

# CSC 2510: DevOps

## Lab 12 – Manual Infrastructure

### General Instructions

Using your book and previous lecture material, fill out this assignment sheet. Use **RED** text to signify your answers.

### Submission Instructions

To submit, **change the name in the header** and save this document as a PDF. Attach your PDF document to the iLearn dropbox.

### Lab Instructions

1. Create a new VM called `csc-2510-apache`. Go through the same setup steps found in Lab 0, **except** also check the box for http access.
2. Create a new repository on GCP called `username-csc2510-infrastructure`, where `username` is replaced with your TN Tech username.
3. On your apache VM, do the following:
  - a. Install `python-apt` and `apache2`.
  - b. Set up your new repository in your home directory. And in this repository:
    - i. Create a folder called `config`.
    - ii. Create a folder called `site`.
    - iii. In your config folder, place a copy of **`apache.config`**. It is an apache config file that will be used to ensure we have apache configured correctly for our instance. These configurations change from project to project. It is *not* recommended that you use this config file for any other Apache project. You do not need to understand the contents of this file.
    - iv. In your site folder, place a copy of **`index.html`**. This file contains the basics of a landing page. It has some HTML. It will display a background color and the name of our site. This is *not* a recommended way to build a webpage and is only for demonstration purposes.
  - c. We now need to add a symbolic link from `/etc/apache2/mods-available/headers.load` to `/etc/apache2/mods-enabled/headers.load`.
  - d. Copy the apache config file to `/etc/apache2/apache2.conf`. When you do this, the owner and group should be root with permissions 0644.

- e. Copy the html file to `/var/www/html/index.html`. You should overwrite the existing file there. When you do this, the owner and group should be root with permissions 0644.
  - f. Finally, restart the `apache2` service using the following command: `sudo systemctl restart apache2`.
4. Go to your GCP browser window and find the VM you created today. There should be an external IP address listed. Click it and it will open a tab to your webpage. Be sure that it opens to an `http://` not `https://` link (just edit the URL if it opens to `https://`). Ensure that your webpage displays properly.
5. Make some changes to the `index.html` file. At a minimum, change text of the webpage. But feel free to make this page look like whatever you want.

## Lab Questions

1. (5) Imagine that you have to set up a more complicated version of this website. It includes several html files, some additional apache configurations, and the initializing of the required VM. Would you want to do this manually? Suppose you have to set up this website on several servers so that you can implement load-balancing. Would you want to do this manually? Explain your answers. **No, it would be better to have a script to automatically do this process, because it would take a lot of time and might make an error. If done automatically, we can save time, work, and be consistent.**