Q1 - What is a version control system?
Ans: A version control system is a software used to manage the source code of an application and record the changes made to the code.

Q2 - Why did a version control system develop? What were the necessities?
Ans:Version control systems were developed to facilitate faster and more effective ways to manage the source code.

Q3 - Define the different types of version control systems.
Ans: Centralized(VCS) - They store all the source code in centralized locations
Distributed(VCS) - They store the source code in separate repositories

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

1. They store the code in central locations
2. All the users work on the same central repository
3. They are used where a team needs to share code and track changes

Distributed -

1. It brings a copy of the main repository to every team member locally.
2. Users need to branch commit and merge locally
3. Used for creating strong workflows and hierarchies

Q5 - What is Git?
Ans: Git is a distributed version control system

Q6 - List a few features of Git
Ans:
1. Can keep a history of all previous versions
2. Facilitates development on several branches at the same time
3. Collaboration with a group of developers

Q7 - State any three commands of Git and why we use them.
Ans:
1. Git config (configure github account and details)
2. Git init (initiate the present working directory as a repository)
3. Git add (stage the changed files to commit)

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

Git is a version control system which lets the user manage and control all the activities done with the source code

Github is a cloud based hosting service which lets the users manage their 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 staged area
Git log displays the committed snapshots

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 commands.
Ans: There are two states of a file in git

1. Tracked - the files that were in the last snapshot are included under the tracked state
   A tracked file can be of 3 substates
   1. Modified - changes have been made but not committed
   2. Staged - changes have been made and the file has been added to staging area (git add has been used)
   3. Committed - the changes have been committed (git commit has been used)

2. Untracked - whenever a new file is added to the working directory it is considered as an untracked file

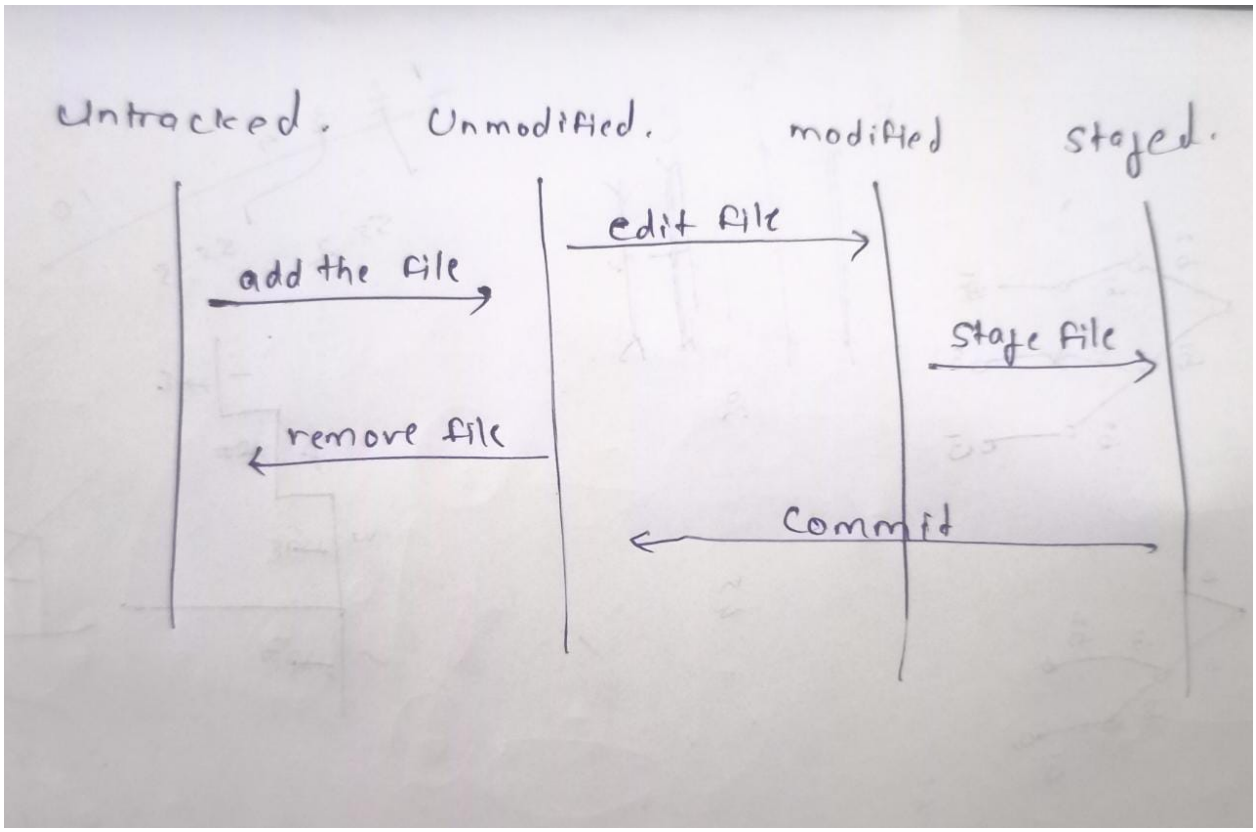
Git status will display the status of the files.

