



Air University (Multan Campus)

Dept. Computer Sciences, BSCS-V Fall'2017

Assignment#1 Introduction to Git and GitHub.

Software Engineering

Submitted to:

Sir Ahmad Mohsin

Submitted by:

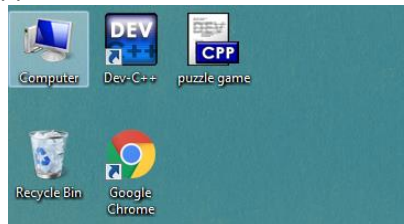
Umamah Ayyaz Ansari (153174)

Date of Submission:

18th September, 2017

Exercise 0 – Putting A C++ Project on GitHub:

- Step#1: Create a .cpp file:



- Create a repository on GitHub of the same name. If you don't add a Readme file when you create it, GitHub will show you the git commands needed to add your project:

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner: / Repository name:

Great repository names are short and memorable. Need inspiration? How about urban-journey.

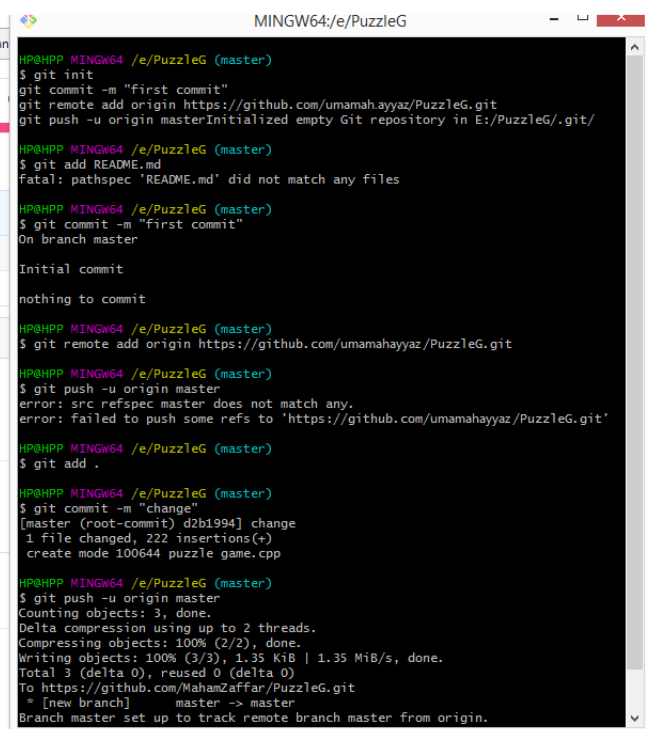
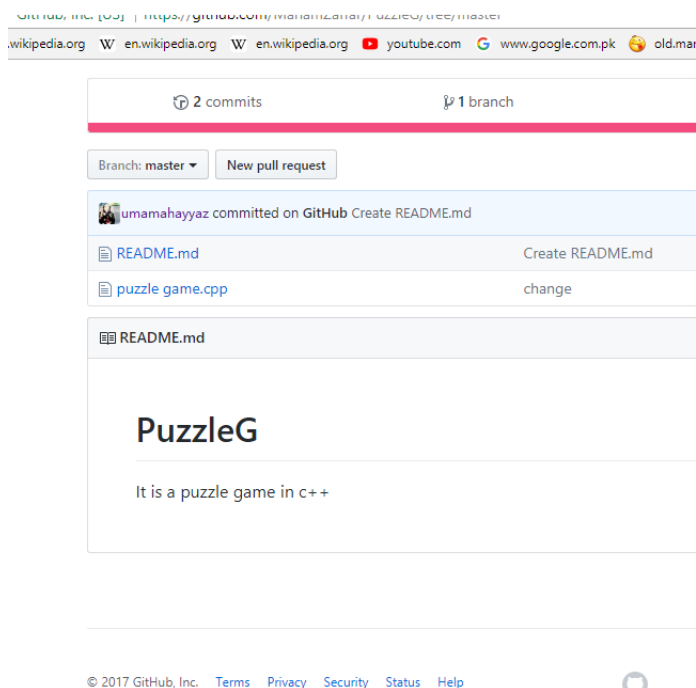
Description (optional):

☒ Public
Anyone can see this repository. You choose who can commit.

☐ Private
You choose who can see and commit to this repository.

☐ Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: Add a license:



Git + Github Exercises

Exercise 1 – Creating and using a local repository:

- A directory named “gitpractice” is made:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ pwd
/c/Users/Umamah Ayaaz

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ mkdir gitpractice

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ cd gitpractice
```

- Configuration:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git init
Initialized empty Git repository in C:/Users/Umamah Ayaaz/gitpractice/.git/

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git status
On branch master

No commits yet

nothing to commit (create/copy files and use "git add" to track)

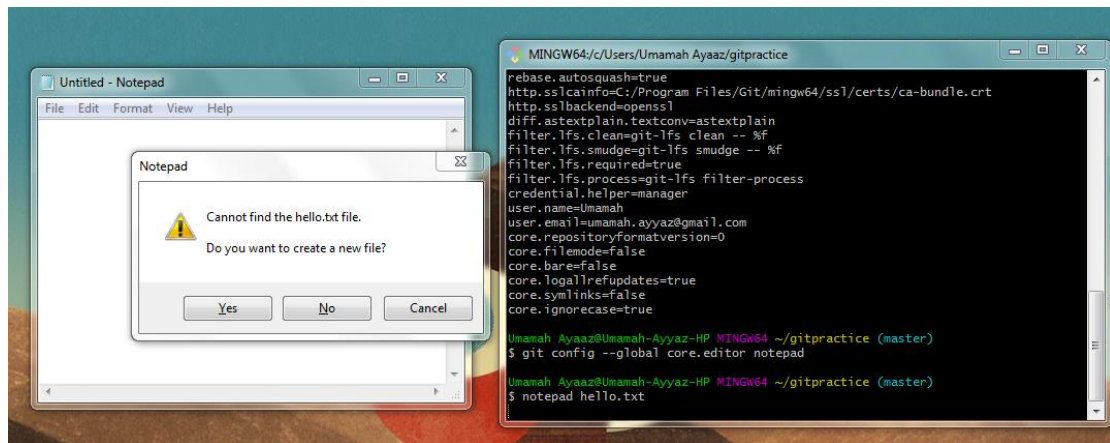
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git config --global user.name "Umamah"

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git config --global user.email umamah.ayyaz@gmail.com
```

