<Brian W. Lee>

ooglCSC 2510: DevOps

Lab 09 – Git Init

General Instructions

Using your book and previous lecture material, fill out this assignment sheet. **Use red text to signify your answers.** You should utilize online resources to answer these questions as well.

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. **Do not submit any scripts or files other than this PDF.**

Lab Directions

After step 4 be sure to use the following commands and be sure of their effect/use:

- `git add`
- `git push`
- `git commit`
- `git pull`
- `git status`
- `git log`

1. Create a git repository on GCP.
    a. Go to https://gitlab.csc.tntech.edu/ and login using your standard TN Tech username and password.
    b. Click 'New Project'
    c. Name your project `username-csc2510-devops`, where `username` is replaced with your TN Tech username.
    d. Click 'Create Project'.
2. Setup SSH keys
    a. Log into your GCP VM
    b. Type `ssh-keygen -t rsa -C user@gmail.com,` where `user@gmail.com` is replaced with your GCP Gmail account. Make sure to do this from your home directory.
    c. You will be prompted for several pieces of information:
        i. For 'Enter file in which to save the key', type `/home/username/.ssh/gcp_devops`
        ii. Type nothing for the remaining prompts, just hit 'Enter'

   d. Register your ssh key with your GitLab account.
      i. Go to your ssh account settings on GitLab.
         1. Click the dropdown arrow in the upper right-hand corner of the screen.
         2. Select settings.
         3. Go to the ssh key menu from the left-hand side.
            a. The icon for this is usually right under notifications and looks vaguely like a key.
      ii. Fill out the form that pops up as follows:
         1. 'Title' should be `gcp_devops`
         2. Do not set an expiration date.
         3. For 'key', copy the contents of your `gcp_devops.pub` file in your `.ssh` directory into the field.
         4. Click 'add key'.
   e. Configure your SSH client to use your ssh key.
      Create a file at `~/.ssh/config`, and copy the following into the file:

```
Host gitlab.csc.tntech.edu
    HostName gitlab.csc.tntech.edu
    IdentityFile ~/.ssh/gcp_devops
```

3. Share your git repository with the instructors and with the TAs.
   a. Go to your project.
   b. Got to the Members tab on the left-hand menu.
   c. Enter the username for the TA and the Instructor into the member box and choose the role of 'maintainer' for both. Do not add an expiration date.
   d. Click 'Invite'.
   e. **Note:** if this is not done, your work in this course will not be able to be graded.
4. Clone your repository.
   a. Go to your project's homepage.
   b. Follow the instructions on the main page for `Git Global Setup`.
   c. The follow the instructions for 'Create a New Repository'.
   d. Refresh the browser after you have completed step c. You should now see your first commit!
5. Be sure to commit your changes frequently (e.g. after every step). Do the following:
   a. (5) Create a `README.md` file using markdown syntax (https://www.markdownguide.org/basic-syntax/). You are expected to keep this `readme.md` updated throughout the course. Include the following (in order):
      i. The title of this course as a level 1 heading.
      ii. A description of this course as normal text.
      iii. A level 2 heading with the following: `About Name`, where Name is replaced with your name.
      iv. A short bio of you in normal text.
   b. (5) A shell script that displays ascii art with colors.
   c. (5) A shell script that outputs the sums of two numbers from a csv file
      i. The csv file should be formatted as `numberX, numberY`.

    ii. The script should work for an undefined number of lines.

d. (5) Add a `.gitignore` file that ignores csv files.

<Brian W. Lee>

Lab Questions

1. (12) What do each of the following do? Be as detailed as possible.
    - `git add stages tracked content(s) of a project from working directory to staging area.`
    - `git push uploads changed, modified, or new content(s) of a project from local repository to remote repository. If there are no changes, then it will not be uploaded.`
    - `git commit captures a snapshot of the changed, modified, or new content(s) of a project in staging area and it will be committed to the local repository. If there are no changes, then it will not be captured.`
    - `git pull fetches changed, modified, or new content(s) of a project from the remote repository to the local repository then it merges with the working directory.`
    - `git status shows the status of the staged content(s) of a project.`
    - `git log shows the history of commit(s) along with its message.`
2. (2) What is the command to initialize an empty repository? git init
3. (2) What is the command to clone a repository from an existing server? git clone (url)
4. (4) What are the environments/stages that git uses? There is a developer environment consisting of working directory, staging area, and local repository. Also there is a server environment which is the remote repository. How do the commands relate to each of these environments? First, you can either "git init" or "git clone(url)" to start or have a project started or saved in the working directory and the local repository. Second, within the working directory, you can make changes in it. Those changes can be staged with "git add (content(s) in working directory)" to the staging area. Third, you use "git commit -m "(comment about the change)"" which will capture a snapshot of the staging area and the changes will be committed to local repository. If there are no changes, then it will not be captured. Forth, you use "git push" to upload the contents from local repository to remote repository. If there are no changes, then it will not upload. Lastly, you can use "git pull (url)" to fetch contents from the remote repository to the local repository then merges the contents to the working directory. You may use a diagram to aid your explanation. **Note:** a diagram alone is not sufficient to get credit for this question.