Git AND Github

Assignment Solution

Q.1 What is Git ?

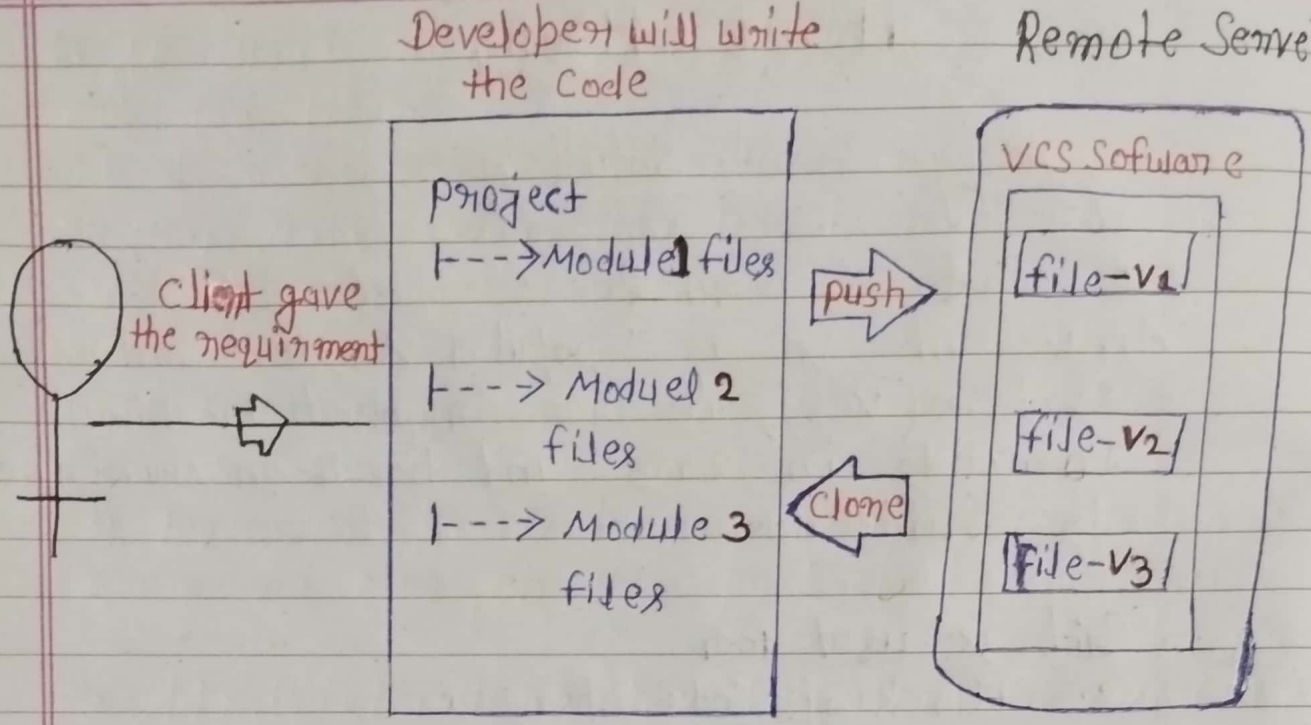
Ans 1. Git is a popular Version Control System (VCS), it was created by Linus Torvalds in 2005 and has been maintained by Junio Hamano.

Git is used for

a. Tracking code changes
b. Tracking who made changes like history of the files
c. Coding Collaborations.

Q.2 What do you understand by the term 'version control system'?

Ans 2 It is a system that records changes to a file or set of files over time, So that we can recall specific version later, i.e for every source code changes in a file a new version will be created.



Q.3 What is Github?

Ans 3 Git is a popular version control system (VCS), It was created by Linus Torvalds in 2005 and has been maintained by Junio Hamano

