

**COMSATS University Islamabad**

**Attock Campus**

**Program: BS**

**Spring 2025 Semester Project**

**DevOps**

**May 5, 2025 Total Marks: (25)**

**Last Date: June 16, 2025**

**Objective:**

The objective of this assignment is to provide undergraduate students with hands-on experience in building a Jenkins CI/CD (Continuous Integration/Continuous Delivery) pipeline and deploying an application on an AWS EC2 instance.

**Requirements:**

1. Set up a Git Repository: Students should create a Git repository for their project. They can use an existing project or create a simple application to demonstrate the CI/CD pipeline. Create an AWS EC2 Instance: See the attached video tutorial for step-by-step guide to create an AWS EC2 instance to serve as the deployment target. You have to configure the necessary security groups, key pairs, and networking settings.
2. Configure AWS Credentials in Jenkins: Students should configure AWS credentials in Jenkins to enable interactions with the AWS services. This can be done by following the instructions in the attached video as well.
3. Create a Jenkins Job: Create a Jenkins job that defines the CI/CD pipeline. The job should include the following steps:
   * Pull the latest code from the Git repository.
   * Build the project.
   * Run any required tests.
   * Package the application, if applicable.
   * Deploy the application to the AWS EC2 instance.
4. Trigger Jenkins Job: Configure the Jenkins job to be triggered automatically whenever a new commit is pushed to the Git repository.
5. Documentation: Students should document the process of setting up the Jenkins CI/CD pipeline and deploying the application on an AWS EC2 instance. The documentation should include step-by-step instructions, screenshots, and any issues encountered during the setup.

**Deliverables:**

Jenkins CI/CD pipeline configured for application deployment on AWS EC2.

Documentation describing the setup process.

**Evaluation Criteria:**

Successful setup of the Jenkins CI/CD pipeline and AWS EC2 deployment (50%)

Proper configuration of Git trigger and AWS credentials in Jenkins (25%)

Documentation quality and clarity (25%)