**What is a version control system (VCS)?**

A VCS keeps track of the contributions of the developers working as a team on the projects. They maintain the history of code changes done and with project evolution, it gives an upper hand to the developers to introduce new code, fixes bugs, and run tests with confidence that their previously working copy could be restored at any moment in case things go wrong.

**2. What is a git repository?**

A repository is a file structure where git stores all the project-based files. Git can either stores the files on the local or the remote repository.

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

The command creates a copy (or clone) of an existing git repository. Generally, it is used to get a copy of the remote repository to the local repository.

### What does the command git config do?

The git config command is a convenient way to set configuration options for defining the behavior of the repository, user information and preferences, git installation-based configurations, and many such things.

### Can you explain head in terms of git and also tell the number of heads that can be present in a repository?

* A head is nothing but a reference to the last commit object of a branch.
* For every repository, there will always be a default head referred to as “master” or now “main” (as per GitHub) but there is no restriction to the count of heads available. In other words, it can have any number of heads.

**What is a conflict?**

* Git usually handles feature merges automatically but sometimes while working in a team environment, there might be cases of conflicts such as:  
    
  1. When two separate branches have changes to the same line in a file  
  2. A file is deleted in one branch but has been modified in the other.
* These conflicts have to be solved manually after discussion with the team as git will not be able to predict what and whose changes have to be given precedence.

### What is the functionality of git ls-tree?

This command returns a tree object representation of the current repository along with the mode and the name of each item and the SHA-1 value of the blob.

### 8. What does git status command do?

git status command is used for showing the difference between the working directory and the index which is helpful for understanding git in-depth and also keep track of the tracked and non-tracked changes.

### 9. Define “Index”.

Before making commits to the changes done, the developer is given provision to format and review the files and make innovations to them. All these are done in the common area which is known as ‘Index’ or ‘Staging Area’.

**What does git add command do?**

* This command adds files and changes to the index of the existing directory.
* You can add all changes at once using git add . command.
* You can add files one by one specifically using git add <file\_name> command.
* You can add contents of a particular folder by using git add /<folder\_name>/ command

**Why is it considered to be easy to work on Git?**

With the help of git, developers have gained many advantages in terms of performing the development process faster and in a more efficient manner. Some of the main features of git which has made it easier to work are:

* **Branching Capabilities:**  
    
  - Due to its sophisticated branching capabilities, developers can easily work on multiple branches for the different features of the project.  
  - It also has an easier merge option along with an efficient work-flow feature diagram for tracking it.
* **Distributed manner of development:**  
    
  - Git is a distributed system and due to this nature, it became easier to trace and locate data if it's lost from the main server.  
  - In this system, the developer gets a repository file that is present on the server. Along with this file, a copy of this is also stored in the developer’s system which is called a local repository.  
  - Due to this, the scalability of the project gets drastically improved.
* **Pull requests feature:**  
    
  - This feature helps in easier interaction amongst the developers of a team to coordinate merge-operations.  
  - It keeps a proper track of the changes done by developers to the code.
* **Effective release cycle:**  
    
  - Due to the presence of a wide variety of features, git helps to increase the speed of the release cycle and helps to improve the project workflow in an efficient manner.

**How will you create a git repository?**

* Have git installed in your system.
* Then in order to create a git repository, create a folder for the project and then run git init.
* Doing this will create a .git file in the project folder which indicates that the repository has been created.

**13. Tell me something about git stash?**

Git stash can be used in cases where we need to switch in between branches and at the same time not wanting to lose edits in the current branch. Running the git stash command basically pushes the current working directory state and index to the stack for future use and thereby providing a clean working directory for other tasks.

**What is the command used to delete a branch?**

* To delete a branch we can simply use the command git branch –d [head].
* To delete a branch locally, we can simply run the command: git branch -d <local\_branch\_name>
* To delete a branch remotely, run the command: git push origin --delete <remote\_branch\_name>
* Deleting a branching scenario occurs for multiple reasons. One such reason is to get rid of the feature branches once it has been merged into the development branch.

**What differentiates between the commands git remote and git clone?**

git remote command creates an entry in  git config that specifies a name for a particular URL. Whereas git clone creates a new git repository by copying an existing one located at the URL.

**16. What does git stash apply command do?**

* git stash apply command is used for bringing the works back to the working directory from the stack where the changes were stashed using git stash command.
* This helps the developers to resume their work where they had last left their work before switching to other branches.

**17. Differentiate between git pull and git fetch.**

| **git pull** | **git fetch** |
| --- | --- |
| This command pulls new changes from the currently working branch located in the remote central repository. | This command is also used for a similar purpose, but it follows a twostep process:  1. Pulls all commits and changes from desired branch and stores them in a new branch of the local repository.  current 2. For changes to be reflected in the current / target branch, git fetch should be followed by git merge command. |

### Can you give differences between “pull request” and “branch”?

| **pull request** | **branch** |
| --- | --- |
| This process is done when there is a need to put a developer’s change into another person’s code branch. | A branch is nothing but a separate version of the code. |

**Why do we not call git “pull request” as “push request”?**

* “Push request” is termed so because it is done when the target repository requests us to push our changes to it.
* “Pull request” is named as such due to the fact that the repo requests the target repository to grab (or pull) the changes from it.

### Can you tell the difference between Git and GitHub?

| **Git** | **GitHub** |
| --- | --- |
| This is a distributed version control system **installed on local machines** which allow developers to keep track of commit histories and supports collaborative work. | This is a **cloud-based source code repository** developed by using git. |
| This is maintained by “The Linux Foundation”. | This was acquired by “Microsoft” |
| SVN, Mercurial, etc are the competitors | GitLab, Atlassian BitBucket, etc are the competitors. |

### Can you tell the differences between git revert and git reset?

| **git revert** | **git reset** |
| --- | --- |
| This command is used for creating a new commit that undoes the changes of the previous commit. | This command is used for undoing the local changes done in the git repository |
| Using this command adds a new history to the project without modifying the existing history | This command operates on the commit history, git index, and the working directory. |