

## ✓ 1. GitHub Repository Setup:

- **Task:**
  - Create a new GitHub repository named "CloudDevOpsProject"
  - Initialize the repository with a README.
- **Deliverables:**
  - URL to the GitHub repository. <https://github.com/tarek-code/CloudDevOpsProject.git>

## ✓ 2. Containerization with Docker:

- **Task:**
  - Deliver Dockerfile for building the application image.
  - Find the source code from: <https://github.com/Ibrahim-Adel15/FinalProject.git>
- **Deliverables:**
  - Dockerfile is committed to the repository.

## ✓ 3. Container Orchestration with kubernetes:

- **Task:**
  - Setup Kubernetes cluster.
  - Create iVolve namespace.
  - Configure Deployment, service for the application.
- **Deliverables:**
  - Required YAML files are committed to the repository.

## ✓ 4. Infrastructure Provisioning with Terraform:

- **Task:**
  - Deliver Terraform scripts for AWS resource provisioning:
    - VPC, public subnets, IGW, and Network ACL.
    - EC2 instances for Jenkins with Security Groups.
    - Use S3 Terraform Backend state.
    - Integrate CloudWatch for monitoring EC2.
    - Use Terraform Modules (Network, Server).
- **Deliverables:**
  - Terraform scripts are committed to the repository.

## **5. Configuration Management with Ansible:**

- **Task:**

- Deliver Ansible playbooks for EC2 instance configuration:
  - Install the required packages (e.g., Git, Docker, Java).
  - Install Jenkins.
  - Use Ansible roles.
  - Use Dynamic Inventory.

- **Deliverables:**

- Ansible modules and inventory are committed to the repository.

## **6. Continuous Integration with Jenkins:**

- **Task:**

- Deliver Jenkins pipeline configuration in Jenkinsfile:
  - Stages: Build Image, Scan Image, Push Image, Delete Image Locally, Update Manifests, Push Manifests.
  - Use Shared Library.

- **Deliverables:**

- Jenkins file is committed to the repository.
- Shared library directory (vars) is committed to the repository.

## **7. Continuous Deployment with ArgoCD:**

- **Task:**

- Configure ArgoCD to sync and deploy your app into cluster.

- **Deliverables:**

- ArgoCD Application is committed to the repository.

## **8. Documentation:**

- **Task:**

- Deliver comprehensive documentation:
  - Setup instructions.
  - Architecture overview.