

1. Create a Distributed version control system, and put files into it.

The image shows two screenshots illustrating the setup of a Distributed Version Control System (DVCS) on a local machine and its public repository.

**Terminal Screenshot:** The terminal window shows the user configuring Git globally and locally, creating a repository, committing files, and pushing to a remote repository on GitHub.

```
git config --global user.email "you@example.com"
git config --global user.name "Your Name"

to set your account's default identity.
Omit --global to set the identity only in this repository.

fatal: unable to auto-detect email address (got 'austin@Quantiphi-745.(none)')
austin@Quantiphi-745:~/Desktop/GitAssessment$ git config --global user.email 'austin.dsouza@quantiphi.com'
austin@Quantiphi-745:~/Desktop/GitAssessment$ git config --global user.name 'Austin306'
austin@Quantiphi-745:~/Desktop/GitAssessment$ git commit -m 'Git Assessment'
[master (root-commit) 9939bc9] Git Assessment
 2 files changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 Sample1.txt
 create mode 100644 Sample2.txt
austin@Quantiphi-745:~/Desktop/GitAssessment$ git push origin master
fatal: 'origin' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
austin@Quantiphi-745:~/Desktop/GitAssessment$ git remote add origin https://github.com/Austin306/GitAssessment.git
austin@Quantiphi-745:~/Desktop/GitAssessment$ git status
On branch master
nothing to commit, working tree clean
austin@Quantiphi-745:~/Desktop/GitAssessment$ git commit -m 'Git Assessment'
On branch master
nothing to commit, working tree clean
austin@Quantiphi-745:~/Desktop/GitAssessment$ git push origin master
Username for 'https://github.com': Austin306
Password for 'https://Austin306@github.com':
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 229 bytes | 229.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/Austin306/GitAssessment.git
 * [new branch] master -> master
austin@Quantiphi-745:~/Desktop/GitAssessment$
```

**Web Browser Screenshot:** The Firefox Web Browser shows the GitHub repository page for Austin306/GitAssessment. The page displays the repository name, a description, and a list of files (Sample1.txt, Sample2.txt).

The repository page shows the following details:

- Repository: Austin306 / GitAssessment
- Watch: 0, Star: 0, Fork: 0
- Code, Issues, Pull requests, Projects, Wiki, Security, Insights, Settings
- No description, website, or topics provided.
- Manage topics
- 1 commit, 1 branch, 0 releases, Fetching contributors
- Branch: master, New pull request
- Create new file, Upload files, Find File, Clone or download
- Cannot retrieve the latest commit at this time.
- Sample1.txt, Sample2.txt
- Help people interested in this repository understand your project by adding a README. Add a README

2. Replicate a DVCS on your local machine, make changes to its files, and then put them back into it.

```
Activities Terminal Thu 10:43
austin@Quantiphi-745: ~/Desktop/GitAssessment/Git

austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git pull https://github.com/Austin306/GitAssessment.git
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/Austin306/GitAssessment
* branch      HEAD      -> FETCH_HEAD
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ ls -l
total 0
-rw-r--r-- 1 austin austin 0 Jun  6 10:41 Sample1.txt
-rw-r--r-- 1 austin austin 0 Jun  6 10:41 Sample2.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ nano Sample1.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ nano Sample2.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   Sample1.txt
        modified:   Sample2.txt

no changes added to commit (use "git add" and/or "git commit -a")
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$
```

```
Activities Terminal Thu 10:46
austin@Quantiphi-745: ~/Desktop/GitAssessment/Git

austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git remote add https://github.com/Austin306/GitAssessment.git
usage: git remote add [<options>] <name> <url>

    -f, --fetch          fetch the remote branches
    --tags              import all tags and associated objects when fetching
                        or do not fetch any tag at all (--no-tags)
    -t, --track <branch> branch(es) to track
    -m, --master <branch> master branch
    --mirror[=<push|fetch>]
                        set up remote as a mirror to push to or fetch from

austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git push origin master
fatal: 'origin' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ ls -la
total 20
drwxr-xr-x 3 austin austin 4096 Jun  6 10:42 .
drwxr-xr-x 4 austin austin 4096 Jun  6 10:36 ..
drwxr-xr-x 8 austin austin 4096 Jun  6 10:43 .git
-rw-r--r-- 1 austin austin 30 Jun  6 10:42 Sample1.txt
-rw-r--r-- 1 austin austin 30 Jun  6 10:42 Sample2.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git remote add origin https://github.com/Austin306/GitAssessment.git
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git push origin master
Username for 'https://github.com': Austin306
Password for 'https://Austin306@github.com':
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 299 bytes | 299.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/Austin306/GitAssessment.git
9939bc9..4245947  master -> master
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$
```

