**ASSIGNMENT 2**

**CI/CD Pipeline Setup Using Jenkins**

**Task Description:**

This task involves setting up a Continuous Integration and Continuous Deployment (CI/CD) pipeline using Jenkins to automate the build, test, and push process of a containerized web application. The pipeline integrates GitHub for source code management, Docker for containerization, and a container registry (such as Docker Hub) for storing the container image.

**Steps to Set Up the CI/CD Pipeline:**

1. **Install Jenkins:**
   * Ensure Jenkins is running and install necessary plugins (Git, Docker).
2. **Create a New Pipeline Job:**
   * Create a new Pipeline job in Jenkins to automate the build, test, and deployment process.
3. **Configure the GitHub Repository:**
   * Link your GitHub repository to Jenkins to automatically pull the latest code.
4. **Write the Pipeline Script (Jenkinsfile):**
   * Define stages in the Jenkinsfile:
     + **Clone Repository**: Pull the latest code from GitHub.
     + **Build Docker Image**: Build the image using Docker.
     + **Push Docker Image**: Push the image to a container registry (e.g., Docker Hub).
5. **Add Docker Credentials (if needed):**
   * Add Docker credentials to Jenkins if using a private registry for authentication.
6. **Trigger the Pipeline:**
   * Trigger the pipeline manually or set up GitHub webhooks for automatic triggers on code changes.

**OUTPUT:**