Q14 - Git automatically adds new files to the repository and starts tracking them. True or False? Give reasons.
Ans: False, files need to be added and tracked using the git add later on manually. Git status will reveal the status if the file is being tracked or not

Q15 - What is the command to commit the staged changes for the Git repository?
Ans: git commit -m “<message>” is used to commit the changes to a git repository and then display a message.

Q16 - What is the command to commit with the message "New email"?
Ans: git commit -m “New email”.

Q17 - Draw the full workflow of Git and describe the diagram.
Ans:



Q18 - What is a branch in Git?
Ans: A branch is a movable pointer to commits

Q19 - What is the command to create a new branch named "new-email"?
Ans: git checkout -b new-email

Q20 - What is the command to move to the branch named "new-email"?
Ans: git switch new-email

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

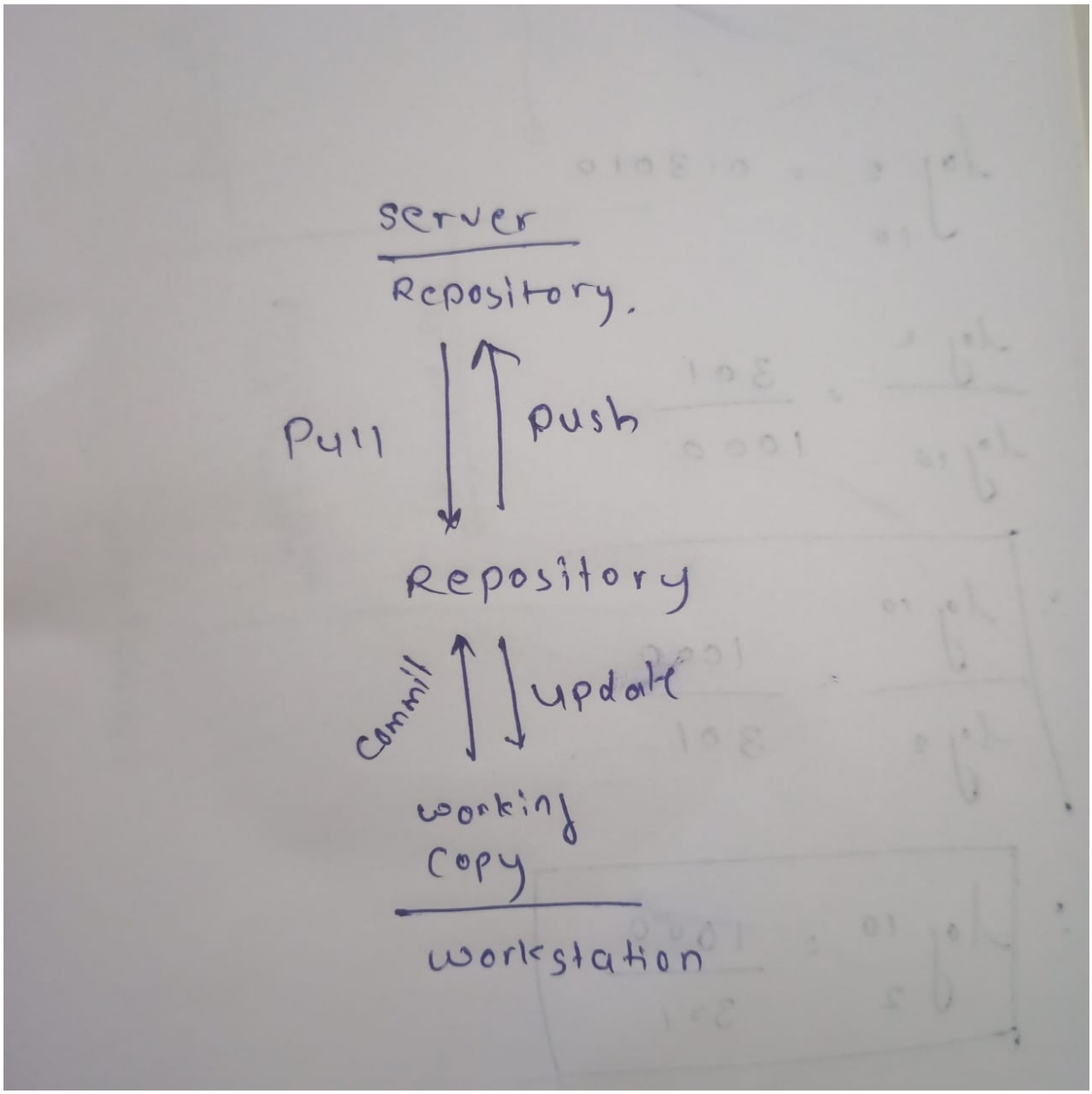
Q22 - What does the git init command do?
Ans: git init creates a new repository

