Q1 - What is a version control system?

Ans: A Version Control System is a tool which helps in recording changes made in the file by keeping a track of all the modifications made in the code.

Q2 - Why did a version control system develop? What were the necessities?

Ans: A version control system was developed to allow multiple servers to run or modify a code, even those which are being updated simultaneously.

Q3 - Define the different types of version control systems.

Ans: There are two types of Version Control System:

1. Centralized Version Control System: In this, all changes in the files are tracked under the centralized server.
2. Distributed Version Control System: is a type of version control system like Git that replicates the repository onto each user's machine that is each user has a self-contained first-class repository

Q4 - List a few differences between the two version control system types.

Ans:

a) In centralized version control, the versions are saved in the remote repository, while in distributed version control, versions can be saved in the remote repository as well as in local repositories of the local machines.
b) CVS system do not provide offline access, whereas DVD systems are workable offline.
c) CVS is slower, than DVS.
d) If CVS Server is down, developers cannot work, but in DVS we can.

Q5 - What is Git?

Ans: Git is a distributed version control system. It is used for coordinating work among programmers.

Q6 - List a few features of Git.

Ans: Few features of git are:

Speed

a) Open source
b) Lightweight
c) Secure
d) Compatible with all operating systems.

Q7 - State any three commands of Git and why we use them.

Ans:

a) git config = To set config like name, email etc
b) git rm = To remove files
c) git branch = To create, list, rename or delete branch
d) git push = To push content from local to remote repository
e) git commit = to save changes in local repository

Q8 - Is Git the same as Github? Why or Why not?

Ans: No they are not same. Git is a version control system that lets you manage and keep track of your source code history. GitHub is a cloud-based hosting service that lets you manage Git repositories.

Q9 - What is the command to get the installed version of Git?

Ans: git –version

Q10 - What is the command to add all files and changes of the current folder to the staging environment of the Git repository?

Ans: git add

Q11 - What is the difference between git status and git log commands?

Ans: git status: displays the state of the working directory and the staging area

Git log: To review and read a history of everything that happens to a repository.

Q12 - What is the command to initialize Git on the current repository?

Ans: git init

Q13 - What are the different states of a file in Git? Explain them along with the associated command

Ans: There are 3 stages of git:

a) Committed: This state shows that the file is stored in the local database.
b) Modified: Whenever there is any change made in the file, its state changes from committed to modified. Thus, this can be viewed as the current working state.

c) Staged: After completing all the changes in a file, when we start tracking changes in Git for a file we haven't been tracking, it automatically goes into the staged state.

Q14 - Git automatically adds new files to the repository and starts tracking them. True or False? Give reasons.

Ans: False. We use git add command for this purpose.

Q15 - What is the command to commit the staged changes for the Git repository?

Ans: git commit

Q16 - What is the command to commit with the message "New email"?

Ans: git commit -m “New email.”

Q18 - What is a branch in Git?

Ans: A branch can be termed as a new independent line of development. We can think of them as a completely new working directory

Q19 - What is the command to create a new branch named "new-email"?

Ans: Step 1st: git branch new-email

Q20 - What is the command to move to the branch named "new-email"?

Ans: git checkout new-email

Q21 - What is the option, when moving to a branch, to create the branch it if it does not exist?

Ans: git switch -b *[branch-name]*

Q22 - What does the git init command does?

Ans: Creates a new Git repository.

Q23 - What is a fork? How is it different from clone in Git? How do you fork and clone a repository?

Ans: A fork is simple a copy of any repository that you are managing. It helps you make changes to a project without affecting the original project.

The basic difference between forking and cloning is that cloning makes a local copy of a repository but that will continue to synchronize with the target repository whereas forking creates your own copy of a repository in a remote location which is completely independent.

How to clone:

a) Navigate to the main page of the repository on GitHub.com
b) On top of the list of files, click the code icon.
c) Copy the URL for the repository
d) Open git bash
e) Change the current working directory to the location where you want the cloned directory
f) Type git clone and then paste the URL you copied earlier
g) Press ENTER to create your local clone

How to fork:

a) Navigate to the repository page on github.com
b) On the top right corner, click FORK icon
c) Select an owner for the forked repository
d) Either change the name or let it remain the same
e) You may/may not add a description
f) Choose whether to copy the default branch or all branches to the new fork. By default, only the default branch is copied.

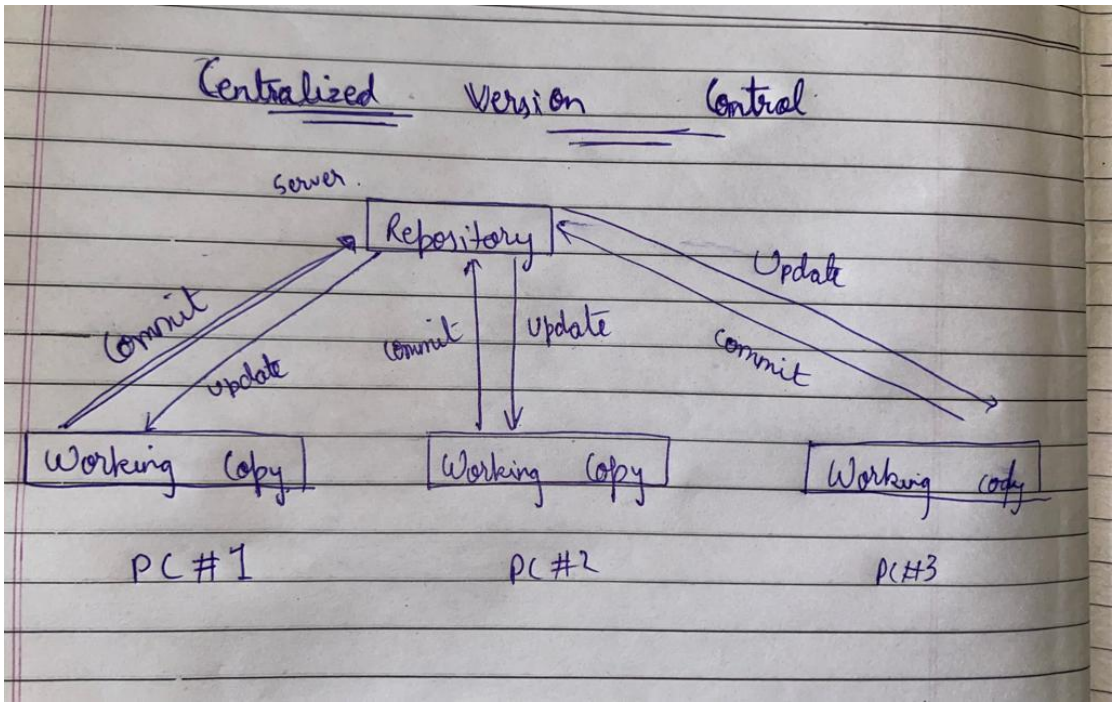
Q25 - Draw the standard architecture of two types of version control systems. (Hint - server project repo, working directories etc.) Explain the diagrams.

Ans:

1. Centralized Version Control System:

To make the changes visible to others there are 2 steps which are:

You commit; They update.



2. Distributed Version Control System:

Her, to make the changes visible to others, 4 things are required:

a) You commit
b) You push
c) They pull
d) They update

Distributed Version Control