

**Source Code Lab**

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1. **Git & GitHub Fundamentals**

* **Basic Linux Commands**
* ls – List directory contents
* ls -ah – List all files including hidden ones
* pwd – Print working directory
* cd .. – Move to the parent directory
* mkdir – Create a new directory
* cd <folder> – Change into a directory

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* **File Operations**
* vi <filename> – Open file in vi editor
  + Press i to insert
  + Press Esc to exit insert mode
  + Use :wq to save and quit
* cat <filename> – Display contents of a file
* ls -l – Show file permissions and details
* history – Show command history
* clear – Clear the terminal screen

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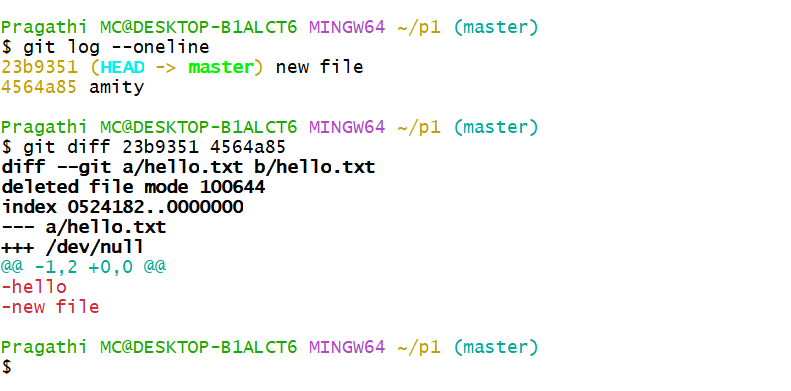
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* **Git Initialization**
* git init – Initialize a Git repository
* git status – Show the working tree status
* git add <filename> – Stage a file for commit
* git commit -m "message" – Commit changes with a message
* Configure Git with your email and username

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1. **Committing & Viewing History**

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1. **Branching & Version Comparison**

**1. Branching:**

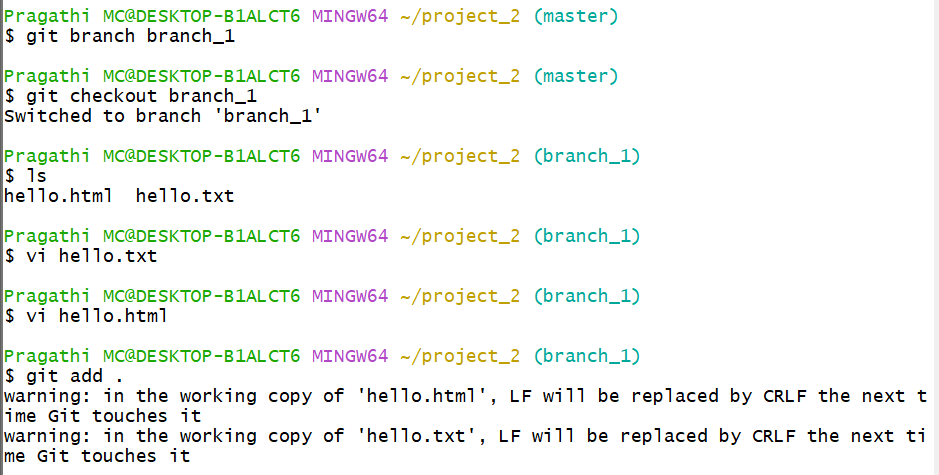
\* git branch [branchname]: Create a new branch

\* git checkout [branchname]: Switch to a different branch

\* git checkout master: Switch back to the master branch

\* **Concept:** Any branch and the master branch can have completely different codebases after many commits in their respective branches.

\* **HEAD:** A special pointer that points to the last commit in the current branch.



