Exercises for basic GIT operations:

Setup a git config using SSH or HTTPS.

For SSH use ssh-keygen command in git bash terminal key will be generate in C:/users/.ssh folder. Copy id\_rsa.pub key and add it in vendor site like github and add in ssh key.

For global config use – git config –global user.email ”xxxxxxxxx ”

git config –global user.namel ”xxxxxxxxx ”

Exercise 1: Create your first Commit.

Task:

1. Initialize your Repository: git init project Exercise-1
2. Create a file with name index.html -
3. Write code in newly created file
4. Stage index.html
5. Commit with message ‘Initial Message.’

**Solution Exercise 1 –**

clone the repo using HTTPS or SSH or use “**git init**” command to initialized at local machine.

Create index.html and write a code.

To stage a changes after writing use “**git add index.html**” and to track of staging area use “git status”.

Use “**git commit -m “Initial setup**” to stage in commit area.

Exercise 2: Commit only one file.

Task:

1. Initialize your Repository: git init Exercise-2
2. Create a files with names index.html and about.html
3. Add code in both files.
4. Stage only one file.
5. Commit with message: ‘File x added.’

**Solution Exercise 2 –**

After creating about.html and modifying index.html.

To stage about.html use command “**git add about.html**” and to commit it use “**git commit -m “about.html added”** ”.

Exercise 3: Modify last commit.

Task:

1. Initialize your Repository: git init project Exercise-3
2. Create a file with name index.html
3. Write code in newly created file
4. Stage index.html
5. Commit with message ‘adding index.html.’
6. Add new about.html file with some code.
7. Now modify message of previous commit as ‘Adding index.html and about.html ’and add about.html file in previous commit.

**Solution Exercise 3 –**  **$ git add Exercise3/index.html**

**$ git commit -m "adding index.html"**

**$ git add Exercise3/about.html**

**$ git commit --amend -m "Adding index.html and about.html "**

Exercise 4: Create git ignore file

Task:

1. Initialize your Repository: git init Exercise-4
2. Create a gitignore file that will ignore
   1. all files with ‘exe’ extension
   2. all files with ‘o’ extension
   3. all files with ‘jar’ extension
   4. the whole libraries directory

**Solution Exercise 4 –**

.gitignore contains -

\*.exe

\*.o

\*.jar

/public

# will ignore /public directory in Exercise4.

**$ git add Exercise4/.gitignore**

**$ git commit -m ".gitignore added"**

Exercise 5: Save your work with stash.

Task:

1. Initialize your Repository: git init Exercise-5
2. Add some random files with code
3. Now use git stash command to save required files from above files.

(For this exercise don’t send repository just submit git commands and output of **git stash list**)

**Solution Exercise 5 –**

**$ git stash**

**Saved working directory and index state WIP on master: 2170fa5 .gitignore added**

Exercise 6: Reset Previous Commit Keeping changes. (Soft Reset)

Task:

1. Initialize your Repository: git init Exercise-6.
2. Do some series of commits.
3. Now use git reset command to reset one of the commit and keep changes in staging area.

In answer also add output of **git status command.**

**Solution Exercise 6 –**

**$ git log**

**commit 3d36140f1387b487552b462ea227ebcdff3a144f (HEAD -> master)**

**Author: xxx <xx>**

**Date: Sun Jun 13 00:26:43 2021 +0530**

**added about.html Exercise6**

**commit aa48f4c7b254d35ad0409d92862be5d26b4b3f43**

**Author: xx <xx>**

**Date: Sun Jun 13 00:26:11 2021 +0530**

**modified index.html Exercise6**

**commit e3bdd821caa7656fc85d93e49c5e3231606283aa**

**Author: xx <xx>**

**Date: Sun Jun 13 00:24:47 2021 +0530**

**adding index.html Exercise6**

**Done with three commit**

**$ git reset --soft HEAD~2 ----will undo two commits before head.**

**$ git status**

**On branch master**

**Your branch is behind 'origin/master' by 1 commit, and can be fast-forwarded.**

**(use "git pull" to update your local branch)**

**Changes to be committed:**

**(use "git restore --staged <file>..." to unstage)**

**new file: Exercise6/about.html**

**new file: Exercise6/index.html**

Exercise 7: Reset Previous Commit (Hard Reset).

Task:

1. Initialize your Repository: git init Exercise-7.
2. Do some series of commits.
3. Use git reset command to reset one of the commit without keeping changes.

