DevOps Assignment

1. In the provided "app" directory, you'll find a small NodeJS application that includes both backend and frontend source code.

2. Review the provided source files.

3. The backend requires NodeJS to run.

4. Create a Vagrantfile that sets up a RockyLinux virtual machine (using VirtualBox—ensure VirtualBox is installed on your system).

5. The Vagrant automation should perform the following tasks:

    a. Build and containerize the NodeJS app using Google's Bazel build tool (https://bazel.build/), ensuring that a single target builds both the source code and the container

    b. Set up a single-node k3s cluster from Rancher Labs.

    c. Create a Helm chart to deploy the containerized application.

    d. Serve the application frontend securely via an ingress controller, accessible under the DNS: "nice-assignment.local".

    e. Write a Python script that generates certificates for securing access to the relevant API resources. Ensure this script runs as part of the Kubernetes infrastructure with appropriate access control.

    Hint 1: You may need to deploy a database, so thoroughly review the sources in step 2.

    Hint 2: There's a bonus if you find and fix bugs in the NodeJS code.

6. The final submission should include a PowerShell script (.ps1 file). Running this script should:

a. Set up the VM with Vagrant.

b. Build and deploy the app to k3s using Bazel.

c. Open Google Chrome and navigate to https://nice-assignment.local to display the app's frontend securely.