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**2. Comparing Changes:**

\* git diff: Show changes between commits, commit and working tree, etc. **A close up of text

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1. **Push Local Repository to GitHub (Remote)**

**Linking Local to Remote Repository:**

\* git remote: Helps connect your local repository to a remote repository

\* git remote add origin "[address of repo GitHub]": Add a new remote repository (e.g., github.com/kavya4kavya/Repo\_1). origin is a common variable name but can be anything.

\* git push -u origin master: Push local master branch to the origin remote. The -u flag sets the upstream. This is used when there's only one branch.

\* git push -u origin [branchname]: Push a specific local branch to the remote.

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1. **Induce Conflicts, Open and Close Pull Requests** 
   1. **Git Merging & Conflicts:**

\* git merge: Integrate c

hanges from one branch into another.

\* Conflicts arise during merging when Git cannot automatically reconcile diverging changes.

\* Use a merge tool to resolve conflicts.

\* git mergetool: Command to launch the configured merge tool.

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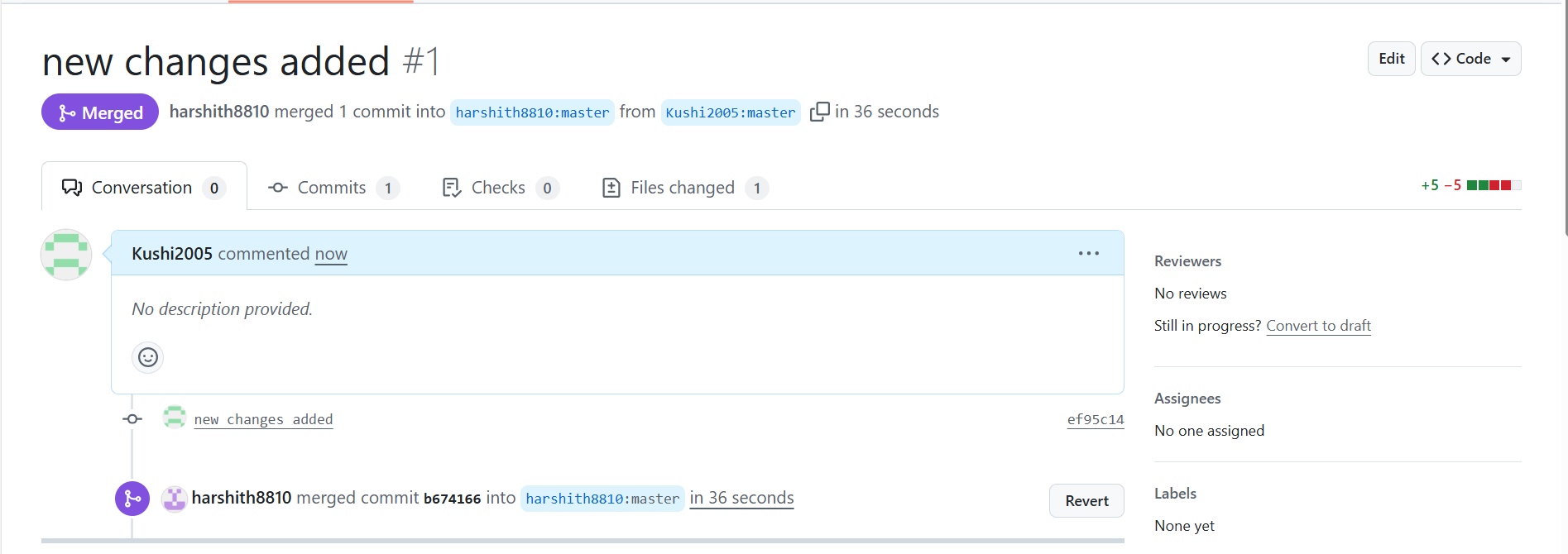
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**2. Gitignore**: \*. gitignore file: Specifies intentionally untracked files that Git should ignore.

\* Files listed in .gitignore will not be tracked by Git and will not be mirrored on GitHub.

**3. Pull Requests**: \* Opening a pull request



2. \* Closing a pull request

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