“Heaven’s Light is Our Guide”

Rajshahi University of Engineering & Technology



Department of Electrical and Computer Engineering

**Course No:** ECE-3118

**Course Title:**  Software Engineering & Information System Design Sessional

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**Experiment No:03**  
**Experiment Name:** Study of GIT commands and their usages.  
**GIT COMMANDS:**  
**1.GIT INIT:** The git init command creates a new Git repository. It can be used to convert an existing, unversioned project to a Git repository or initialize a new, empty repository.  
**2.GIT ADD:** The git add command adds a change in the working directory to the staging area. It tells Git that you want to include updates to a particular file in the next commit.

**3.GIT COMMIT:** It is used to record the changes in the repository. It is the next command after the GIT ADD. Every commit contains the index data and the commit message. Every commit forms a parent-child relationship. When we add a file in Git, it will take place in the staging area. A commit command is used to fetch updates from the staging area to the repository. Commits are the snapshots of the project.  
**4.GIT CLONE:** The git clone is a command-line utility which is used to make a local copy of a remote repository. It accesses the repository through a remote URL. Usually, the original repository is located on a remote server, often from a Git service like GitHub, Bitbucket, or GitLab. The remote repository URL is referred to the origin.  
**5.GIT STASH:** Generally, the stash's meaning is "store something safely in a hidden place." The sense in Git is also the same for stash; Git temporarily saves your data safely without committing. Stashing takes the messy state of working directory, and temporarily save it for further use. Many options are available with git stash.  
**6.GIT IGNORE:** Git ignore is a convention in git. Setting a file by the name of . gitignore will ignore the files in that directory and deeper directories that match the patterns that the file contains  
**7.GIT REPOSITORY:** A Git repository tracks and saves the history of all changes made to the files in a Git project. It saves this data in a directory called . git , also known as the repository folder. Git uses a version control system to track all changes made to the project and save them in the repository.  
**8. GIT INDEX:** The Git index is a critical data structure in Git. It serves as the “staging area” between the files you have on your filesystem and your commit history. When you run git add , the files from your working directory are hashed and stored as objects in the index, leading them to be “staged changes”.

**9.GIT HEAD:** The HEAD points out the last commit in the current checkout branch. It is like a pointer to any reference. The HEAD can be understood as the "current branch." When we switch branches with 'checkout,' the HEAD is transferred to the new branch.

**10. GIT ORIGIN MASTER:** Master is a naming convention for Git branch. It's a default branch of Git. After cloning a project from a remote server, the resulting local repository contains only a single local branch. This branch is called a "master" branch. It means that "master" is a repository's "default" branch.  
**11. GIT REMOTE:** In Git, the term remote is concerned with the remote repository. It is a shared repository that all team members use to exchange their changes. A remote

repository is stored on a code hosting service like an internal server, GitHub, Subversion, and more. In the case of a local repository, a remote typically does not provide a file tree of the project's current state; as an alternative, it only consists of the .git versioning data.  
**12. GIT CHECKOUT:** The git checkout command lets you navigate between the branches created by git branch . Checking out a branch updates the files in the working directory to match the version stored in that branch, and it tells Git to record all new commits on that branch.

**13. GIT LOG:** The git log command shows a list of all the commits made to a repository. We can see the hash of each Git commit, the message associated with each commit, and more metadata. This command is useful for displaying the history of a repository.  
**14.GIT STATUS:** The git status command displays the state of the working directory and the staging area. It lets us see which changes have been staged, which haven't, and which files aren't being tracked by Git.  
**15. GIT PULL:** git pull is a Git command used to update the local version of a repository from a remote.

**16. GIT PUSH:** The git push command is used to upload local repository content to a remote repository. Pushing is how we transfer commits from your local repository to a remote repo.  
**17.GIT CONFIG:** The GIT CONFIG command is a convenience function that is used to set git configuration values on global or local project level