- Configuration list:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git config --list
core.symlinks=true
core.autocrlf=true
core.fscache=true
color.diff=auto
color.status=auto
color.branch=auto
color.interactive=true
help.format=html
rebase.autosquash=true
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
http.sslbackend=openssl
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.required=true
filter.lfs.process=git-lfs filter-process
credential.helper=manager
user.name=Umamah
user.email=umamah.ayyaz@gmail.com
core.repositoryformatversion=0
core.filemode=false
core.bare=false
core.logallrefupdates=true
core.symlinks=false
core.ignorecase=true
```

- Creating a Notepad file named "hello.txt":



- Checking the Status of file:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        hello.txt

nothing added to commit but untracked files present (use "git add" to track)
```

- Checking the commit description:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git commit -m 'description of change'
[master (root-commit) 17c38da] description of change
1 file changed, 4 insertions(+)
create mode 100644 hello.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git status
On branch master
nothing to commit, working tree clean
```

- Checking the status of the file:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ 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)

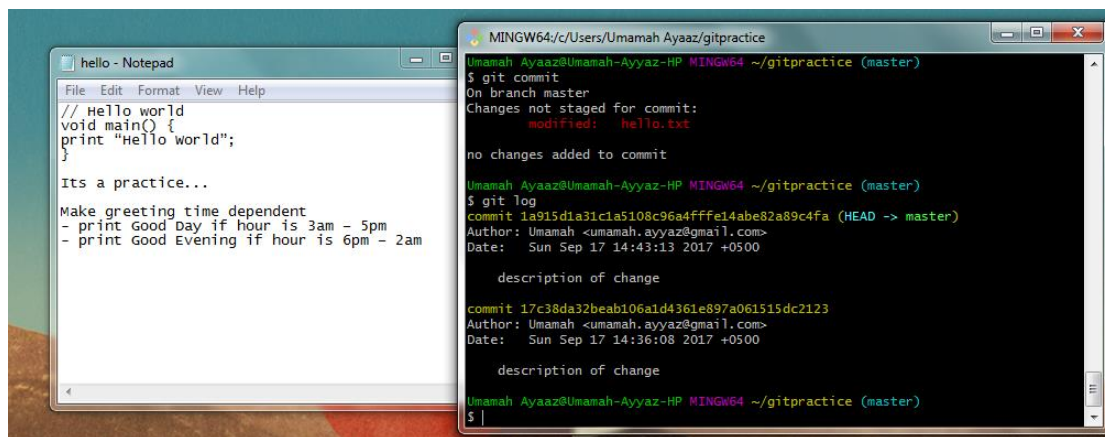
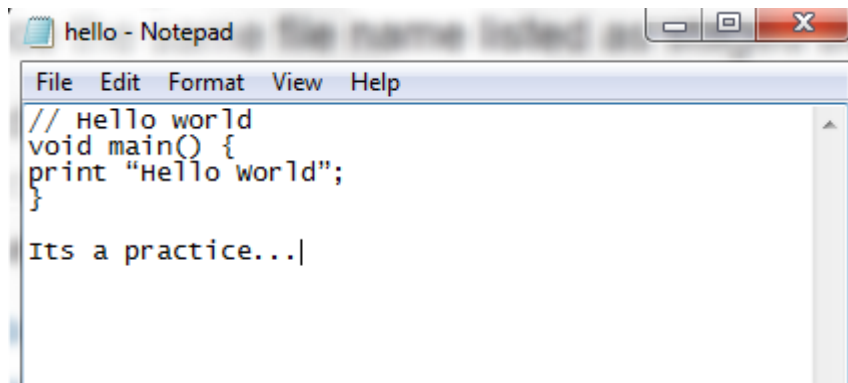
        modified:   hello.txt

no changes added to commit (use "git add" and/or "git commit -a")
```

- Commencing the changes in file and checking the commit description:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git add hello.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git commit -m 'description of change'
[master 1a915d1] description of change
1 file changed, 3 insertions(+), 1 deletion(-)
```



- Going through the log of changes:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git log -n 3
commit 1a915d1a31c1a5108c96a4fffe14abe82a89c4fa (HEAD -> master)
Author: Umamah <umamah.ayyaz@gmail.com>
Date: Sun Sep 17 14:43:13 2017 +0500

    description of change

commit 17c38da32beab106a1d4361e897a061515dc2123
Author: Umamah <umamah.ayyaz@gmail.com>
Date: Sun Sep 17 14:36:08 2017 +0500

    description of change
```

```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git log -p
commit 1a915d1a31c1a5108c96a4fffe14abe82a89c4fa (HEAD -> master)
Author: Umamah <umamah.ayyaz@gmail.com>
Date: Sun Sep 17 14:43:13 2017 +0500

```

description of change

```

diff --git a/hello.txt b/hello.txt
index 0619798..43f1299 100644

```

```

--- a/hello.txt
+++ b/hello.txt
@@ -1,4 +1,6 @@
// Hello world
void main() {
    print <93>Hello World<94>;
}

```

\ No newline at end of file

```

+}

```

```

+

```

```

+Its a practice...

```

\ No newline at end of file

```

commit 17c38da32beab106a1d4361e897a061515dc2123

```

```

Author: Umamah <umamah.ayyaz@gmail.com>

```

```

Date: Sun Sep 17 14:36:08 2017 +0500

```

description of change

```

diff --git a/hello.txt b/hello.txt

```

```

new file mode 100644

```

```

index 0000000..0619798

```

```

--- /dev/null

```

```

+++ b/hello.txt

```

```

@@ -0,0 +1,4 @@

```

```

+// Hello world

```

```

+void main() {

```

```

+print <93>Hello World<94>;

```

```

+}

```

\ No newline at end of file

```

...skipping...

```

\ No newline at end of file

```

+}

```

```

+

```

```

+Its a practice...

```

\ No newline at end of file

```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)

```

```

$ git log -p -n 3

```

```

commit 1a915d1a31c1a5108c96a4fffe14abe82a89c4fa (HEAD -> master)

```

```

Author: Umamah <umamah.ayyaz@gmail.com>

```

```

Date: Sun Sep 17 14:43:13 2017 +0500

```

description of change

```

diff --git a/hello.txt b/hello.txt

```

```

index 0619798..43f1299 100644

```

```

--- a/hello.txt

```

```

+++ b/hello.txt

```

```

@@ -1,4 +1,6 @@

```

```

// Hello world

```

```

void main() {

```

```

    print <93>Hello World<94>;
}

```

```

-}

```

\ No newline at end of file

```

+}

```

```

+

```

```

+Its a practice...