3. List down all the files which have changed in the last commit. List only the file names.

```
Activities  Terminal  Thu 10:48
austin@Quantiphi-745: ~/Desktop/GitAssessment/Git

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drwxr-xr-x 3 austin austin 4096 Jun  6 10:42 .
drwxr-xr-x 4 austin austin 4096 Jun  6 10:36 ..
drwxr-xr-x 8 austin austin 4096 Jun  6 10:43 .git
-rw-r--r-- 1 austin austin  30 Jun  6 10:42 Sample1.txt
-rw-r--r-- 1 austin austin  30 Jun  6 10:42 Sample2.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git remote add origin https://github.com/Austin306/GitAssessment.git
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git push origin master
Username for 'https://github.com': Austin306
Password for 'https://Austin306@github.com':
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 299 bytes | 299.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/Austin306/GitAssessment.git
 9939bc9..4245947  master -> master
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git show .
commit 424594731ef636a5fec7d24e198807a265af1a13 (HEAD -> master, origin/master)
Author: Austin306 <austin.dsouza@quantiphi.com>
Date: Thu Jun 6 10:43:37 2019 +0530

    Made Changes into files

diff --git a/Sample1.txt b/Sample1.txt
index e69de29..4c30310 100644
--- a/Sample1.txt
+++ b/Sample1.txt
@@ -0,0 +1,2 @@
+#Made changes into this file
+
diff --git a/Sample2.txt b/Sample2.txt
index e69de29..4c30310 100644
--- a/Sample2.txt
+++ b/Sample2.txt
@@ -0,0 +1,2 @@
+#Made changes into this file
+
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$
```

