Assignment of Day-3

1. **What is Git?**

Ans. Git is a popular distributed Version Control System, which is commonly used in industry. It was created by Linus Torvalds in 2005 and has been maintained by Junio Hamano. With the help of Git, we can develop a project with a team in a collaborative environment. We can share project code with the help of Git. We can also integrate our code in one place and whichever changes we are making in our file/code. We can also track and modify code as well.

2. **What do you understand by the term 'Version Control System'?**

Ans. Version Control System is used to track changes in code, with the help of Version control system we can also track who made those changes like the history of the files. We can also do coding in collaboration. Git is one of the most popular version control systems.

There are three types of version control system:-

a. Local Version Control System (LVCS)
b. Centralized Version Control System (CVCS)
c. Distributed Version Control System (DVCS)

3. **What is GitHub?**

Ans. GitHub is a web based platform for version control and collaboration that uses Git as its version control system. It allows users to host and review code, manage projects, and build software alongside millions of other developers. It also provides a convenient way for developers to share their code with others and collaborate on open source projects.

4. **Mention some popular git hosting services.**

Ans. This are some of the popular Git Hosting services:-
GitHub is one of the most popular Git hosting services. It provides a web based platform for version control and collaboration.
Some of the other Git hosting services are:- GitLab, Bitbucket, SourceForge, Launchpad.

5. **Different types of version control system**

Ans. There are three types of version control system:-

a. Local Version Control System (LVSC)
b. Central Version Control System (CVSC)
c. Distributed Version Control System (DVSC)

Local Version Control System (LVSC):- It is used to maintain the file version and retrieve the file based on Specific version.

Central Version Control System (CVSC):- In this Version Control System, developers can collaborate and develop and do the changes in the code/file. There is one central repository where they all commit their code and they can also take that code from the central Repository. In this VCS they all have backup of code/file.

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Distributed Version Control System (DVSC):-In this Distributed Version Control System, all the developers have their own Local repository. They all have one Central/Remote Repository, through which they all access to the main repository and they all have backup of their codes also. They can do their changes in code and commit it into the Local repository and then they can Push it to the main repository. And for taking that code/file from the Central Repository to their Local Repo, they have to Pull it from Central Repo. to their Local Repository.

6. **What benefits come with using Git?**

Ans. This are the following benefits come with using Git:-

With the help of Version control Git allows developers to keep track of changes made to their code, making it easy to roll back to a previous version if necessary.Git makes it easy for multiple developers to work on the same codebase simultaneously in a collaborative environment, with tools for resolving conflicts and merging changes.Git allows developers to create separate branches for different features, making it easy to work on multiple features at the same time without interfering with the main codebase.

Git is open-source software, and many Git hosting services, such as GitHub, also provide a platform for open-source collaboration.Git allows developers to keep multiple copies of their codebase, which provides a backup in case of data loss.Git is designed to handle large projects and perform quickly, even with a large number of files and contributors.Git keeps a record of who made what changes, when they were made and why.Git has an active and large community, which means help is always available, and a lot of tutorials, plugins and integrations are available.

7. **What is a Git repository?**

Ans. Git repository is a directory that contains all the files and metadata associated with a project under version control, as well as the history of changes made to those files. It is the place where the complete history of a project is stored, including the files themselves, the commit history, and the branches and tags. A Git repository can be created locally on a developer's computer or it can be hosted on a remote server, such as GitHub or GitLab. A local repository contains all the commits and branches that a developer has made, while a remote repository contains a copy of the local repository, and it acts as a central location for all the collaborators to push and pull the changes.

Once a repository is created, developers can add, modify, and delete files, and then commit those changes to the repository with a message explaining the changes. Those commits are added to the repository's commit history, and can be viewed, compared and rolled back to, at any time.

8. **How can you initialize a repository in Git?**

Ans. A Git Repository can be initialized by running the command ‘ $ git init’.