```

\ No newline at end of file

```

commit 17c38da32beab106a1d4361e897a061515dc2123

```

```

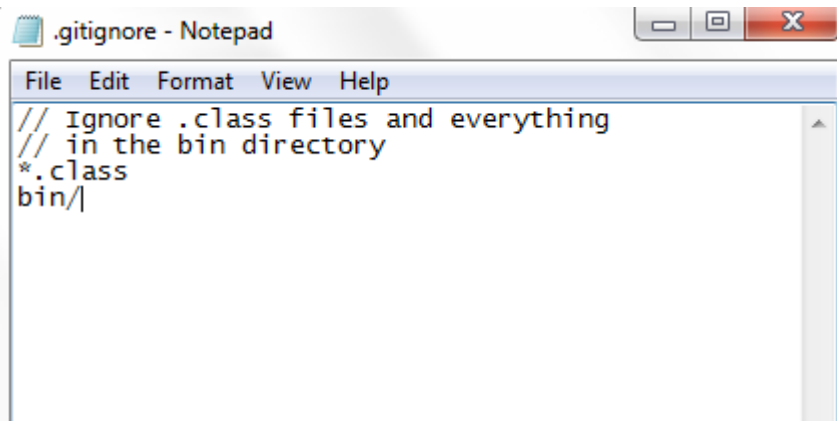
Author: Umamah <umamah.ayyaz@gmail.com>

```

- Adding the directory named “gitignore”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git add .gitignore.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git commit -m 'created .gitignore'
[master e17fcf9] created .gitignore
1 file changed, 4 insertions(+)
create mode 100644 .gitignore.txt
```



- Making a new directory named “bin”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ mkdir bin

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ touch bin/somefile.exe

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ touch file.class

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)

        bin/
        file.class

nothing added to commit but untracked files present (use "git add" to track)

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git diff

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git diff --staged
```

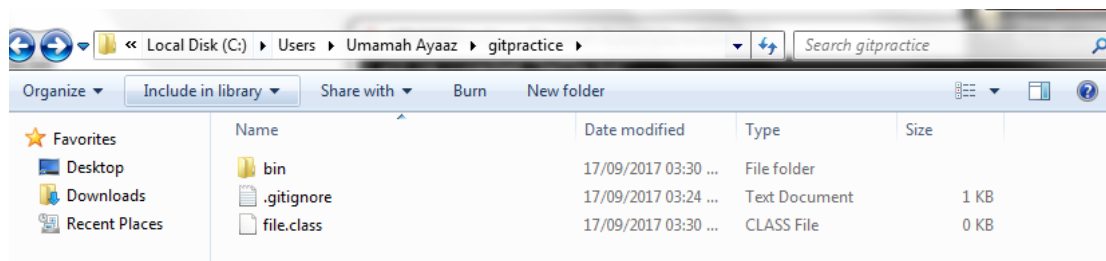
- Making changes in text file “hello.txt”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git rm hello.txt
rm 'hello.txt'

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git commit -m 'message'
[master 3a286db] message
1 file changed, 6 deletions(-)
delete mode 100644 hello.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git rm --cached 'hello.txt'
fatal: pathspec 'hello.txt' did not match any files
```

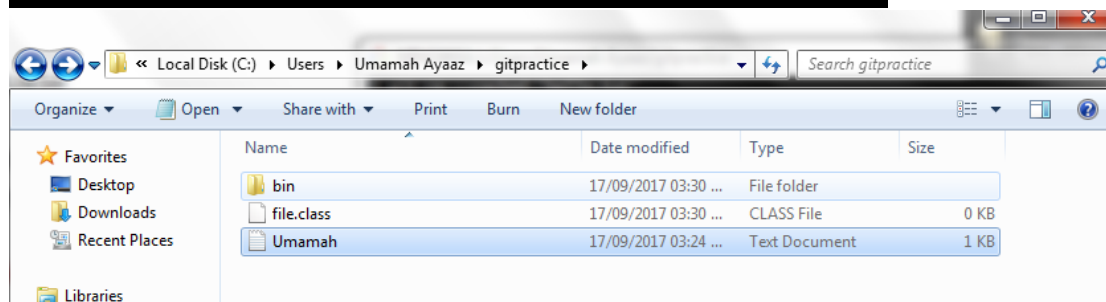
- Renaming “gitignore” to “Umamah”:



Local Disk (C:) > Users > Umamah Ayaaz > gitpractice

Name	Date modified	Type	Size
bin	17/09/2017 03:30 ...	File folder	
.gitignore	17/09/2017 03:24 ...	Text Document	1 KB
file.class	17/09/2017 03:30 ...	CLASS File	0 KB

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ mv .gitignore.txt Umamah.txt
```

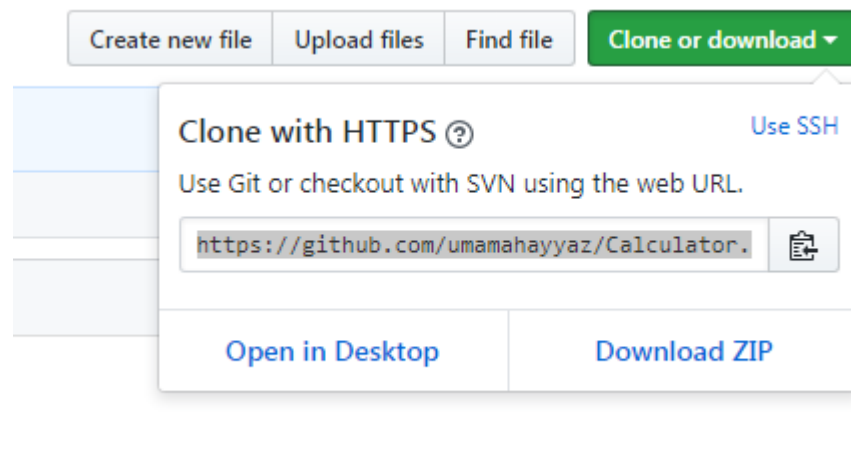


Local Disk (C:) > Users > Umamah Ayaaz > gitpractice

Name	Date modified	Type	Size
bin	17/09/2017 03:30 ...	File folder	
file.class	17/09/2017 03:30 ...	CLASS File	0 KB
Umamah	17/09/2017 03:24 ...	Text Document	1 KB

