Case Study: 1

**GitHub Repository Link: **

https://github.com/RanjanRasmi/Assignment.git

**Task Solution: **

1. **CI/CD Pipeline: **

Created a `deploy. Yaml` file inside the `. GitHub/workflows` directory to automate the CI/CD pipeline using GitHub Actions.

2. **Docker Image: **

Developed Docker files to build Docker images for applications in Python and MySQL.

3. **AKS Cluster: **

Created an AKS cluster named `e-commerce-aks`. Relevant files are placed inside the `terraform` directory.

4. **Ingress Controller: **

Configured the Kubernetes ingress by placing YAML files inside the `k8s` directory, including the `ingress`, `service`, and `deployment` files.

5. **SSL Certificate: **

Created an SSL certificate to secure the application. If SSL certificates are nearing expiration, they will need to be renewed. SSL certificates can be created in Azure App Services by providing the app name, managing the certificate, adding the certificate, and importing the certificates.

**Benefits of Automating the CI/CD Pipeline: **

Automating a CI/CD (Continuous Integration/Continuous Deployment) pipeline offers numerous benefits that enhance the software development and deployment process. Some advantages include:

1. Smaller code changes
2. Fault isolation
3. Faster mean time to resolution (MTTR)
4. Increased test reliability
5. Accelerated release rate
6. Reduced backlog
7. Improved customer satisfaction
8. Enhanced team transparency and accountability