CC4.0 Devops Technical Assignment

This is technical assignment for Devops Engineer

Goal:

The goal of this assignment

- Test the knowledge and skills of the candidate
- Good use of time for candidates to learn from the assignment

Evaluation:

The assignment will be evaluated based on:

- Completeness and correctness of your implementation.
- Understanding of concepts and best practices.
- Efficiency and clarity of your approach.
- Documentation and communication skills.

General Guidelines:

- Feel free to use any additional tools or resources you consider helpful.
- Make sure your solution is portable and can be easily adapted to different environments.
- Focus on demonstrating your skills, not just completing the tasks in the most basic way.
- This assignment is designed to be challenging but achievable within a reasonable timeframe. Good luck!!

Assignment 1

Symbiosis is a health product manufacturing company and currently on-premises infrastructure, is eager to explore the benefits of migrating to a cloud native infrastructure especially AWS. They have outlined high-level requirements and seek your expertise in implementing requirements.

The high-level requirements are as follows:

- A private network which would best suit Symbiosis's 3-tier architecture needs. In order to meet their internal SLA's they require a highly scalable solution as well.
- Symbiosis being a B2C company, needs their applications to be accessible over the internet.
- Symbiosis aims to reduce the administrative burden of managing their database and prefer a managed and highly scalable database.
- Symbiosis encounters medium to high traffic levels daily during business hours. Given the fluctuating nature of this traffic, they are in need of a cost-effective solution that can dynamically scale to meet varying workload demands automatically.
- Symbiosis is interested in your recommendations for various metrics that can be monitored to enhance customer satisfaction.

Tasks:

- You are expected to use AWS for this assignment, with minimum cost.
- Use Terragrunt/Terraform to build the challenge using IaC
- Push the completed assignment to any public repo (Github or Gitlab)
- Host the web CRUD application from https://github.com/chapagain/nodejs-mysql-crud

Deliverables:

- A document outlining your approach and solutions for each task. Feel free to use draw.io for diagrams
- IaC file for provisioning.

Assignment 2

Symbiosis is interested in Cloud Native architecture with Kubernetes as well. You will deploy the application from the above assignment and demonstrate your understanding of deploying and managing applications in a Kubernetes environment.

Environment:

- You are expected to use a local Minikube setup for this assignment (but feel free to use other alternatives).
- You are expected to create the docker image from the https://github.com/chapagain/nodejs-mysql-crud

Tasks:

- You are expected to deploy the application, services and ingress, and with persistence volume.
- Push the completed assignment to any public repo (Github or Gitlab).

1. Bonus:
    - Implement a basic liveness/readiness probe that checks for specific content in the response.
    - Use at least one LivenessProbe or ReadinessProbe to ensure the application is healthy.
    - Describe how you would scale the application horizontally.
    - Explain your chosen approach and its benefits/drawbacks.
    - Demonstrate how you would implement CD on Kubernetes resources.
    - Demonstrate how you would implement monitoring on deployment.

Deliverables:

- A document outlining your approach and solutions for each task. Feel free to use draw.io for diagrams
- Kubernetes YAML manifests for your deployment, service, PVC/PV, Ingress (if used), and any other resources you configured.