Exercise 2 – Cloning an existing repository:

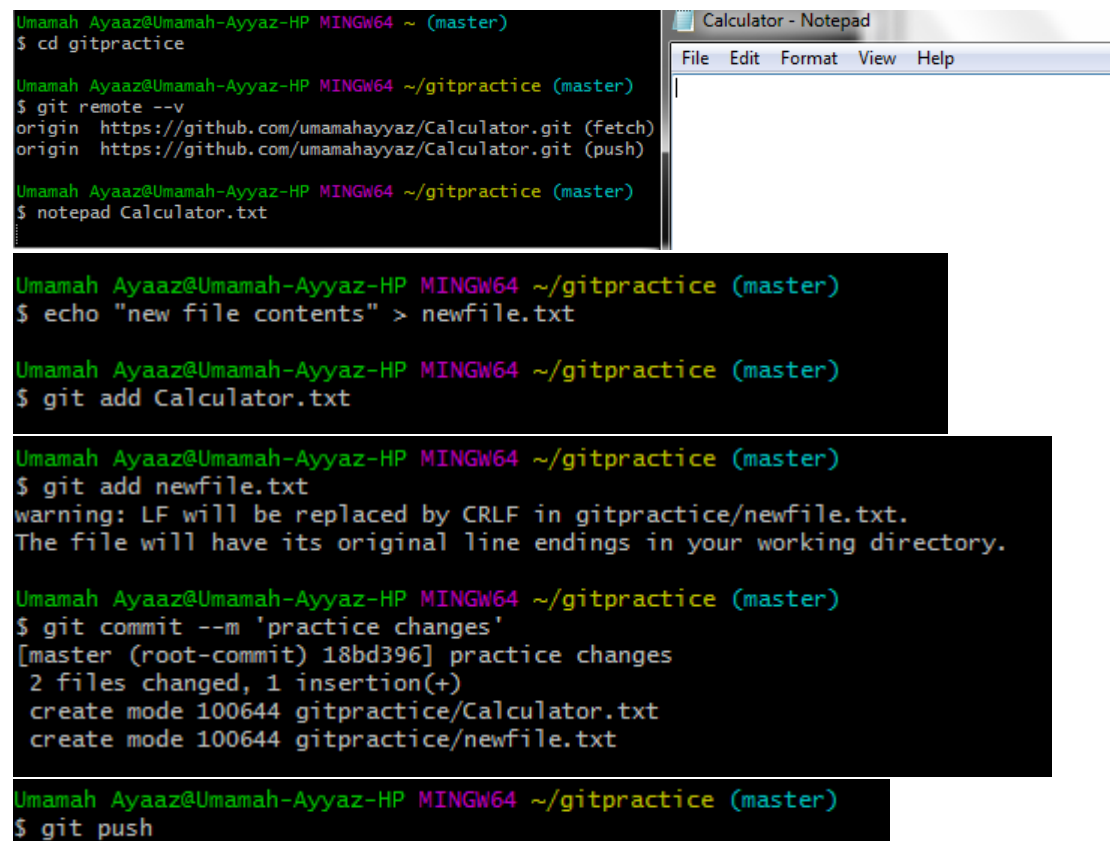
- Retrieving clone ID from the website “github.com”:



- Cloning through Git bash:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ git clone https://github.com/umamahayyaz/Calculator.git
Cloning into 'Calculator'...
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
```

- Manipulating files through clones:



```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ cd gitpractice

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git remote --v
origin https://github.com/umamahayyaz/Calculator.git (fetch)
origin https://github.com/umamahayyaz/Calculator.git (push)

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ notepad Calculator.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ echo "new file contents" > newfile.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git add Calculator.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git add newfile.txt
warning: LF will be replaced by CRLF in gitpractice/newfile.txt.
The file will have its original line endings in your working directory.

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git commit --m 'practice changes'
[master (root-commit) 18bd396] practice changes
2 files changed, 1 insertion(+)
create mode 100644 gitpractice/Calculator.txt
create mode 100644 gitpractice/newfile.txt

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git push
```

```

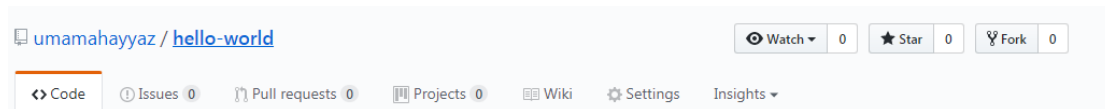
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git remote -v
origin  https://github.com/umamahayyaz/Calculator.git (fetch)
origin  https://github.com/umamahayyaz/Calculator.git (push)

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git pull origin master
warning: no common commits
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/umamahayyaz/Calculator
 * branch            master       -> FETCH_HEAD
 * [new branch]       master       -> origin/master
fatal: refusing to merge unrelated histories

```

Exercise 3 – Contributing to an existing github project:

- Checking the repository on github account and clicking the “fork” button on right-top:



- Checking origin:

```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git remote -v
origin  https://github.com/umamahayyaz/Calculator.git (fetch)
origin  https://github.com/umamahayyaz/Calculator.git (push)