4. You've accidentally added some files on a DVCS. Remove those files from the DVCS without deleting them from your local system.

```
austin@Quantiphi-745: ~/Desktop/GitAssessment/Git

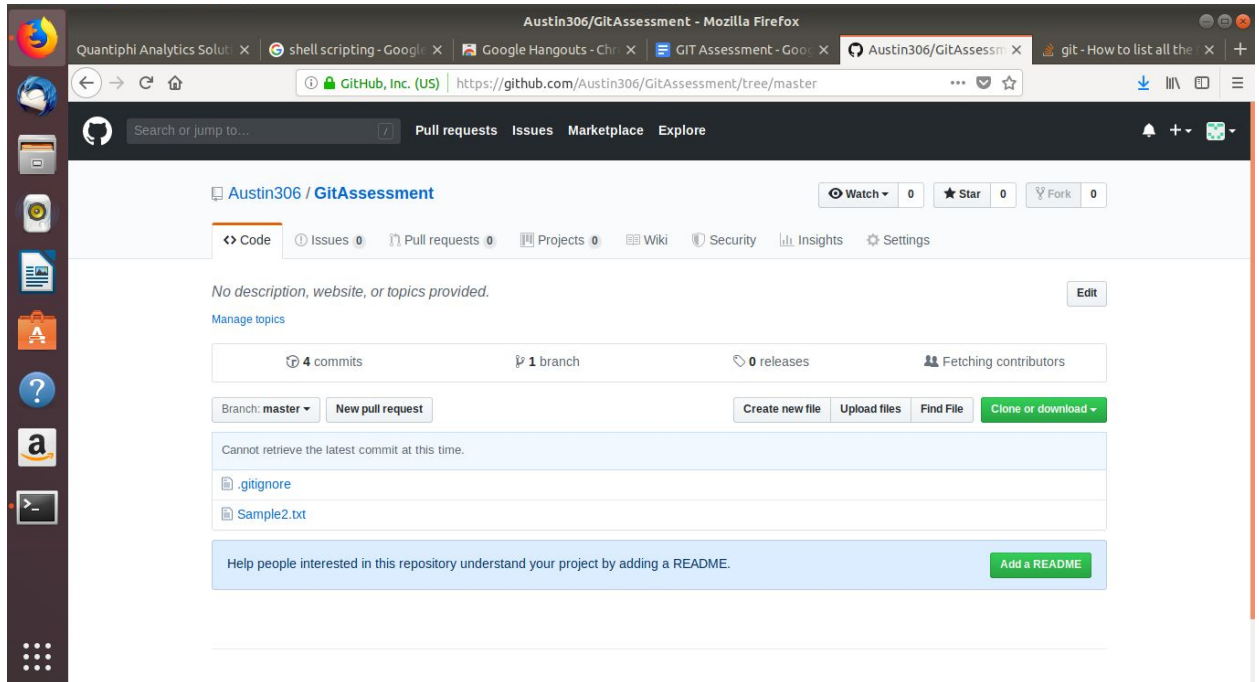
File Edit View Search Terminal Help

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

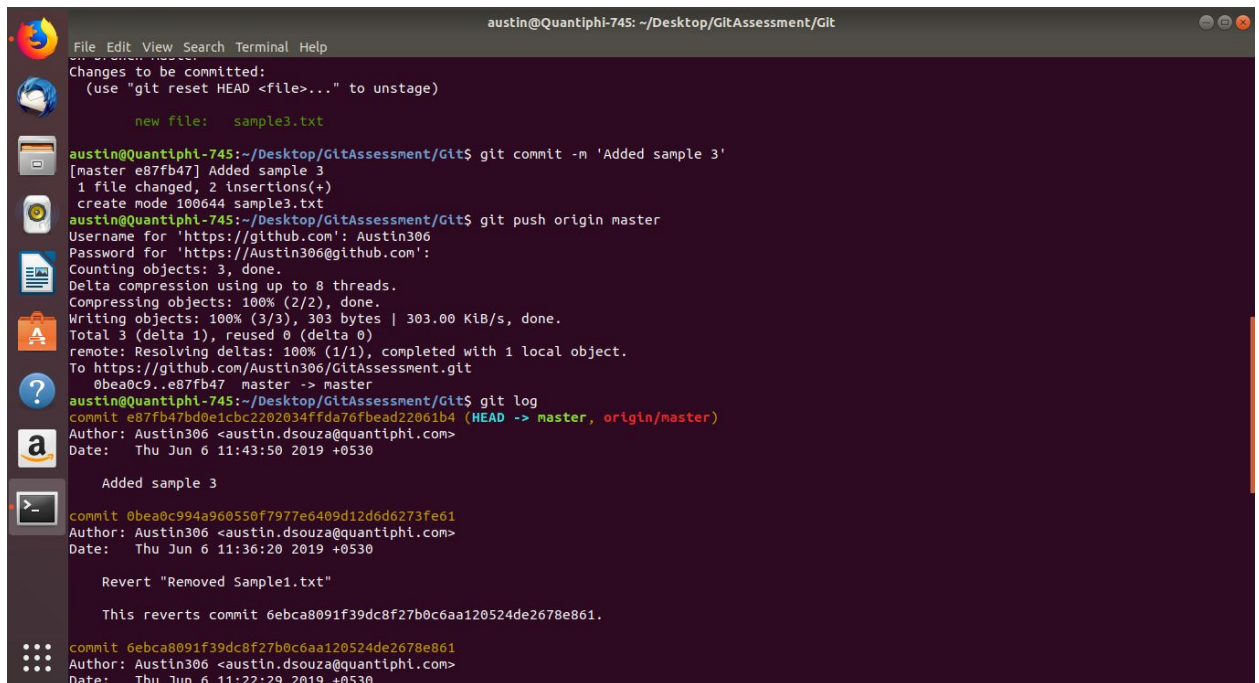
    modified:   .gitignore
    new file:   Sample1.txt

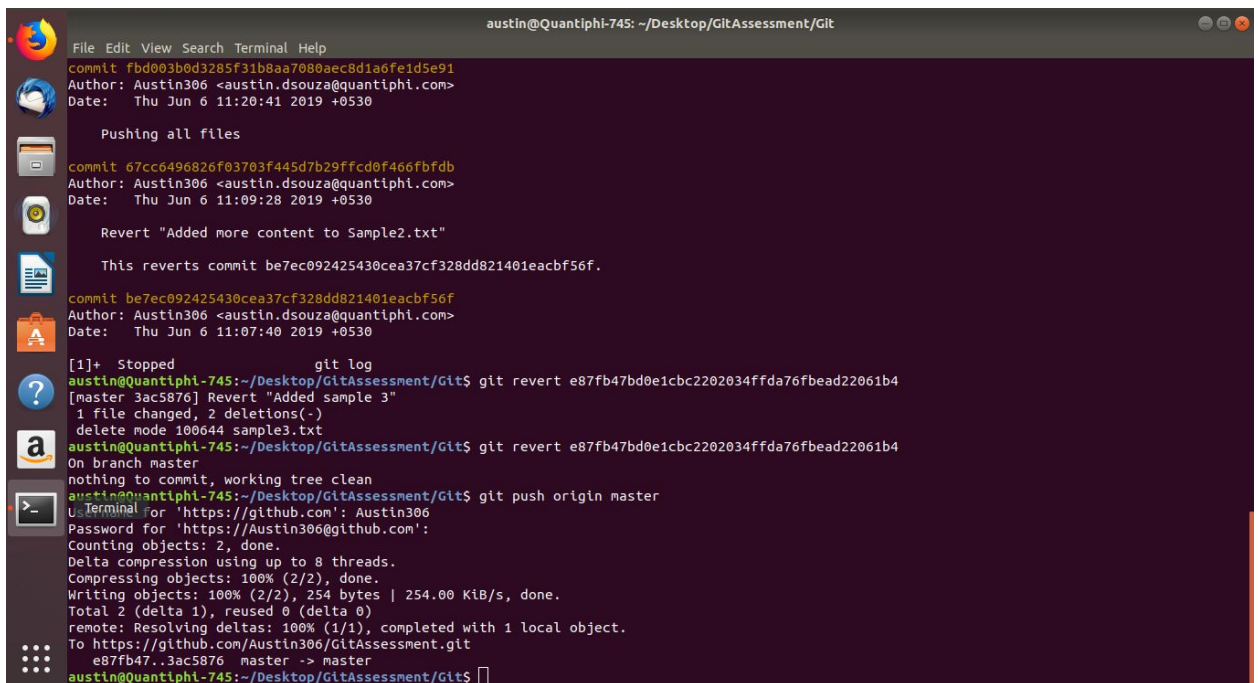
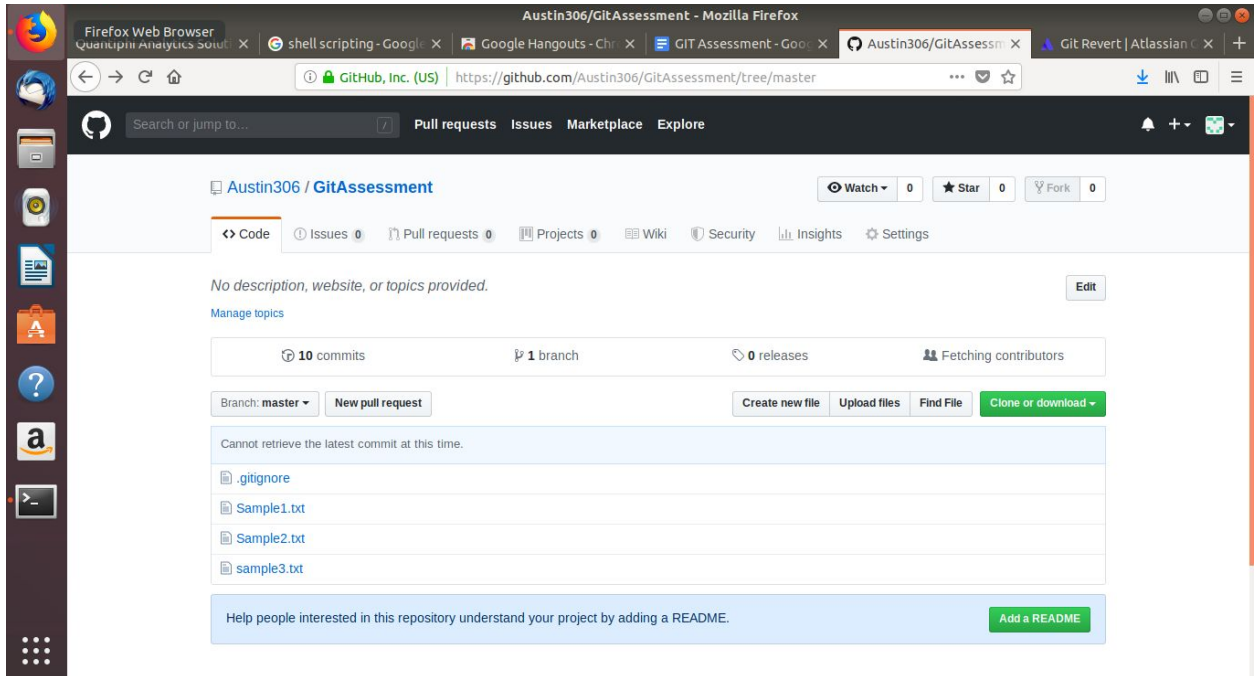
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git commit -m 'Pushing all files'
[master fbd003b] Pushing all files
 2 files changed, 2 insertions(+), 1 deletion(-)
 create mode 100644 Sample1.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git push origin master
Username for 'https://github.com': Austin306
Password for 'https://Austin306@github.com':
Counting objects: 7, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (7/7), 674 bytes | 674.00 KiB/s, done.
Total 7 (delta 0), reused 0 (delta 0)
To https://github.com/Austin306/GitAssessment.git
 be7ec09..fbd003b  master -> master
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git rm --cached Sample1.txt
rm 'Sample1.txt'
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git commit -m 'Removed Sample1.txt'
[master 6ebca80] Removed Sample1.txt
 1 file changed, 2 deletions(-)
 delete mode 100644 Sample1.txt
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$ git push origin master
Username for 'https://github.com': Austin306
Password for 'https://Austin306@github.com':
Counting objects: 2, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 234 bytes | 234.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/Austin306/GitAssessment.git
 fbd003b..6ebca80  master -> master
austin@Quantiphi-745:~/Desktop/GitAssessment/Git$
```

