Git Interview Questions and Answers

1. What is Git?

Git is a distributed version control system used to track changes in source code during software development.

2. What is the difference between Git and GitHub?

Git is a version control tool, while GitHub is a web-based hosting service for Git repositories.

3. What is a repository in Git?

A repository is a storage space where your project lives. It can be local to a folder on your computer or hosted on a platform like GitHub.

4. What is the command to create a Git repository?

`git init` initializes a new Git repository.

5. How do you clone a repository?

Use `git clone <repository-url>` to copy a repository to your local machine.

6. What is a branch in Git?

A branch is a pointer to a snapshot of your changes. The default branch in Git is called `main` or `master`.

7. How do you create a new branch?

`git branch <branch-name>` creates a new branch.

8. How do you switch to another branch?

`git checkout <branch-name>` switches to the specified branch.

9. How do you merge branches?

`git merge <branch-name>` merges the specified branch into the current branch.

10. What is a merge conflict?

A merge conflict occurs when changes in two branches conflict with each other and Git can't automatically resolve it.

11. How do you resolve a merge conflict?

Manually edit the conflicted files to resolve the conflict, then commit the changes.

12. What is `git status` used for?

It shows the state of the working directory and the staging area.

13. What is the staging area?
The staging area is where you prepare changes before committing them.

14. How do you stage a file?
`git add <file-name>` stages the file.

15. How do you commit changes?
`git commit -m "commit message"` commits the staged changes.

16. What is `git push`?
`git push` uploads local repository content to a remote repository.

17. What is `git pull`?
`git pull` fetches and integrates changes from a remote repository into the current branch.

18. What is `git fetch`?
`git fetch` downloads changes from a remote repository but does not apply them.

19. What is the difference between `git pull` and `git fetch`?
`git pull` fetches and merges, while `git fetch` only fetches.

20. What is `git log`?
`git log` shows the commit history.

21. How do you undo changes in Git?
`git checkout -- <file>` to discard changes in working directory. Use `git reset` to unstage changes.

22. What is `git revert`?
`git revert` creates a new commit that undoes changes from a previous commit.

23. What is `git reset`?
`git reset` can reset your staging area and/or working directory to a previous commit.

24. What is `.gitignore`?
A file that tells Git which files or directories to ignore in a project.

25. What is `git stash`?
`git stash` temporarily shelves (or stashes) changes you've made to your working copy.

26. How do you apply stashed changes?
`git stash apply` applies the most recent stash.

27. How do you see remote URLs?

`git remote -v` shows the URLs of the remote repositories.

28. How do you add a remote repository?

`git remote add origin <url>` adds a remote repository.

29. How do you remove a file from Git but not delete it locally?

`git rm --cached <file>` removes the file from Git but keeps it locally.

30. How do you rename a branch?

`git branch -m <new-name>` renames the current branch.