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice (master)
$ git pull origin master
warning: no common commits
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/umamahayyaz/Calculator
 * branch            master       -> FETCH_HEAD
 * [new branch]       master       -> origin/master
fatal: refusing to merge unrelated histories

```

- Changed source file from master to “EddiesContribution”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git push Eddies Contribution
error: src refspec Contribution does not match any.
error: failed to push some refs to 'Eddies'

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git fetch upstream
fatal: 'upstream' 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.

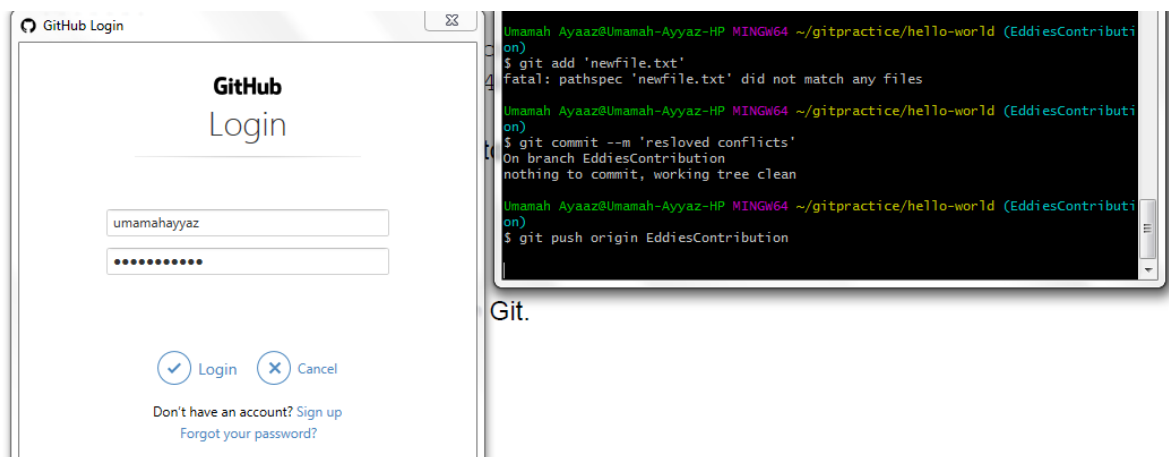
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git remote add upstream https://github.com/umamahayyaz/hello-world

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git fetch upstream
From https://github.com/umamahayyaz/hello-world
 * [new branch]      master       -> upstream/master
 * [new branch]      readme-edits -> upstream/readme-edits

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git merge upstream/master
Already up-to-date.

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git add "hello-world"
```

- To push the “EddiesContribution” into the repository made earlier, I had to login my github account through git bast:

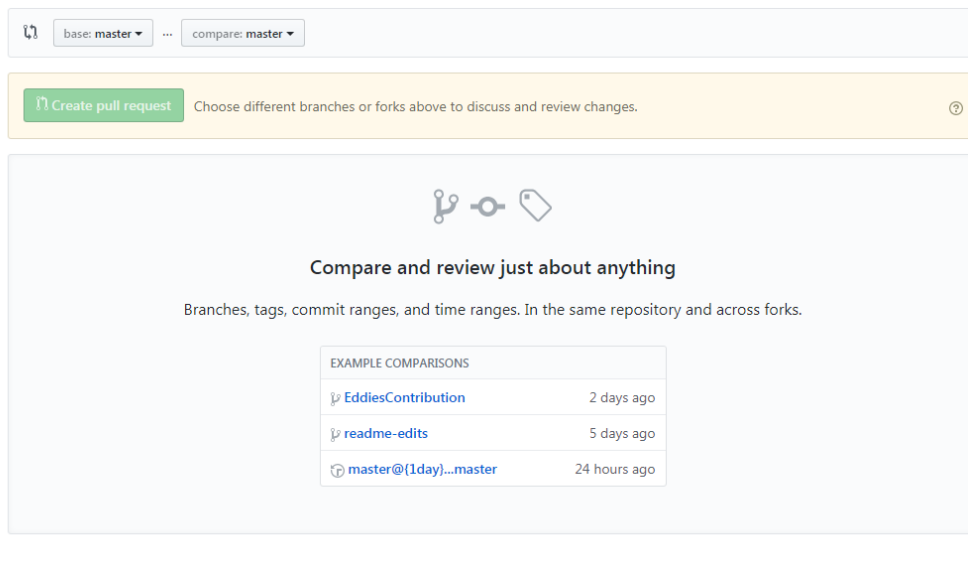


- Finally, pushing the “EddiesContribution” to my website repository:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/gitpractice/hello-world (EddiesContribution)
$ git push origin EddiesContribution

Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/umamahayyaz/hello-world.git
 * [new branch]      EddiesContribution -> EddiesContribution
```

- Final result:



EXAMPLE COMPARISONS	
EddiesContribution	2 days ago
readme-edits	5 days ago
master@{1day}...master	24 hours ago

Exercise 4 – Adding a remote

- Creating a repository

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner: umamahayyaz / Repository name:

Great repository names are short and memorable. Need inspiration? How about [jubilant-octo-system](#).

Description (optional):

☒ **Public**
Anyone can see this repository. You choose who can commit.

☐ **Private**
You choose who can see and commit to this repository.

☒ **Initialize this repository with a README**
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: | Add a license:

- To the proceed with the Exercise#4, I had to add a new remote i.e. <https://github.com/umamahayyaz/gitpractice.git>, I had to remove the remote from Exercise#3 i.e. <https://github.com/umamahayyaz/Calculator.git>.

For that I've used the following command:

```
git remote set-url origin <NEW remote url>
```

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ git remote add origin https://github.com/umamahayyaz/gitpractice.git
fatal: remote origin already exists.
```

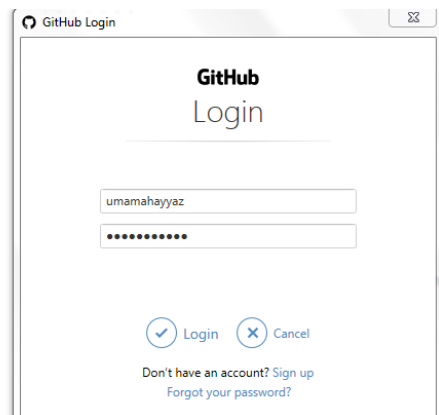
```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ git remote set-url origin https://github.com/umamahayyaz/gitpractice

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ git remote -v
origin https://github.com/umamahayyaz/gitpractice (fetch)
origin https://github.com/umamahayyaz/gitpractice (push)
```

- Pushing the origin:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ git push -u origin master
```

- Connecting to website server account:



Exercise 5 – Branching and merging:

- Creating a directory named “website”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ mkdir website

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ cd website

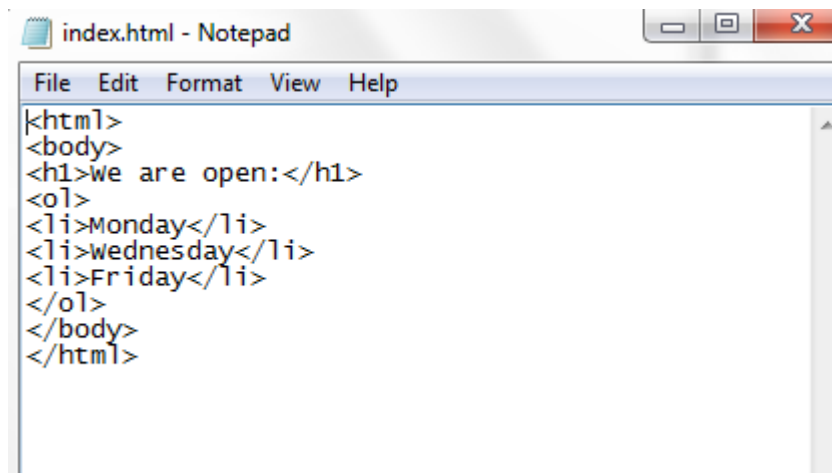
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git init
Initialized empty Git repository in C:/Users/Umamah Ayaaz/website/.git/
```

