Dr.B.Hanumanthu-ISTE60

Git Version Control Practice Assignment

Objective:

These questions cover various aspects of Git version control and should provide a good practice exercise.

Question 1:

You are working on a project with multiple collaborators. Describe the steps to clone the remote repository to your local machine.

A:

1. Install Git: https://git-scm.com/downloads
2. Open a Command Prompt:
3. Navigate to the Desired Directory: cd path/to/your/directory
4. Clone the Repository: git clone https://github.com/username/repository.git
5. git clone git@github.com:username/repository.git
6. Enter Credentials (if necessary):
7. Verify the Clone: cd repository or ls # or dir on Windows
8. Configure Git
   git config --global user.name "Hanumanthu"
   git config --global user.email bhcsekits@gmail.com
   git pull origin main # or the branch you are working on

Question 2:

Explain the difference between `git pull` and `git fetch`. When would you use one over the other?

A: Git Fetch command fetches all the changes from the remote repository to the local repository without bringing the changes into the working directory.

Git Pull on the other hand brings the copy of the remote directory changes into the working directory.

Question 3:

You've made changes to multiple files in your working directory, and you want to stage all changes for the next commit. Provide the command to stage all changes at once.

A: To stage all changes in your working directory for the next commit, you can use the following command: git add .

git add --all

Question 4:
Describe the purpose and usage of the following Git command: `git log`. Include any relevant options to customize the output.

A: The git log command is used to display the commit history of a Git repository.
Show One-Line Commit Messages: git log –oneline
Limit Number of Commits: git log -n 5
Filtering Commits:
By author: git log --author="bhcsekits"
By date: git log --since="2023-11-01" --until="2023-12-31"

Question 5:
You've created a new branch named `feature-branch` to work on a new feature. Explain the steps to switch to this branch from the `main` branch.

A: To switch to a new branch named feature-branch from the main branch in Git, you can use the following steps:

1. Check Current Branch: Check Current Branch:
   Switch to the New Branch: To switch to the feature-branch, you can use the git checkout command or the more modern git switch command: git checkout feature-branch
2. git checkout feature-branch
3. git branch

Question 6:
You want to undo the last commit without losing the changes in your working directory. Provide the command to achieve this.

A: git reset HEAD^

Question 7:
Explain the concept of Git merge conflicts. How would you resolve a merge conflict during a `git merge` operation?

A: A git merge conflict is an event that takes place when Git is unable to automatically resolve differences in code between two commits.
Git can merge the changes automatically only if the commits are on different lines or branches.
git log –merge
The git log --merge command helps to produce the list of commits that are causing the conflict.

Question 8:
You have a commit history with multiple branches, and you want to visualize the commit graph. Describe the command to achieve this using `git log`.

A: git log --graph --oneline –all
--graph: This option adds an ASCII graph to the left side of the commit messages, showing the branching and merging history.

--oneline: This option condenses each commit to a single line, making the output more readable.

--all: This option shows all references, including remote branches. If you want to visualize only the commit history of the current branch, you can omit this option.

Question 9:
You've accidentally deleted a file from your working directory and want to restore it from the last commit. Provide the command to restore a specific file.

A: git checkout -- path/to/your/file

Question 10:
You are collaborating on a project, and a teammate has pushed changes to the remote repository. Explain the steps to incorporate these changes into your local branch without making a new commit.

1. Fetch the changes from the remote repository: git fetch origin
2. Check out your local branch: git merge origin/your_remote_branch
3. Merge the changes into your local branch: git merge origin/your_remote_branch