UNIVERSITY OF Baguio

SCHOOL OF INFORMATION AND TECHNOLOGY

NAME:	DATE PERFORMED:	
Section:	DATE SUBMITTED:	

SYSADM1 – Git Basics

Answer the following research questions about Git, GitLab desktop and GitHub.

1. What is Git, and why is it important in software development?
   - Git is a distributed version control system(DVCS) which is used by developers to work or store their code. With Git, developers can now work on the same project simultaneously, Git also has a detailed history of every change made to a project's code or code base that can help in tracking bugs easily. Also Git allows developers to have their own copy of the repository and can work in offline and merge it when online.
2. How does Git track changes in a project?
   - Through commits wherein when you first set up a Git repository, you create an initial commit that captures the state of your project at that moment. As you work on your project, you modify files and create new ones. Before committing, you stage these changes using the git add command, which moves the changes to the staging area. Once staged, you create a commit using the git commit command, which saves the current state of the project as a snapshot, including a message describing the changes.
3. What is the difference between a local repository and a remote repository in Git?
   - The difference between the two is local repository is your local machine where you work your project and is only available to you or anyone that has access to it can use the repository while remote repository is hosted in a server often through platforms like github and is available to anyone online. Also acts as place to backup your work or project and is ideal for team projects.
4. What are the basic Git commands?
   - Git add: used for stages changes in preparation for a commit.
   - Git commit: for recording the changes in the repository.
   - Git status: To display the state of the working directory and the staging area.
   - Git init: Sets up a new Git repository.
   - Git clone: Creates a copy of an existing repository.
   - Git push: Uploads your local branch commits to the remote repository.
   - Git pull: Fetches and integrates changes from the remote repository to your local branch.
5. How do you check the status of a Git repository?
   - Through the command git status.
6. What is the purpose of branches in Git, and how do you create and switch between them?
   - Its purpose is to serve as an isolated environments for developing new features, or fixing bugs. To create a branch, use the command git branch followed by the branch name, and to switch between branches is use the command git checkout followed by the branch name you want to switch to.
7. What are GitLab Desktop and GitHub, and how are they different from Git?
   - GitHub is a cloud-based hosting service which can be used to manage Git repositories. GitLab is a web-based platform or DevOps platform that is used to merge Git repository management with CI/CD, and with collaboration tools. Git is for version control, while GitHub is for repository hosting, collaboration, and code sharing, and GitLab is for software development, CI/CD, and collaboration.
8. How do you connect a local Git repository to a GitLab or GitHub repository?
   - After creating a GitLab or GitHub repository, a URL will be given which can be used to link local repository.

9. What are the steps to collaborate with others using GitLab or GitHub?
    - Join or create a repository
    - Clone it to your local repository/Create a Branch.
    - Make changes and commit
    - Push changes
    - Create Pull Request
    - Review and merge
10. How do you resolve merge conflicts in Git?
    - To resolve a merge conflict in Git, identify the conflicts and open the conflicted file to edit it to either change/remove/merge the conflict.
11. What is a pull request, and why is it used in GitHub?
    - Pull request is for fetching and integrates changes from the remote repository to your local branch.
12. What are some best practices for writing commit messages?
    - A clear and concise message.