Hands-On

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1. 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.

2.Name a few Git commands and explain their usage?

- **git config** Usage:

```
git config –global user.name "[name]"
git config –global user. email "[email address]"
```

Usage:
This command sets the author name and email address respectively to be used with your commits.

- **git init**

Usage: `git init [repository name]`
This command is used to start a new repository.

- **git add**

Usage: `git add [file]`
This command adds a file to the staging area.

- **git diff**

Usage: `git diff`
This command shows the file differences which are not yet staged.

- **git reset**

Usage: `git reset [file]`
This command unstages the file, but it preserves the file contents.

3.What is the function of 'git config'?

The git config command is a convenience function that is used to set Git configuration values on a global or local project level. These configuration levels correspond to. gitconfig text files. Executing git config will modify a configuration text file.

4. Explain the different points when a merge can enter a conflicted stage. What is the difference between fork, branch, and clone?

- Merging and conflicts are a common part of the Git experience. Conflicts in other version control tools like SVN can be costly and time-consuming. Git makes merging super easy. Most of the time, Git will figure out how to automatically integrate new changes. Conflicts generally arise when two people have changed the same lines in a file, or if one developer deleted a file while another developer was modifying it. In these cases, Git cannot automatically determine what is correct. Conflicts only affect the developer conducting the merge, the rest of the team is unaware of the conflict. Git will mark the file as being conflicted and halt the merging process. It is then the developers' responsibility to resolve the conflict.
- Forking is a concept while cloning is a process. Forking is just containing a separate copy of the repository and there is no command involved. Cloning is done through the command 'git clone 'and it is a process of receiving all the code files to the local machine. Branching and forking provide two ways of diverging from the main code line. Both Mercurial and Git have the concept of branches at the local level. A repository code branch, like a branch of a tree,

remains part of the original repository. The code that is branched (main trunk) and the branch know and rely on each other. Like a tree trunk's branch, a code branch knows about the trunk (original code base) it originated from.

5. What is the difference between rebasing and merge in Git?

git merge applies all unique commits from branch A into branch B in one commit with final result. It doesn’t rewrite commit history, just adds one new commit git rebase gets all unique commits from both branches and applies them one by one. It rewrites commit history but doesn’t create extra commit for merging