DevOps Workshop Report

Attended By: Mohd Asad Alam
Course: B.Sc. IT (3rd Year, Batch–2)
Topic: GitHub & AWS EC2 – CI/CD Pipeline Implementation

1. Objective of the Workshop

The purpose of this DevOps workshop was to learn how to:
• Push local code to a GitHub repository
• Create and manage AWS EC2 instances
• Configure GitHub Action Secrets for automation
• Understand and resolve CI/CD pipeline issues

2. Pushing Local Code to GitHub (Remote Repository)

Steps:
• Open your GitHub Account.
• Create a new Repository.
• Copy the repository HTTPS/SSH URL.
• Ensure Git Bash is installed in your system.

Git Commands for Uploading Code

Command	Description
git clone <repo_url>	Clone the repository to your local system
git status	Check current file status
git add .	Add all modified files to staging
git commit -m '<message>'	Commit your changes with a message
git push	Push committed changes to GitHub

3. Creating an AWS EC2 Instance

• Log in to your AWS Console.
• Search for EC2 Service in the search bar.
• Click on EC2 Virtual Server.
• Click Launch Instance.
• Enter the name of your server.
• Select the Operating System → Ubuntu (for this workshop).
• Choose Amazon Machine Image (AMI) → Default option.
• Select Instance Type → Default option.

• Configure Key Pair (Login): create or use existing.
• Allow SSH, HTTP, and HTTPS traffic in network settings.
• Download the .pem file and launch the instance.

4. Adding GitHub Action Secret Codes

Steps to Add Secrets:

Secret Name	Value	Description
EC2_HOST	Public IPv4 Address	Available in AWS Instance Details
EC2_USER	ubuntu	Default user for Ubuntu instances
EC2_SSH_KEY	PEM file content	Copy and paste entire .pem file text

5. Common CI/CD Pipeline Issues and Fixes

Issue	Cause	Solution
Unnecessary branches in workflow	Multiple branches specified	Keep only the main branch in main.yaml
Missing Python version in server	Python not pre-installed	Install manually using apt commands

YAML Configuration Example:

```
on:
  push:
    branches:
      - main
workflow_dispatch: {}
```

Commands to Install Python:

```
sudo apt update
sudo apt install python3.12-venv
```

6. Final CI/CD Setup Verification

Steps to Test Deployment:
• Make small code changes in your local project.
• Push changes to GitHub using the commands learned.
• Open GitHub → Actions Tab.
• Monitor the deployment workflow and confirm success.

7. Key Learnings from the Workshop

• Understood version control using Git and GitHub.
• Learned to deploy code using AWS EC2 instances.
• Configured GitHub Actions for automation.

• Learned to troubleshoot CI/CD errors effectively.

8. Conclusion

This DevOps Workshop provided valuable practical exposure to real-world DevOps tools like Git, GitHub, and AWS. It helped in understanding end-to-end automation — from local code management to continuous deployment using CI/CD pipelines.

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