Q23 - What is a fork? How is it different from clone in Git? How do you fork and clone a repository?
Ans: A fork creates a complete different copy of the git repository while a clone creates a copy of the repository which will sync with the main repository

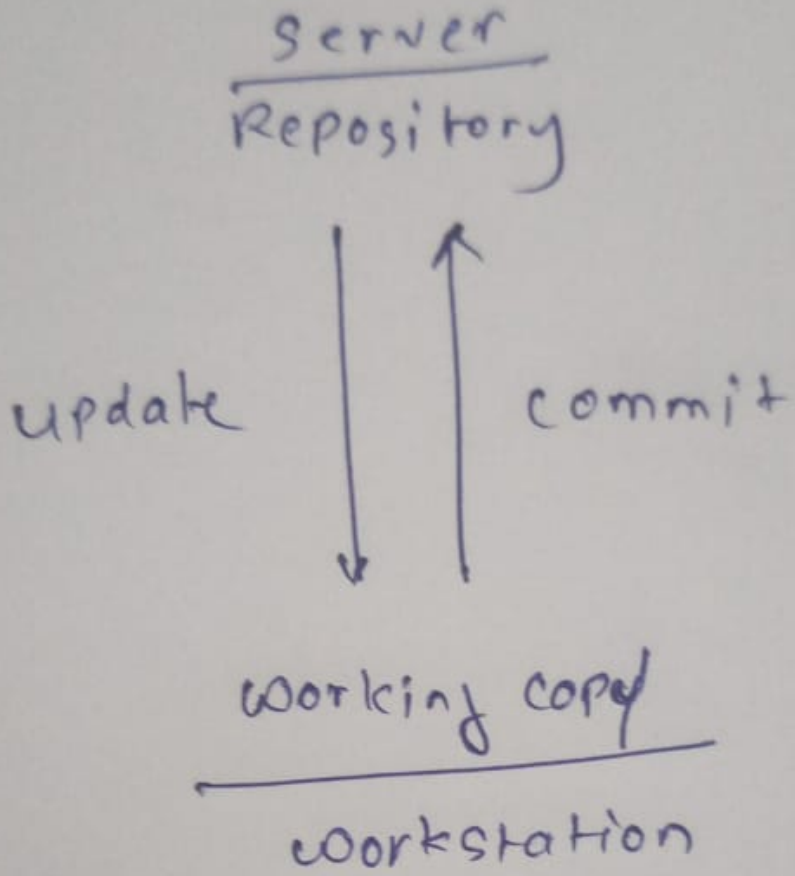
Q24 - What does ‘push’ mean in Git? Give the command.
Ans: git push <repo name> <branch name>
It is used to send the commits from the local repository to the central repository of production

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

Distributed VCS



Central VCS


Server
Repository
update
commit
working copy
workstation