GIT

- **What is GIT and its significance in SDLC**

Git is software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development. Its goals include speed, data integrity, and support for distributed, non-linear workflows (thousands of parallel branches running on different systems).

- **What is the difference between GIT and SVN?**

The difference between Git and SVN version control systems is that Git is a distributed version control system, whereas SVN is a centralized version control system. Git uses multiple repositories including a centralized repository and server, as well as some local repositories. SVN does not have a centralized repository or server.

- **What are the advantages of using GIT?**

- **Distributed model**: This means your work is your own. You can let others see only what is necessary. Not everything has to be public. There are other advantages to the distributed model, such as the speed (since most everything is local) and possibility of working offline
- **Branching and merging are easy**: Branching is a walk in the park. It feels like a natural part of the workflow. They are cheap (fast and consume very little space) so that you can branch whenever you want. This means you can sandbox your features and ideas till they are ready for the mainstream.
- **Workflow is flexible**: Compared to Centralized VCS, git has the qualities that allow to choose your own workflow. It can be as simple as a centralised workflow to as hierarchical as the dictator-lieutenant workflow. Use the process that best fits you.
- **Data integrity is assured**: Because git uses SHA1 trees, data corruption due to external reasons can be easily detected.
- **Icing on the cake**:
  - **Fast**: Git is very fast, even when compared to other DVCS, for local as well as network operations
  - **Staging area**: Make sure your commits have logically grouped changes and not everything else you are working on.
  - **Free**: I am sure you dont want to spend 450$ for your personal project. Your manager will appreciate it if you save him N x 450$

- **What is “Staging Area” or “Index” in GIT?**

The Git index is a staging area between the working directory and repository. It is used to build up a set of changes that you want to commit together.

- **What is GIT stash?**

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Git stash temporarily shelves (or *stashes*) changes you've made to your working copy so you can work on something else, and then come back and re-apply them later on. Stashing is handy if you need to quickly switch context and work on something else, but you're mid-way through a code change and aren't quite ready to commit.

- **What is the function of git clone?**

git clone is a Git command line utility which is used to target an existing repository and create a clone, or copy of the target repository

- **How can you create a repository in Git?**

- Create a directory to contain the project.
- Go into the new directory.
- Type git init.
- Write some code.
- Type git add to add the files (see the typical use page).
- Type git commit.

The first file to create (and add and commit) is probably a ReadMe file, either as plain text or with Markdown, describing the project.

Markdown allows you to add a bit of text markup, like hyperlinks, **bold**/*italics*, or to indicate code with a monospace font. Markdown is easily converted to html for viewing in a web browser, and GitHub will do this for you automatically.

- **What is the purpose of branching in GIT?**

In Git, branches are a part of your everyday development process. Git branches are effectively a pointer to a snapshot of your changes. When you want to add a new feature or fix a bug no matter how big or how small you spawn a new branch to encapsulate your changes. This makes it harder for unstable code to get merged into the main code base, and it gives you the chance to clean up your future's history before merging it into the main branch.

- **What is the difference between 'git remote' and 'git clone'?**

git remote is used to refer to a remote repository or your central repository.

For e.g: When you want to add a remote repository as your origin, you use this command:

git clone is used to copy or clone a different repository.

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- **What is the function of ‘git diff ’ in git?**

Diff command is used in git to track the difference between the changes made on a file. Since Git is a version control system, tracking changes are something very vital to it. *Diff* command takes two inputs and reflects the differences between them. It is not necessary that these inputs are files only. It can be branches, working trees, commits and more

- **Explain what the commit message is?**

A commit message explains what change you made to your project. It is greatly important to learn how to make a good commit message no matter if it is a personal or professional project.

- **Why is it advisable to create an additional commit rather than amending an existing commit?**

Git amend internally creates a new commit and replaces the old commit. If commits have already been pushed to central repository, it should not be used to modify the previous commits.It should be generally used for only amending the git comment