkout Repository Code

Use `actions/checkout@v4` to get your repository code into the GitHub runner.

```
- name: Checkout code
  uses: actions/checkout@v4
```

2. Set up Python 3.9

Use `actions/setup-python@v4` to set up **Python 3.9**.

```
- name: Set up Python 3.9
  uses: actions/setup-python@v4
  with:
    python-version: '3.9'
```

3. Install Dependencies

Use `pip install -r requirements.txt` to install the necessary dependencies listed in `requirements.txt`.

```
- name: Install dependencies
  run: pip install -r requirements.txt
```

4. Run Tests with pytest

Use `pytest` to run the tests. The `|| true` ensures that the pipeline will **not fail** even if some tests fail (this is optional depending on your needs).

```
- name: Run tests
  run: pytest || true
```

Job 2: Deploy to Heroku

1. Checkout Repository Code

Again, use `actions/checkout@v4` to get your repository code for the deployment.

```
- name: Checkout code
  uses: actions/checkout@v4
```

2. Deploy to Heroku

Use `akhilshns/heroku-deploy@v3.12.12` to deploy the application to Heroku.

```
- name: Deploy to Heroku
  uses: akhileshns/heroku-deploy@v3.12.12
  with:
    heroku_api_key: ${ secrets.HEROKU_API_KEY }
    heroku_app_name: "your-app-name-here"
```

Ensure that you have the `HEROKU_API_KEY` stored as a **secret** in your repository settings. Replace `"your-app-name-here"` with the actual name of your Heroku application.