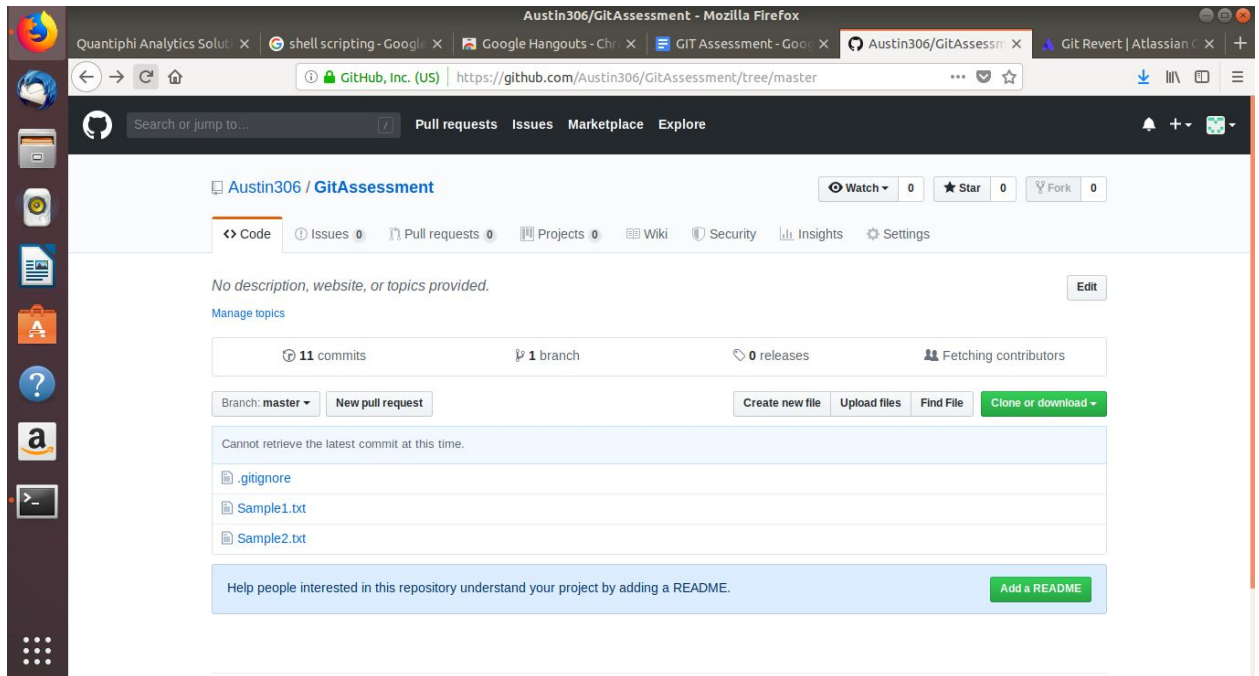




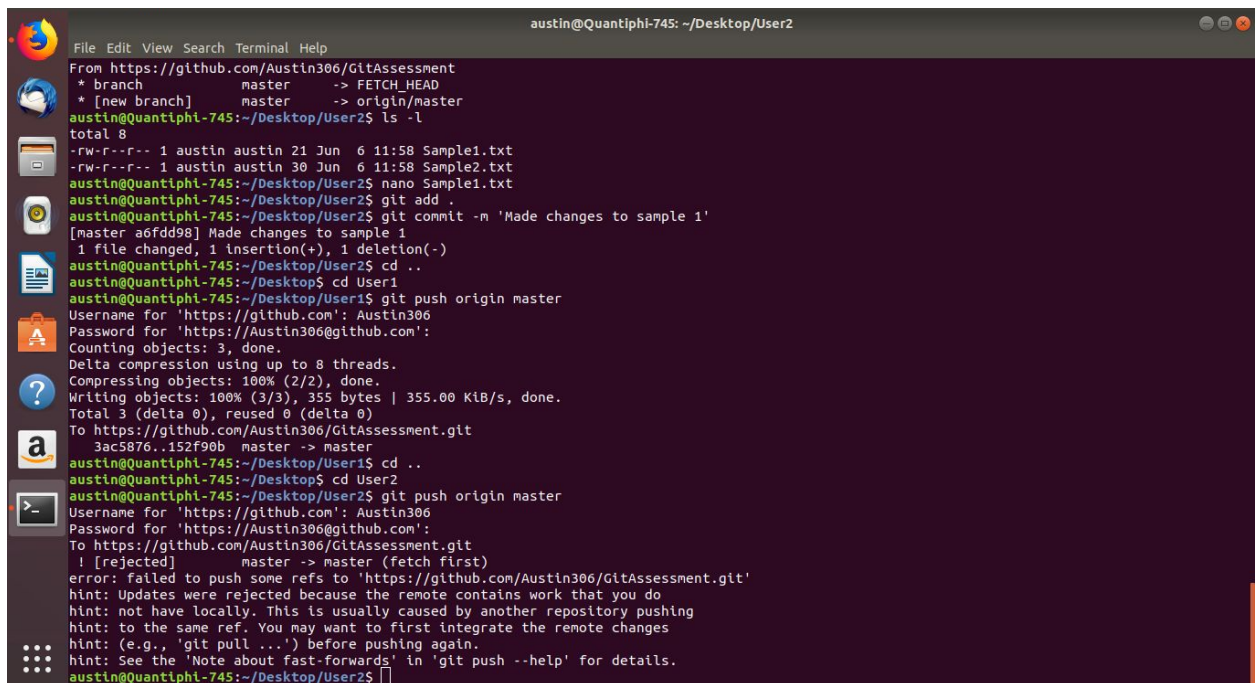
5. You've accidentally committed some files on a DVCS. Revert the DVCS to a previous stable state.