there are 3 types of VCS

1. Local version control system (LVCS)
2. Centralized control system (CVCS)
3. Distributed version control system (DVCS)

1. LVCS

It is used to maintain the file version and files based on specific version

Drawbacks

1. If our system is corrupted then there may be data loss issues.

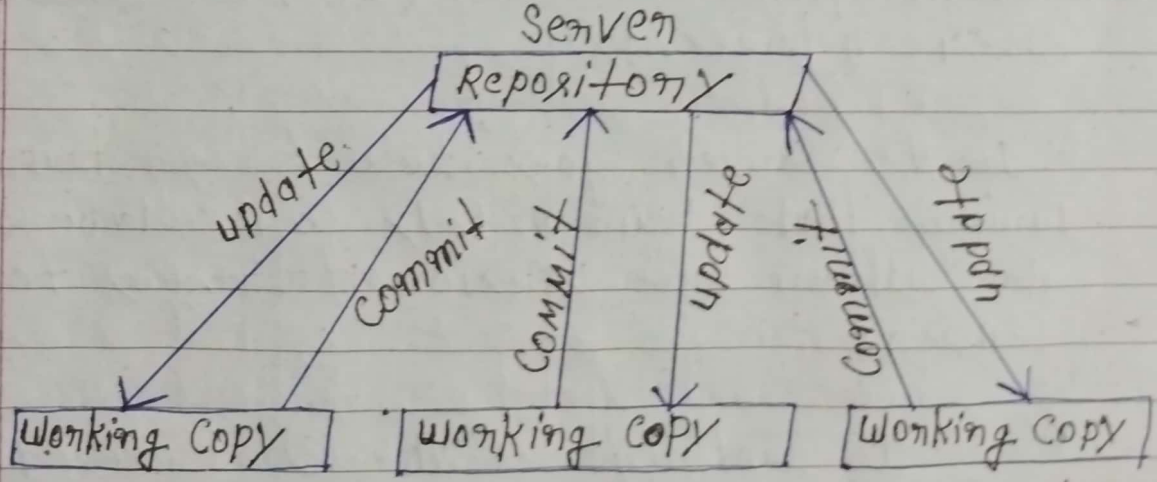
2. It is easy to forget directory you are in and some accidentally write the data to the wrong file or copy other files.

3. By Mistake we can delete files.

2. CVCS

Developers can collaborate and do the changes
e.g: cvs, Subversion, perforce

Centralized version control system



1. Centralized version Server will have a single Server that contains all the version files.

2. No More Clients Connect to CVCS and check out for files.

3. For Many years this has been the standard Version Control System.

Advantages

1. Everyone knows to a certain degree what everyone else on the project is doing.

2. Administrators have full control over who can do what and are easier to Manage.

Drawbacks

1. Single point of failure (SPF) that centralized Server represents.

2. If the Server goes down for an hour then during that hour nobody can collaborate at all on save versioned changes to the Server.

3. If the hard disk of the Centralized Server will be corrupted and proper backup haven't been kept then we will lose the data (Source Code)

Note:

1. LCVS also suffers the same problem. Whenever you have an entire history of a project in a single place, there is always the risk of losing everything.

2. CVS always gets the latest code but not the entire history of the project. this is also a major drawback of SVN.

To Resolve this problem we need to use Distributed version control system

Distributed Version Control System

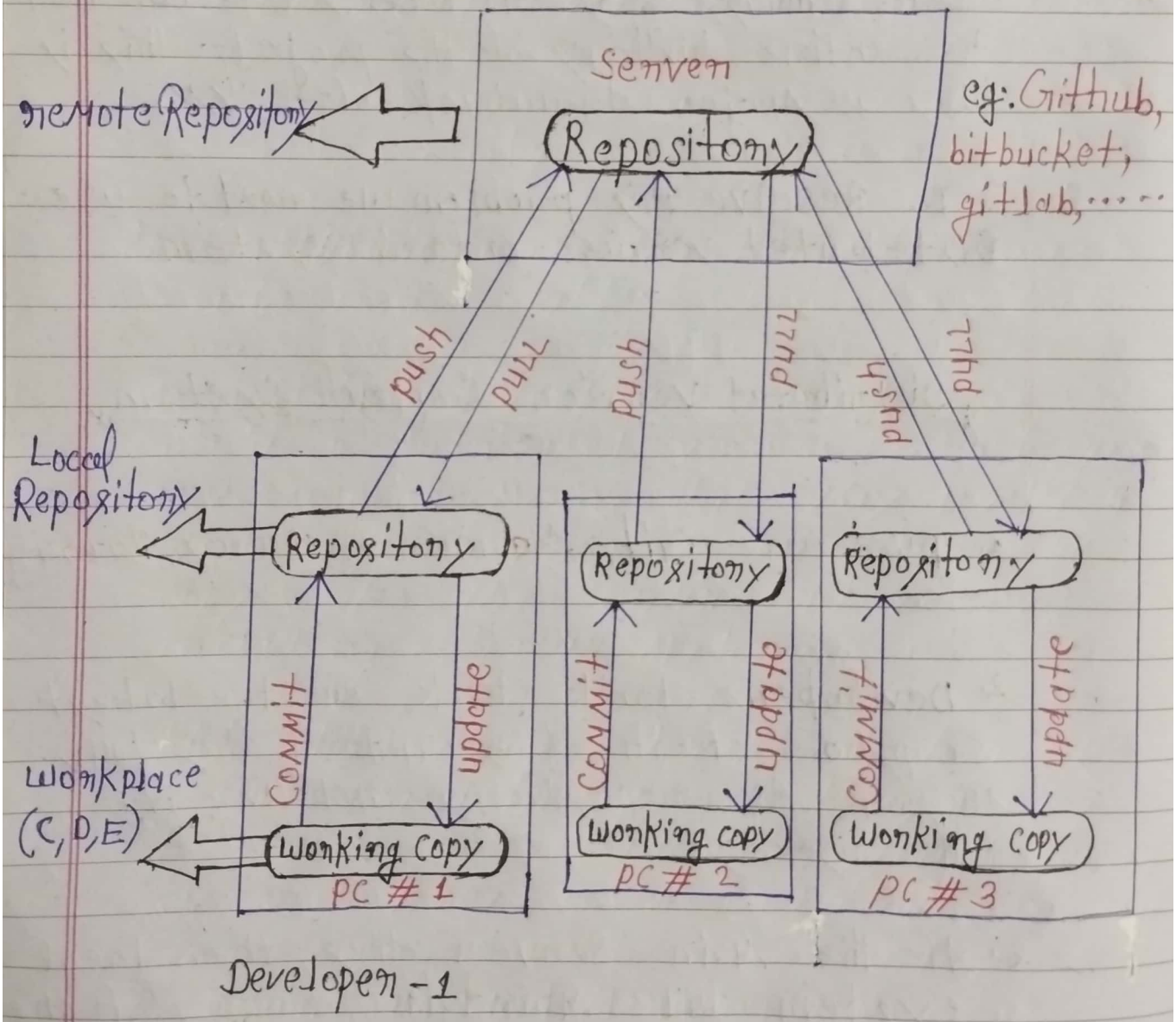
1. DVCS are Git, Mercurial, Darcs, Bazaar, etc.

