**DevOps Assignment - CI/CD Pipeline for Bookstore Repository**

**Objective:**

Implement a comprehensive CI/CD pipeline for the Bookstore repository, deploying the application on an Amazon ECS cluster with EC2 instances. Utilize Amazon RDS for the PostgreSQL database, configure autoscaling, set up CloudWatch Alarms, secure sensitive information using Secrets Manager, and ensure HTTPS for the application.

**Project Steps:**

1. **Repository Forking:**

* Forked the Bookstore repository to initiate project work.

1. **GitHub Actions Setup:**

* Created GitHub Actions workflow in the forked repository to:
  + Build the application.
  + Run tests.
  + Build a Docker image.
  + Push the Docker image to AWS ECR.
  + Infrastructure Provisioning:

1. **Developed Terraform scripts to provision:**

* Amazon ECS cluster with EC2 instances.
  + Amazon RDS instance for PostgreSQL.
  + Necessary IAM roles and security groups.

1. **Autoscaling Configuration:**

* Set up autoscaling on the ECS cluster:
  + Scale up if CPU usage exceeds 60% for more than 5 minutes.
  + Scale down if CPU usage stays below 40% for 20 minutes.

1. **CloudWatch Alarm:**

* Configured a CloudWatch Alarm to notify on CPU usage surpassing 60% for more than 20 minutes, even after scaling up.

1. **Secrets Manager Integration:**

* Stored the PostgreSQL connection string securely in AWS Secrets Manager.
* Configured the web application to retrieve the connection string.

1. **Application Deployment:**

* Updated the GitHub Actions workflow to automate the deployment of the Docker image to the ECS cluster.

1. **Pull Request Submission:**

* Submitted a pull request to the original repository with a detailed description of the implemented CI/CD pipeline and infrastructure setup.