**Solution Exercise 7 –**

**$ git log**

commit 51d2876df67c639a999f82b4b31a71854ea86dcf (HEAD -> master)

Author: xx <xx>

Date: Sun Jun 13 00:46:02 2021 +0530

modified index.html Exercise7

commit 5b63c24f313f2c2d3ea3fb79bd67a123a7626738

Author: xx <xx>

Date: Sun Jun 13 00:45:02 2021 +0530

adding about.html Exercise7

commit b3e7ecf36cf3d6ac697fb4f81c75ca0288670302

Author: xx <xx>

Date: Sun Jun 13 00:44:21 2021 +0530

adding index.html Exercise7

**Done with three commits**

**$ git reset --hard HEAD~2**

**HEAD is now at b3e7ecf adding index.html Exercise7**

Exercise 8: Merge branch (No Conflicts).

Task:

1. Initialize your Repository: git init Exercise-8
2. Create index.html file add some code.
3. Make Commit.
4. Create new branch from master branch with name my-feature.
5. Add about-us.html file with code and commit changes in my-feature branch.
6. Now checkout master branch.
7. Merge my-feature branch into master.

**Solution Exercise 8 –**

In master branch-

$ git add Exercise8/index.html

$ git commit -m "adding index.html Exercise8"

In my-feature branch-

$ git checkout my-feature

$ git add Exercise8/about.html

$ git commit -m "adding about.html Exercise8(my-feature branch)"

$ git checkout master

In master branch-

$ git merge my-feature

Updating fdfd71c..5db1373

Fast-forward

Exercise8/about.html | 1 +

1 file changed, 1 insertion(+)

create mode 100644 Exercise8/about.html

Exercise 9: Merge branch (Conflicts).

Task:

1. Initialize your Repository: git init Exercise-9
2. Create index.html file add some code.
3. Make Commit.
4. Create new branch from master branch with name my-feature.
5. Add about-us.html file with code
6. Make changes in index.html
7. Commit changes in my-feature branch.
8. Now checkout master branch.
9. Do some code changes in index.html
10. Commit changes.
11. Now merge my-feature branch into master.
12. You will get conflicts for index.html file. Resolve conflict by selecting both changes for the same index.html file.

**Solution Exercise 9 –**

In master branch-

$ git add Exercise9/index.html

$ git commit -m "adding index.html Exercise9"

In my-feature branch-

$ git checkout my-feature

$ git add Exercise9/about-us.html

$ git commit -m "adding about.html Exercise9(my-feature branch)"

$ git add Exercise9/index.html

$ git commit -m "adding index.html Exercise9(my-feature branch)"

$ git checkout master

In master branch-

$ git add Exercise9/index.html

$ git commit -m "modified index.html Exercise9"

$ git add Exercise9/index.html

$ git commit -m "modified 2nd time index.html Exercise9"

$ git merge my-feature

CONFLICT (add/add): Merge conflict in Exercise9/index.html

Auto-merging Exercise9/index.html

Automatic merge failed; fix conflicts and then commit the result.

After selecting both the changes in vscode-

$ git status

On branch master

Your branch and 'origin/master' have diverged,

and have 6 and 1 different commits each, respectively.

(use "git pull" to merge the remote branch into yours)

You have unmerged paths.

(fix conflicts and run "git commit")

(use "git merge --abort" to abort the merge)

Changes to be committed:

new file: Exercise9/about-us.html

Unmerged paths:

(use "git add <file>..." to mark resolution)

both added: Exercise9/index.html

$ git add Exercise9/index.html

$ git commit -m "selecting both the changes from my-features and master for index.html Exercise9"

$ git merge my-feature

Already up to date.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Time in Minutes** | | |
| **Levels**  **Assignment** | **Beginner** | **Intermediate** | **Expert** |
| Exercise-1 | 15 | 10 | 5 |
| Exercise-2 | 15 | 10 | 5 |
| Exercise-3 | 30 | 20 | 15 |
| Exercise-4 | 5 | 5 | 5 |
| Exercise-5 | 25-30 | 20 | 15 |
| Exercise-6 | 45 | 30 | 30 |
| Exercise-7 | 45 | 30 | 30 |
| Exercise-8 | 60 | 45 | 45 |
| Exercise-9 | 90 | 60 | 60 |
| **Total Time** | **5.08 HRs** | **3.83 HRs** | **3.5 HRs** |

How to evaluate?