Assignment – 2nd (Git & GitHub)

1. What is Git?

Ans: - Git is a distributed version control system used for tracking changes in source code during software development. It helps manage and keep track of different versions of code files, making it easier to revert to previous versions or collaborate with others on a project. Git was created by Linus Torvalds in 2005 and has since become the most widely used version control system in the world.

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

Ans: - A version control system, also known as a VCS, is a tool used to manage changes made to a set of files. It tracks the evolution of a project by recording each modification and who made it. This allows developers to work together on a project and keep track of all changes made, making it possible to revert to a previous version if needed. VCS makes it easy to collaborate with others, maintain a clear history of changes, and resolve conflicts that may arise. Git, SVN, and Mercurial are some of the popular version control systems used today.

3. What is GitHub?

Ans: - GitHub is a cloud-based platform that offers hosting services for software development and project collaboration. GitHub offers version control using Git and provides a centralized repository for storing and sharing code, making it easy for teams to collaborate and contribute to projects, And also provides features such as bug tracking, project management, and documentation hosting.

4. Mention some popular Git hosting services.

Ans: - A few popular Git hosting services are:

1. **GitHub –** One of the most well-known Git hosting platforms, used by millions of developers and organizations.
2. **GitLab –** An open-source Git hosting service that provides a wide range of features, including continuous integration, continuous deployment, and issue tracking.
3. **Bitbucket –** A Git hosting service owned by Atlassian, offering integration with popular tools such as JIRA and Trello.
4. **AWS Code-Commit –** A scalable and secure Git hosting service provided by Amazon Web Services.
5. **VSTS (Visual Studio Team Services) –** It is a Microsoft service that provides Git hosting, continuous integration and along with other development tools and services.

5. Different types of version control systems.

Ans: - There are two main types of version control systems:

1. **Centralized Version Control System (CVCS) –** In a centralized version control system, a central repository is used to store all versions of the code. Example of CVCS is SVN.
2. **Distributed Version Control System (DVCS) –** In a distributed version control system, every user has a complete copy of the code repository on their local machine. Example of DVCS is Git and Mercurial.

6. What benefits come with using Git?

Ans: - Benefits of Git:

1. **Version Control (VC) –** In a centralized version control system, a central repository is used to store all versions of the code. Example of CVCS is SVN.
2. **Collaboration –** In a distributed version control system, every user has a complete copy of the code repository on their local machine. Example of DVCS is Git and Mercurial.
3. **Open-Source –** Git is an open-source project, meaning that it is free to use and has a large community of developers contributing to its development.
4. **Flexibility –** Git is a distributed version control system, so each developer has a full copy of the repository, enabling them to work independently and exchange changes directly with others.
5. **Large Community –** Git has a large community of users and developers, providing a wealth of resources, tutorials, and support.

7. What is a Git repository?

Ans: - A Git repository, also known as a "repo," is a central location where the complete history of a project's source code is stored. A Git repository can be stored locally on a developer's machine or remotely on a server, such as GitHub or GitLab. Using a Git repository allows developers to easily manage their code and collaborate with others, making it an essential tool for modern software development.

8. How can you initialize a repository in Git?

Ans: - To initialize a Git repository, you can use the following steps:

1. Open the terminal or command line in the directory where you want to create the repository.
2. Run the following command: **`git init`**.
3. This will initialize an empty Git repository in the current directory. You can verify that the repository was created successfully by running the command **`git status`**.

Once the repository is initialized, you can start adding files to it using the **`git add`** command. You can then commit your changes using the **`git commit`** command, which will save a snapshot of the repository at that point in time.

Note that you can also initialize a Git repository when creating a new project on a Git hosting service such as GitHub or GitLab. Simply create a new repository on the hosting service, then clone it to your local machine to start working with it.