**Version Control**:-

* It is a system that helps track and manage changes to files over time.
* It is especially important in software development but is also useful in any field where teams or individuals work on documents, designs, or other digital content collaboratively.

**Tasks: -**

1. History Tracking
2. Reverting Changes
3. Collaboration
4. Backup

**Types of Version Control Systems: -**

1. **Local Version Control**: -Tracks change only on a single computer.
2. **Centralized Version Control: -**Uses a central server to store all files and versions. Ex: - SVM
3. **Distributed Version Control: -**Every user has a complete copy of the entire repository.

**Advantage:** Works offline, faster, and safer for collaboration.

**Example**: Git, Mercurial.

Difference between Centralized and distributed version control:-

***Centralized Version Control****: Think of a library where all books are stored in one central location. If the library is closed, you can’t access the books.*

***Distributed Version Control****: Imagine every reader has their own personal copy of every book. They can read or modify their copies even if the library is unavailable.*

**Week-3**

**GitHub**

**Git: -**

* It is a tool like your local notebook where you track all changes and experiments. (It is installed and maintained in your local system)
* Git is a free, open-source version control system designed to handle everything from small to very large projects with speed and efficiency.

**Purpose**: It helps developers track changes in their code, collaborate on projects, and maintain a history of all modifications.

**GitHub: -**

* It is like a library where you publish and share your notebook with others, enabling collaboration.
* It is a cloud-based service.
* It is a web-based graphical interface hosting various services. It is open-source software.
* It also has a “Bug Tracker”.

**Note**: - Git is a version control tool to manage and track changes in your project whereas GitHub is a cloud-based service that helps you manage cloud repositories.

**GitHub:-**

**1.Signup/login to GitHub**

**2.Create a Repository and add a readme file to it**

**3.Create a new branch in repository**

**4.Compare and Pull request**

**5.Commit**

**Git: -(Local Repository)**