- Creating a notepad file and committing the initials:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ notepad index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git add index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git commit -m 'initial checkin'
[master (root-commit) caa2c10] initial checkin
1 file changed, 10 insertions(+)
create mode 100644 index.html
```



- Branching to the master (website origin):

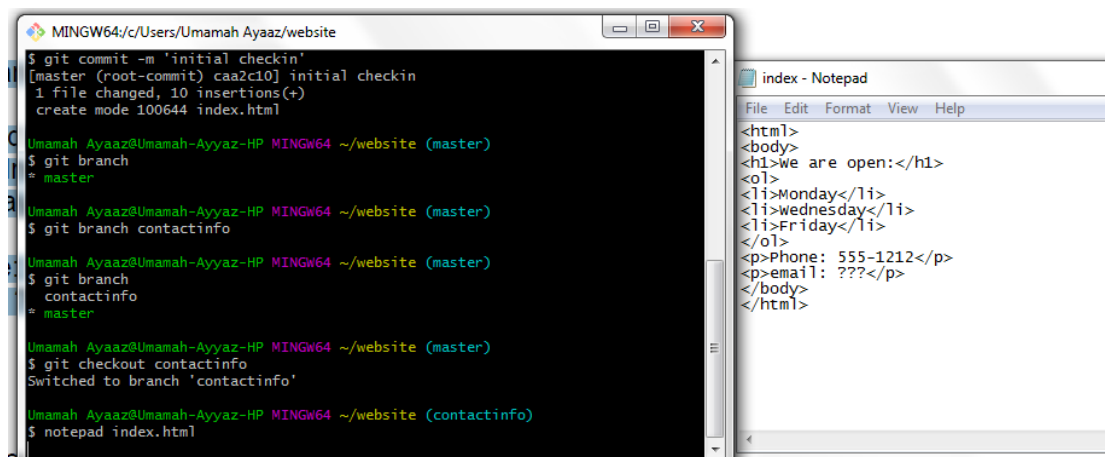
```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch
* master

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch contactinfo

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch
  contactinfo
* master

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git checkout contactinfo
Switched to branch 'contactinfo'
```

- Adding a new branch “contactinfo” to master:



- Adding add file named “index.html” to commit the file to add phone contact:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ git add index.html

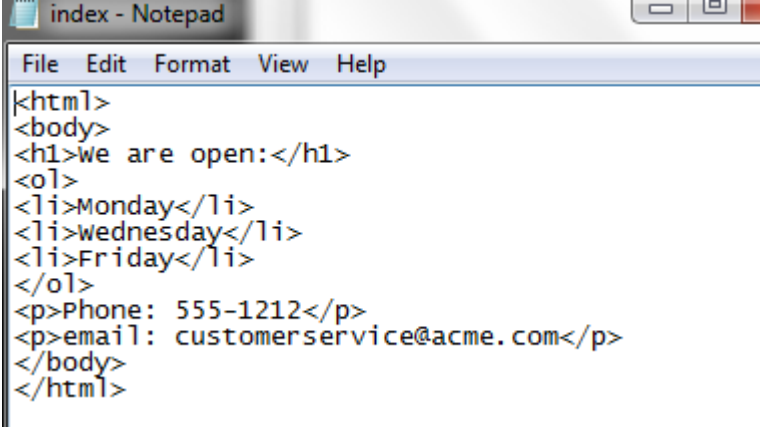
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ git commit --m 'add phone contact'
[contactinfo e9700fd] add phone contact
1 file changed, 2 insertions(+)
```

- Checking the server:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ git checkout contactinfo
Already on 'contactinfo'

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ notepad index.html
```

- Editing the notepad file “index.html”:



```

File Edit Format View Help
<html>
<body>
<h1>we are open:</h1>
<ol>
<li>Monday</li>
<li>Wednesday</li>
<li>Friday</li>
</ol>
<p>Phone: 555-1212</p>
<p>email: customerservice@acme.com</p>
</body>
</html>

```

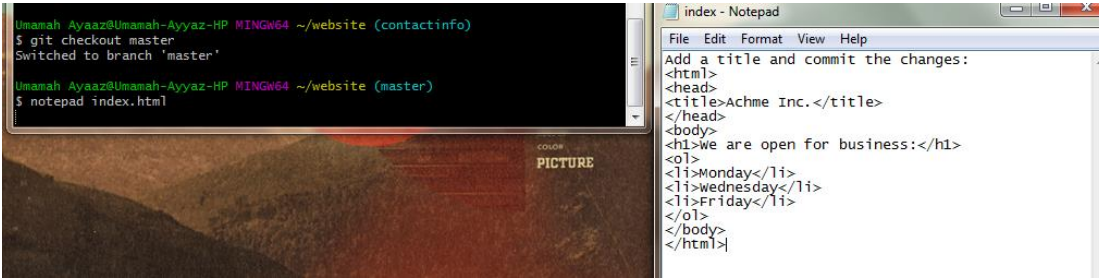
```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ git add index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ git commit --m 'add phone contact'
[contactinfo cbbdc31] add phone contact
1 file changed, 1 insertion(+), 1 deletion(-)

```

- Repeating the commit:

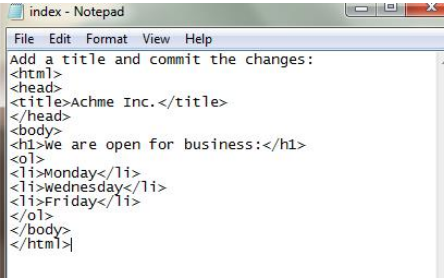


```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (contactinfo)
$ git checkout master
Switched to branch 'master'

