**GIT ASSIGNMENT**

**THEORY ANSWERS**

**Q7: View the commit history using git log**The git log command displays the commit history of the repository. It shows each commit’s hash, author name, email, date, and message. This helps in tracking changes and reverting if needed.

**Q8: What is the purpose of branching in Git? How do branches help in software development?**  
Branching allows developers to create isolated environments for working on new features, bug fixes, or experiments without affecting the main project. This enables multiple team members to work independently and merge their changes when ready. Branches make collaboration smoother and reduce the risk of breaking the main codebase.

**Q12: What is a merge conflict? Create a scenario and explain how to resolve it**A merge conflict occurs when two branches modify the same part of a file differently. For example, if main changes line 1 of hello.txt and feature-branch also modifies the same line, merging will cause a conflict. Git will insert conflict markers like <<<<<<< HEAD and ======= to highlight the differences.

**Q13: What is a remote repository in Git? How is it different from a local repository?**  
A remote repository is a version of your project that is hosted on the internet or a network server, such as GitHub. It allows team collaboration and serves as the central source of truth. A local repository exists on your own computer and contains your personal working copy. Remote repositories are accessed and updated via Git commands like clone, push, pull, and fetch.

**Q17: Fetch the latest changes using git fetch. Difference between git fetch and git pull**

Fetch updates your local copy of the remote branches. The difference is that git fetch downloads changes but doesn't apply them, while git pull fetches and merges the changes into your current branch.

**Commands**











