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# Assignment 2

**1. What are the advantages of using Git?**

**Ans:**

- Git performs very strongly and reliably when compared to other version control systems.
- Git is designed specially to maintain the integrity of source code. File contents are secured.
- Git is a widely supported open source project.
- Git offers the type of performance, functionality, security, and flexibility that most developers and teams need to develop their projects.

**2. Name a few Git commands with their function.**

**Ans:**

- Git Commands

**git config**

Usage: `git config –global user.name “[name]”`

Usage: `git config –global user.email “[email address]”`

This command sets the author name and email address respectively to be used with your commits.

**git init**

Usage: `git init [repository name]`

This command is used to start a new repository.

**git clone**

Usage: `git clone [url]`

This command is used to obtain a repository from an existing URL.

**git add**

Usage: `git add [file]`

This command adds a file to the staging area.

Usage: `git add *`

This command adds one or more to the staging area.

**git commit**

Usage: `git commit -m "[ Type in the commit message]"`

This command records or snapshots the file permanently in the version history.

Usage: `git commit -a`

This command commits any files you've added with the git add command and also commits any files you've changed since then.

**git diff**

Usage: `git diff`

This command shows the file differences which are not yet staged.

### 3. What is a Git repository?

**Ans:**

- A Git repository tracks and saves the history of all changes made to the files in a Git project.
- It saves this data in a directory called . git , also known as the repository folder.
- Git uses a version control system to track all changes made to the project and save them in the repository.

**4. What's the difference between Git and GitHub?**

**Ans:**

| S.No. | **Git** | **GitHub** |
|---|---|---|
| 1. | Git is a software. | GitHub is a service. |
| 2. | Git is a command-line tool | GitHub is a graphical user interface |
| 3. | Git is installed locally on the system | GitHub is hosted on the web |
| 4. | Git is maintained by linux. | GitHub is maintained by Microsoft. |
| 5. | Git is focused on version control and code sharing. | GitHub is focused on centralized source code hosting. |

**5. What does the git push command do?**

**Ans:**

- The git push command is used to upload local repository content to a remote repository. Pushing is how you transfer commits from your local repository to a remote repo.

**6. Difference between git fetch and git pull**

**Ans:**

| Git Fetch | Git Pull |
|---|---|
| Gives the information of a new change from a remote repository without merging into the current branch | Brings the copy of all the changes from a remote repository and merges them into the current branch |
| Repository data is updated in the .git directory | The local repository is updated directly |
| Review of commits and changes can be done | Updates the changes to the local repository immediately. |
| No possibility of merge conflicts. | Merge conflicts are possible if the remote and the local repositories have done changes at the same place. |

**7. What does git clone do?**

**Ans:**

- git clone is a git command line utility used to target an existing repository and create a clone, or copy of the target repository.

**8. What do you understand about the Staging area in Git?**

**Ans:**

The staging area is like a rough draft space, it's where you can git add the version of a file or multiple files that you want to save in your next commit.

**9. What is the use of the git config command?**

**Ans:**

- The git config command is a convenience function that is used to set Git configuration values on a global or local project level.
- These configuration levels correspond to . gitconfig text files. Executing git config will modify a configuration text file.

**10. What is the difference between fork, branch, and clone?**

**Ans:**

- A clone is a copy of all the code on the master branch.
  It is an exact replica of the code on github.

- A branch is a slightly changed or modified section of code that meets different objectives.
  Branches are not copies of each other but have same origin

- Forks are local instantiations that let you make changes to someone else's codebase.
  They clone the repository under your profile such that it is linked and changes made to the fork can be compared or merged with the original repository over time.