Course: Artificial Intelligence and Machine Learning

Code: 20CS51I

WEEK1- Artificial intelligence concepts

Session 4:

Need of Version Control System

As organizations accelerate delivery of their software solutions through DevOps, controlling and managing different versions of application artifacts — from code to configuration and from design to deployment — becomes increasingly difficult.

Version control software facilitates coordination, sharing, and collaboration across the entire software development team. It enables teams to work in distributed and asynchronous environments, manage changes and versions of code and artifacts, and resolve merge conflicts and related anomalies.

Fundamentals of Git

Meaning of Git

Git is free and open source software for distributed version control: tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development.

It is used for:

- Tracking code changes
- Tracking who made changes
- Coding collaboration

Git functions

- Manage projects with **Repositories**
- **Clone** a project to work on a local copy
- Control and track changes with **Staging** and **Committing**
- **Branch** and **Merge** to allow for work on different parts and versions of a project
- **Pull** the latest version of the project to a local copy
- **Push** local updates to the main project

Working with Git

- Initialize Git on a folder, making it a **Repository**
- Git now creates a hidden folder to keep track of changes in that folder
- When a file is changed, added or deleted, it is considered **modified**
- You select the modified files you want to **Stage**

- The **Staged** files are **Committed**, which prompts Git to store a **permanent** snapshot of the files
- Git allows you to see the full history of every commit.
- You can revert back to any previous commit.
- Git does not store a separate copy of every file in every commit, but keeps track of changes made in each commit!

Git is used because,

• High Speed.

• Data integrity.

• Support for distributed and non-linear workflows.

• Thousands of parallel branches can run on different systems.

• Every Git directory on every computer is a full-fledged repository with complete history & full version tracking abilities.

• This is independent of network access or a Central Server.

• Git is free and open Source Software distributed under the GPL-2.0-only License.

- Developers can work together from anywhere in the world.
- Developers can see the full history of the project.
- Developers can revert to earlier versions of a project.

Git installation and Set up
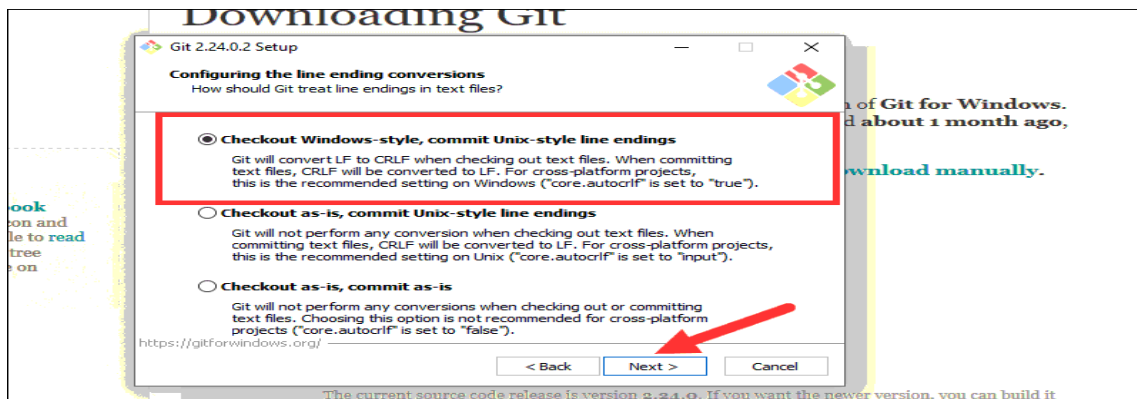
1. Browse to the official Git website: https://git-scm.com/downloads

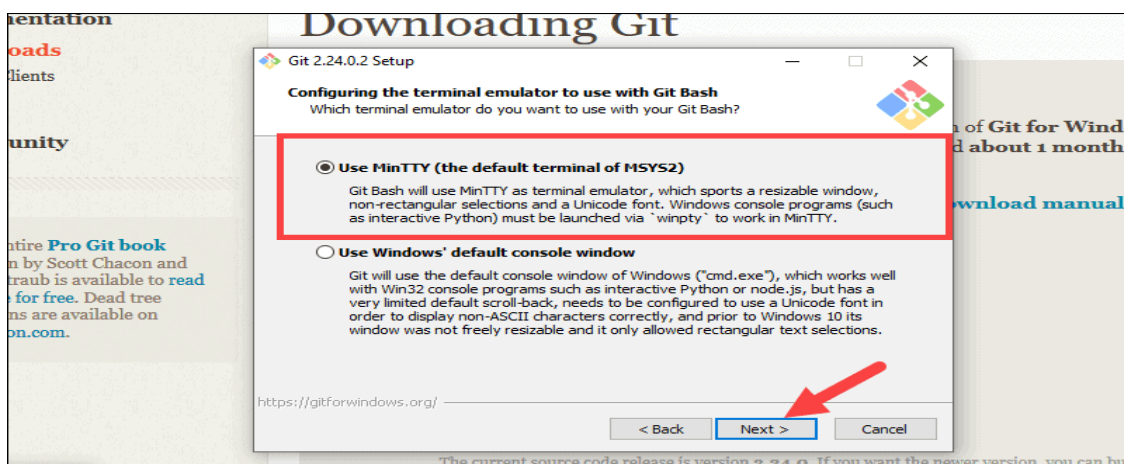2. Click the download link for Windows and allow the download to complete.