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ notepad index.html

```



```

File Edit Format View Help
Add a title and commit the changes:
<html>
<head>
<title>Achme Inc.</title>
</head>
<body>
<h1>we are open for business:</h1>
<ol>
<li>Monday</li>
<li>Wednesday</li>
<li>Friday</li>
</ol>
</body>
</html>

```

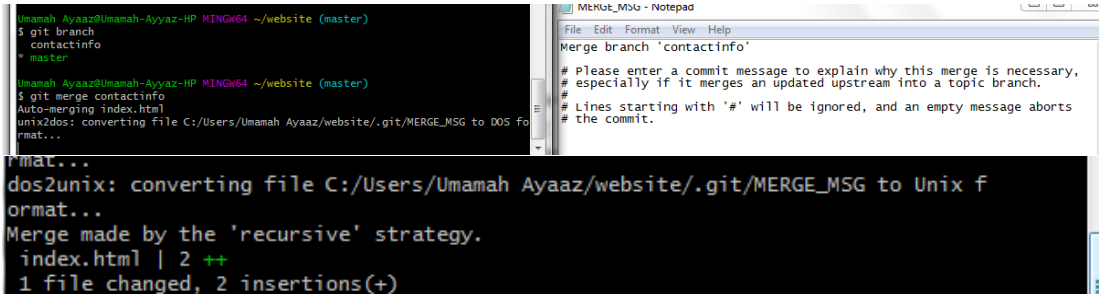
```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git add index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git commit --m 'Something'
[master fb199e4] Something
1 file changed, 5 insertions(+), 1 deletion(-)

```

- Recursive mergence:

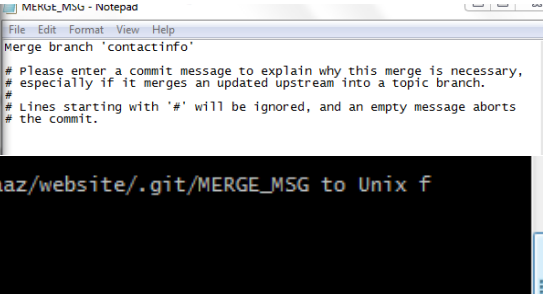


```

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch
  contactinfo
* master

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git merge contactinfo
Auto-merging index.html
unix2dos: converting file C:/Users/Umamah Ayaaz/website/.git/MERGE_MSG to DOS fo
rmat...

```



```

File Edit Format View Help
Merge branch 'contactinfo'

# Please enter a commit message to explain why this merge is necessary,
# especially if it merges an updated upstream into a topic branch.
#
# Lines starting with '#' will be ignored, and an empty message aborts
# the commit.

```

```

format...
dos2unix: converting file C:/Users/Umamah Ayaaz/website/.git/MERGE_MSG to Unix f
ormat...
Merge made by the 'recursive' strategy.
index.html | 2 ++
1 file changed, 2 insertions(+)

```


- Reviewing the changes after the merging the files:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ cat index.html
Add a title and commit the changes:
<html>
<head>
<title>Achme Inc.</title>
</head>
<body>
<h1>We are open for business:</h1>
<ol>
<li>Monday</li>
<li>Wednesday</li>
<li>Friday</li>
</ol>
<p>Phone: 555-1212</p>
<p>email: customerservice@acme.com</p>
</body>
</html>
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ |
```

- Virtual representation of the switching in between the branch (fast-forward merge):

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git log --oneline --decorate --graph --all
* 29692a2 (HEAD -> master) Merge branch 'contactinfo'
| \
| * cbddc31 (contactinfo) add phone contact
| * e9700fd add phone contact
| * fb199e4 Something
|/
* caa2c10 initial checkin
```

- Deleting the “contactinfo”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch -d contactinfo
Deleted branch contactinfo (was cbddc31).
```

Exercise 5 – Branching and merging with conflicts:

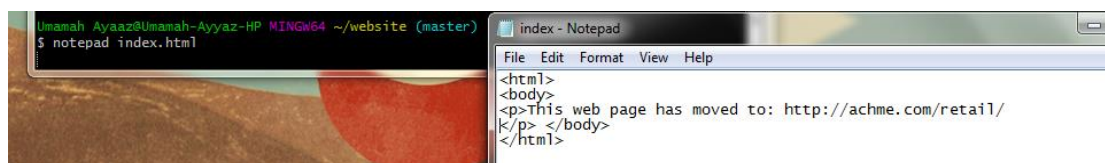
- Creating a new directory and init a git repository:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ mkdir website

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~ (master)
$ cd website

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git init
Initialized empty Git repository in C:/Users/Umamah Ayaaz/website/.git/
```

- Creating a notepad file named “index.html” and editing it:



- Adding file to commit:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git add index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git commit --m 'initial checkin'
[master 8c82bc4] initial checkin
1 file changed, 2 insertions(+), 13 deletions(-)
```

- Creating a hyperlink:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git checkout -b hyperlink
Switched to a new branch 'hyperlink'

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hyperlink)
$ |
```

- Committing the file “index.html”



- Add file to commit again:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hyperlink)
$ git add index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hyperlink)
$ git commit --m 'make hyperlink'
[hyperlink 50dd75e] make hyperlink
1 file changed, 3 insertions(+), 2 deletions(-)
```

- Changing hyperlink to hotfix123:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hyperlink)
$ git checkout master
Switched to branch 'master'
```

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git checkout -b hotfix123
Switched to a new branch 'hotfix123'
```

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hotfix123)
$ git add index.html
```

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hotfix123)
$ git commit --m 'Use secure protocol https'
[hotfix123 c2eb225] Use secure protocol https
1 file changed, 1 insertion(+), 1 deletion(-)
```

- Merging the hotfix123 with master branch:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (hotfix123)
$ git checkout master
Switched to branch 'master'
```

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git merge hotfix123
Updating 8c82bc4..c2eb225
Fast-forward
 index.html | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

- Virtual representation of emerge process:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git log --oneline --decorate --graph --all
* c2eb225 (HEAD -> master, hotfix123) Use secure protocol https
| * 50dd75e (hyperlink) make hyperlink
|/
* 8c82bc4 initial checkin
* 29692a2 Merge branch 'contactinfo'
| \
| * cbddc31 add phone contact
| * e9700fd add phone contact
* | fb199e4 Something
|/
* caa2c10 initial checkin
```

- Checking for the merge to be updated:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git merge --no-ff hotfix123
Already up-to-date.
```

- Deleting the hotfix123:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch --d hotfix123
Deleted branch hotfix123 (was c2eb225).
```

