**Project 01**

#### **Problem Statement:**

You are tasked with setting up a CI/CD pipeline using Jenkins to streamline the deployment process of a simple Java application. The pipeline should accomplish the following tasks:

1. **Fetch the Dockerfile**: The pipeline should clone a GitHub repository containing the source code of the Java application and a Dockerfile.
2. **Create a Docker Image**: The pipeline should build a Docker image from the fetched Dockerfile.
3. **Push the Docker Image**: The pipeline should push the created Docker image to a specified DockerHub repository.
4. **Deploy the Container**: The pipeline should deploy a container using the pushed Docker image.

#### **Deliverables:**

1. **GitHub Repository**: A GitHub repository containing:
   * The source code of a simple Java application.
   * A Dockerfile for building the Docker image.
2. **Jenkins Pipeline Script**: A Jenkinsfile (pipeline script) that:
   * Clones the GitHub repository.
   * Builds the Docker image.
   * Pushes the Docker image to DockerHub.
   * Deploys a container using the pushed image.
3. **DockerHub Repository**: A DockerHub repository where the Docker images will be stored.
4. **Jenkins Setup**:
   * Jenkins installed and configured on a local Ubuntu machine.
   * Required plugins installed (e.g., Git, Docker, Pipeline).
5. **Documentation**: Detailed documentation explaining:
   * How to set up the local Jenkins environment.
   * Configuration steps for the pipeline.
   * Instructions for verifying the deployment.