2. Developers don't check out the latest snapshot of the files rather they fully mirror the repository including its full history.

3. If the main server dies, then local system will maintain a copy of the main repository which has full backup of data.

4. If the remote repository is down, then the developer can make changes in the local repository and when the main repository is up the code can be pushed repository from local repository.

Distributed version control system



Q.3 What is Github?

Ans 3 Git is a popular Version Control System (VCS), It was Created by Linus Torvalds in 2005 and has been Maintained by Junio Hamano.

- Github is the git Server tool.
- It is the largest host of Source Code in the world
- It is a repository
- It is used to store/Maintain the Source Code of the project
- Some of the Git Server tools are: Gitlab, BitBucket, Gitblit, ----

Q.4 Mention Some popular Git hosting Services.

Ans 4 Github, Gitlab, Bitbucket Azure DevOps, Gitkraken, SourceForge AWS CodeCommit.

So the Above the Most popular Git hosting Services is Github.

Q.5 Different type of version Control System

Ans.5 there are 3 types of version Control System.

1. Local version Control System (LVCS)
2. Centralized Control system (CVCS)
3. Distributed version Control System (DVCS)

Q.6 What benifits come with using Git?

Ans6 following are the benifits come with using Git.

1. Distributed version Control:
Git is a distributed version Control system (DVCS), which means that every developer working on a project has a complete copy of the entire repository, including its full history.

this allows developers to work offline and independently, making it easier to collaborate and reducing dependencies on a Central server.

2. Branching and Merging
3. versioning and History
4. Collaboration and Teamwork

5. Staging Area
6. Speed and performance
7. Open Source and Community
8. Compatibility

overall, Git provides developers with a flexible, efficient, and powerfull version control system that significantly enhances Collaboration, code Manage-ment, and project tracking.

Q.7 What is a Git Repository?

Ans.7 A Git Repository, often simply referred to as a repo is data structure that stores all the files, directories, and version history of a project. It is essentially a folder or directory on your computer that is Managed by Git.

Q.8 How Can you Initialize a repository in Git?

1. open a Git Bash Launch the Command-line interface on your Computer.

2. Navigate to the Directory where you want to creat the repository:

use the cd command to change the directory to the desired location.

3. Run the git init Command:
Enter git init in the Git Bash to initialize a new Git Repository in the current directory. this Command creates a new subdirectory named .git that contains the necess -ary files and structure for version Control.

4. Add files to the repository: If you have existing files in the directory that you want to include in the repository, you can add them using git add

5. Make a initial Commit: once you have added the desired files, you can make initial Commit using the git Commit -M this will create a new Commit that includes the added files, marking the initial state of the repository

6. Now change the Master branch into Main using Command git branch -h -m main.

7. After that we past url of repository where program push by using Command -d git remote add origin Url.

8. After that ~~by using C~~ push ~~by~~ using Command git push -u origin main