6. Create a DVCS capable of supporting 2 similar dev environments. Make changes in the files which are present on both of them and then merge the environments into one





```
austin@Quantiphi-745: ~/Desktop/User2
File Edit View Search Terminal Help
austin@Quantiphi-745:~/Desktop$ cd User2
austin@Quantiphi-745:~/Desktop/User2$ git push origin master
Username for 'https://github.com': Austin306
Password for 'https://Austin306@github.com':
To https://github.com/Austin306/GitAssessment.git
! [rejected] master -> master (fetch first)
error: failed to push some refs to 'https://github.com/Austin306/GitAssessment.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
austin@Quantiphi-745:~/Desktop/User2$ git pull --rebase origin master
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/Austin306/GitAssessment
* branch master -> FETCH_HEAD
3ac5876..152f90b master -> origin/master
First, rewinding head to replay your work on top of it...
Applying: Made changes to sample 1
Using index info to reconstruct a base tree...
M Sample1.txt
Falling back to patching base and 3-way merge...
Auto-merging Sample1.txt
CONFLICT (content): Merge conflict in Sample1.txt
error: Failed to merge in the changes.
Patch failed at 0001 Made changes to sample 1
Use 'git am --show-current-patch' to see the failed patch

Resolve all conflicts manually, mark them as resolved with
"git add/rm <conflicted_files>", then run "git rebase --continue".
You can instead skip this commit: run "git rebase --skip".
To abort and get back to the state before "git rebase", run "git rebase --abort".
austin@Quantiphi-745:~/Desktop/User2$
```

```
austin@Quantiphi-745: ~/Desktop/User2
Firefox Web Browser File Edit View Search Terminal Help
CONFLICT (content): Merge conflict in Sample1.txt
error: Failed to merge in the changes.
Patch failed at 0001 Made changes to sample 1
Use 'git am --show-current-patch' to see the failed patch

Resolve all conflicts manually, mark them as resolved with
"git add/rm <conflicted_files>", then run "git rebase --continue".
You can instead skip this commit: run "git rebase --skip".
To abort and get back to the state before "git rebase", run "git rebase --abort".
austin@Quantiphi-745:~/Desktop/User2$ git mergetool

This message is displayed because 'merge.tool' is not configured.
See 'git mergetool --tool-help' or 'git help config' for more details.
'git mergetool' will now attempt to use one of the following tools:
meld opendiff kdiff3 tkdiff xxdiff tortoisemerge gvimdiff diffmerge ecmerge p4merge araxis bc codecompare emerge vimdiff
Merging:
Sample1.txt

Normal merge conflict for 'Sample1.txt':
{local}: modified file
{remote}: modified file
Hit return to start merge resolution tool (bc): ^Z
[2]+ Stopped git mergetool
austin@Quantiphi-745:~/Desktop/User2$ git mergetool --tool=araxis -y --no-prompt Sample1.txt
Merging:
Sample1.txt

Normal merge conflict for 'Sample1.txt':
{local}: modified file
{remote}: modified file
Sample1.txt seems unchanged.
Was the merge successful [y/n]? y
austin@Quantiphi-745:~/Desktop/User2$ git mergetool --tool=araxis -y --no-prompt Sample1.txt
No files need merging
austin@Quantiphi-745:~/Desktop/User2$ git rebase --continue
Applying: Made changes to sample 1
austin@Quantiphi-745:~/Desktop/User2$
```

You have a DVCS supporting your prod, test and dev environments, you need to make sure that only a particular set of commits from the test environment are added in the prod environment. What & how would you do it?

