DevOps Home Assignment

Assignment

Overview:

Your end goal is to deploy an NGINX instance that will be publicly accessible and display the text "yo this is nginx" upon access. Achieving this objective involves leveraging Terraform (or any other preferred Infrastructure as Code - IaC), Docker, and deployment using AWS resources.

Please note that everything in this assignment can be done using the free tier in AWS.

Steps:

1. **AWS Infrastructure Setup (Terraform or any other preferred IaC):**
    - Utilize Terraform or your preferred IaC tool to create an AWS infrastructure with the following components:
        - Virtual Private Cloud (VPC) featuring public and private subnets.
        - An EC2 instance **in the private subnet** for deploying the dockerized NGINX.
        - Security groups and necessary configurations for seamless communication.
        - Any additional resources required for subsequent steps.
        - Make sure you have security in mind when designing the architecture.
2. **Docker Containerization:**
    - Dockerize NGINX and configure it to respond with the text "yo this is nginx" upon access.
    - Ensure that the Dockerized NGINX can run locally on your machine.
3. **Public Access:**
    - Verify that accessing the instance from a browser returns the text "yo this is nginx." (remember that the instance should be deployed in the private subnet but the application should be accessible from the public).
4. **One Click Installation:**
    - Hitting `terraform apply` should take care of setting up all of the resources, installations and deployment needed for you to be able to access the dockerized NGINX instance from the browser.
5. **Documentation:**
    - Provide clear and concise documentation detailing the setup, deployment process, and any pertinent deployment diagrams.
    - Include instructions on executing the Terraform code and launching the application.

Bonus Step: Add a GitHub Workflow for Deployment

1. **GitHub Workflow:**
    - Implement a GitHub Actions workflow to automate the deployment of the NGINX instance.
    - Set up a workflow that triggers on pushes to specific branches (e.g., `main`, `develop`) and performs the deployment steps using Terraform.
    - Ensure the workflow is well-documented within your repository.

Submission:

Please submit the following:

1. A deployed instance of the application accessible from the public.
2. All infrastructure code and resources consolidated in a single repository (GitHub link).
3. Documentation elucidating the setup, deployment steps, and additional notes, along with diagrams.
4. **Bonus:** GitHub Actions workflow for automated deployment.

Evaluation Criteria:

1. **Correctness:**
    - Verification of functionality.
2. **Elegance / Simplicity / Maintainability of Code:**
    - Assessment of the simplicity and maintainability of your solution.
3. **Security:**
    - Security assessment of your architecture.
4. **Documentation:**
    - Evaluation of the clarity and comprehensiveness of the documentation.