3.Review the GNU General Public License, and when you're ready to install, click Next.
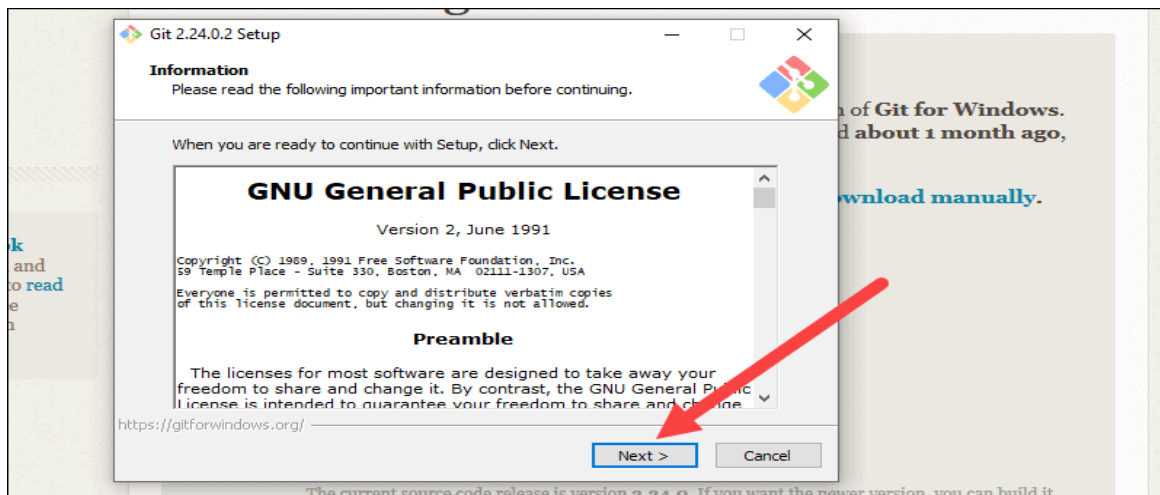
4.This relates to the way data is formatted and changing this option may cause problems. Click Next.

5.Choose the terminal emulator you want to use. The default Min TTY is recommended, for its features. Click Next.

6.Once the installation is complete, tick the boxes to view the Release Notes or Launch Git Bash, then click Finish.
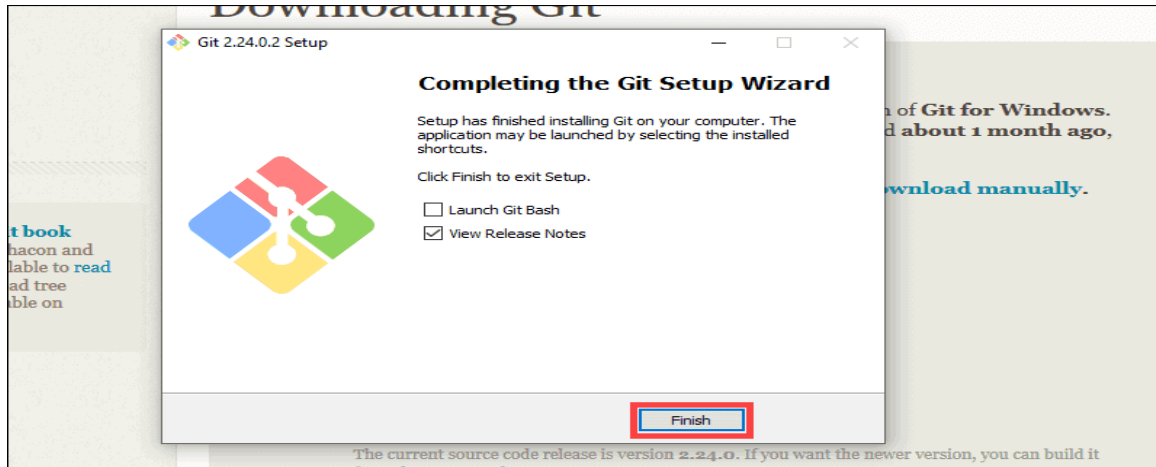
Descriptive questions:

Q1:Define git and give its uses

Q2: Explain working of git

Q3: What is the significance of Git version control?

Q4: Give the steps for installation of git

Q5: How it is possible for you as a user of Git to define the information of a user, behavior of a repository as well as the information of preferences in the programming?

Multiple choice questions

1. What is full form of VCS
a. volume shadow copy
b. version control system
c. visual computing system
d. voice control system

   Ans :- b.

2. Git is used for_____
a. manage Repositories
b. create branches
c. Tracking code changes
d. modified code

   Ans :- c.

3. What we are working with Git
a. Create Repository
b. modified code
c.   Revert any previous commit
d. all of the above

Ans :- d.

4. Git was supported for multiple people's work
True
False

Ans :- True

5.Git is used for:

a) Tracking code changes

b) Tracking who made changes

c)Coding collaboration

d) all the above

Ans: d