- Merging master branch with the hyperlink:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git merge hyperlink
Auto-merging index.html
CONFLICT (content): Merge conflict in index.html
Automatic merge failed; fix conflicts and then commit the result.
```

- Checking the status of the branch “master”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master|MERGING)
$ git status
On branch master
You have unmerged paths.
  (fix conflicts and run "git commit")
  (use "git merge --abort" to abort the merge)

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

        both modified:   index.html

no changes added to commit (use "git add" and/or "git commit -a")
```

- Reviewing the changes after the merging the files:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master|MERGING)
$ cat index.html
<html>
<body>
<<<<<<< HEAD
<p>This web page has moved to: https://achme.com/retail/
</p> </body>
=====
<p>This web page has moved to: <a
href="http://achme.com/retail/">http://achme.com/retail/ </a> </p>
</body>
>>>>>>> hyperlink
</html>
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master|MERGING)
$ |
```

- Committing the notepad file “index.html”:



- Reviewing the commit and virtual representation of the merge:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master|MERGING)
$ git add index.html

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master|MERGING)
$ git commit --m 'make link clickable and https'
[master b799c89] make link clickable and https

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git log --oneline --decorate --graph --all
* b799c89 (HEAD -> master) make link clickable and https
| \
| * 50dd75e (hyperlink) make hyperlink
| * c2eb225 Use secure protocol https
| /
* 8c82bc4 initial checkin
* 29692a2 Merge branch 'contactinfo'
| \
| * cbddc31 add phone contact
| * e9700fd add phone contact
| * fb199e4 Something
| /
* caa2c10 initial checkin
```

- Deleting the hyperlink:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch --d hyperlink
Deleted branch hyperlink (was 50dd75e).
```

Exercise 6 – Branching and remotes:

- Creating a remote link to the server:

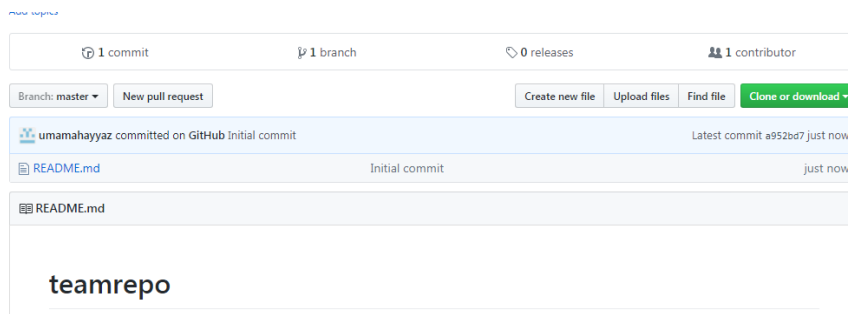
```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git remote

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git remote --v

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git remote add upstream https://github.com/umamahayyaz/hello-world

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git branch --r
```

- Creating a teamrepo repository:



- Cloning the repository "teamrepo":

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ git clone https://github.com/umamahayyaz/teamrepo.git
Cloning into 'teamrepo'...
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website (master)
$ cd teamrepo
```

- Creating a branch:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git branch -r
origin/HEAD -> origin/master
origin/master
```

- Cloning a new file "teamrepocopy" to teamrepo:

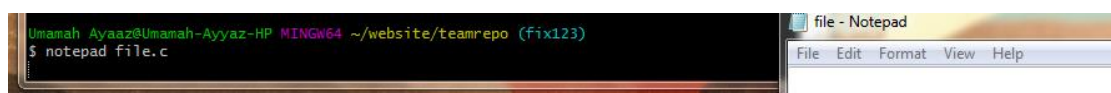
```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ cd teamrepo
bash: cd: teamrepo: No such file or directory

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git clone https://github.com/umamahayyaz/teamrepo.git teamrepocopy
Cloning into 'teamrepocopy'...
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
```

- Creating the fix123 branch:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git checkout -b fix123
Switched to a new branch 'fix123'
```

- Creating a notepad file:



- Creating branch:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (fix123)
$ git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git push
Everything up-to-date
```

- Pushing the origin to fix123

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git push origin fix123
Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/umamahayyaz/teamrepo.git
 * [new branch]      fix123 -> fix123
```

- Checking the branches:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ cd https://github.com/umamahayyaz/teamrepo teamrepocopy
bash: cd: too many arguments

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git branch --r
  origin/HEAD -> origin/master
  origin/fix123
  origin/master
```

- Fetching the origin:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git fetch origin

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git branch --r
  origin/HEAD -> origin/master
  origin/fix123
  origin/master
```

- Reviewing the branch:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git checkout -b fix123 origin/fix123
```

- Adding all changed files into stage:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git add .
warning: adding embedded git repository: teamrepocopy
hint: You've added another git repository inside your current repository.
hint: Clones of the outer repository will not contain the contents of
hint: the embedded repository and will not know how to obtain it.
hint: If you meant to add a submodule, use:
hint:
hint:   git submodule add <url> teamrepocopy
hint:
hint: If you added this path by mistake, you can remove it from the
hint: index with:
hint:
hint:   git rm --cached teamrepocopy
hint:
hint: See "git help submodule" for more information.
```

- Committing the file:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git commit -m 'second developer added a fourth line'
[master 8656304] second developer added a fourth line
 2 files changed, 1 insertion(+)
 create mode 100644 file.c
 create mode 160000 teamrepocopy
```

- Pushing the changes into the server:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git push
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 332 bytes | 332.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/umamahayyaz/teamrepo.git
 a952bd7..8656304 master -> master
```

- Switching back to 1st clone “teamrepo”:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ cd https://github.com/umamahayyaz/teamrepo
```


- To review the fetch changes:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git fetch

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git log --oneline origin/fix123
a952bd7 (origin/fix123, fix123) Initial commit

Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git log --oneline
8656304 (HEAD -> master, origin/master, origin/HEAD) second developer added a fourth line
a952bd7 (origin/fix123, fix123) Initial commit
```

- To merge the origin and the fix123

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git merge origin/fix123
Already up-to-date.
```

- To review the origin of the process:

```
Umamah Ayaaz@Umamah-Ayyaz-HP MINGW64 ~/website/teamrepo (master)
$ git remote show origin
* remote origin
Fetch URL: https://github.com/umamahayyaz/teamrepo.git
Push URL: https://github.com/umamahayyaz/teamrepo.git
HEAD branch: master
Remote branches:
  fix123 tracked
  master tracked
Local branch configured for 'git pull':
  master merges with remote master
Local refs configured for 'git push':
  fix123 pushes to fix123 (up to date)
  master pushes to master (up to date)
```
