# GIT

Leander Maben

October 5, 2019

# Contents

**Abstract**

This report is a basic document on the usage of version control.It covers basic commands and controls of the distributed version control software GIT.

# Chapter 1

# Introduction

Version control is used to track changes made to a project. It is especially usefull when a project is done in collaboration with other programmers. It is essential in large scale project development.It provides several benefits like:

- It provides a way to keep track of the latest version.
- Branch repository while developing to prevent the existing code from breaking.
- Go back to previous version if current version breaks.
- Keep track of work done by each person.

There are three main types of version control:

1. Localized Version Control
2. Centralized Version Control
3. Distributed Version Control

## 1.1 Types

### 1.1.1 Localized Version Control

This is a system where we can locally keep track of changes to project, that is keep a record of changes in the given personal computer.This however may not be sufficient for most modern day software development projects which involves a large number of developers.

### 1.1.2 Centralized Version Control

This system overcomes the shortcomings of localized version control. Through this system a large number of programmers accross the globe can collaborate on projects with ease. It helps keep track of th e latest versions.Branches may be created for development and testing of new features which can then be merged with master branch if found to be properly working.Morover, adinistrators can easily monitor and supervise work.

### 1.1.3 Distributed Version Control

In this system,the clients don't just recieve the final image of the repository.Instead each client gets a complete copy of th e repository including history.GIT falls under this category. The main advantage here is that if the main server clashes we can just copy the repository back from one of the clients as it has the complete copy.

# Chapter 2

# Stages

There are 3 main stages in GIT:

1. committed
2. modified
3. staged

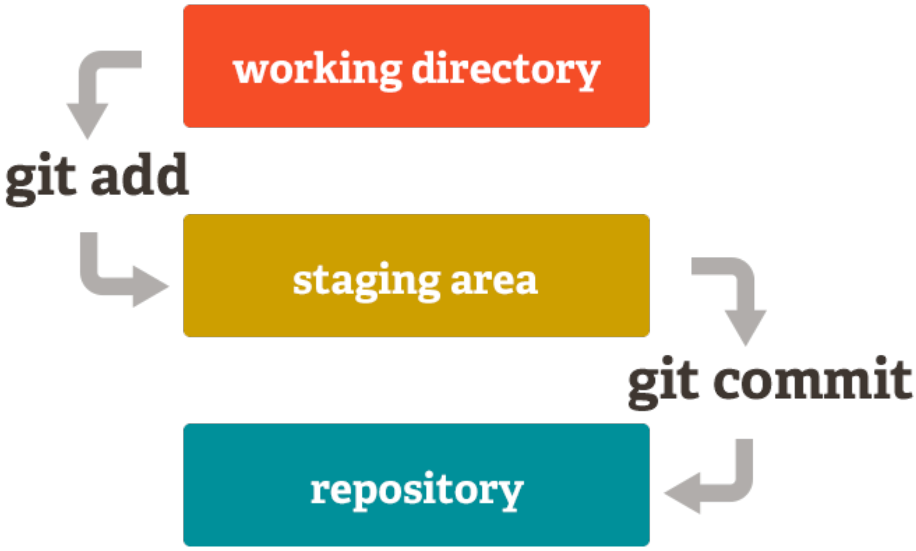

Table 2.1: Summary of stages in GIT

| S.No | Stage | Description | Comment |
|---|---|---|---|
| 1 | Modified | A file has been modified since in local repository but has not been added to the staging area | Can be done by locally modifying a file |
| 2 | Staged | The changes have been added to the staging area to be recorded in the next commit | Can be done by adding the modified file to staging area |
| 3 | Commited | The snaphot of the current staged state has been stored in repository | done by using git commit. |

# Chapter 3

# Basic Commands

- $ git init - initializes git repository
- $ git –version - get git version
- $ git config –list -Dispalys config details
- $ git config –global <config option> <value>
- $ git status - display condition of files
- $ git log - gives info of all commits
- $ git add - add file to staging area
- $ git commit - commit changes Options:
  - - m ’Commit Message’
  - -a add all files to staging area
- $ git rm –cached <filename>- delete a file from git repository
- $ git clone <url> - clone existing repository