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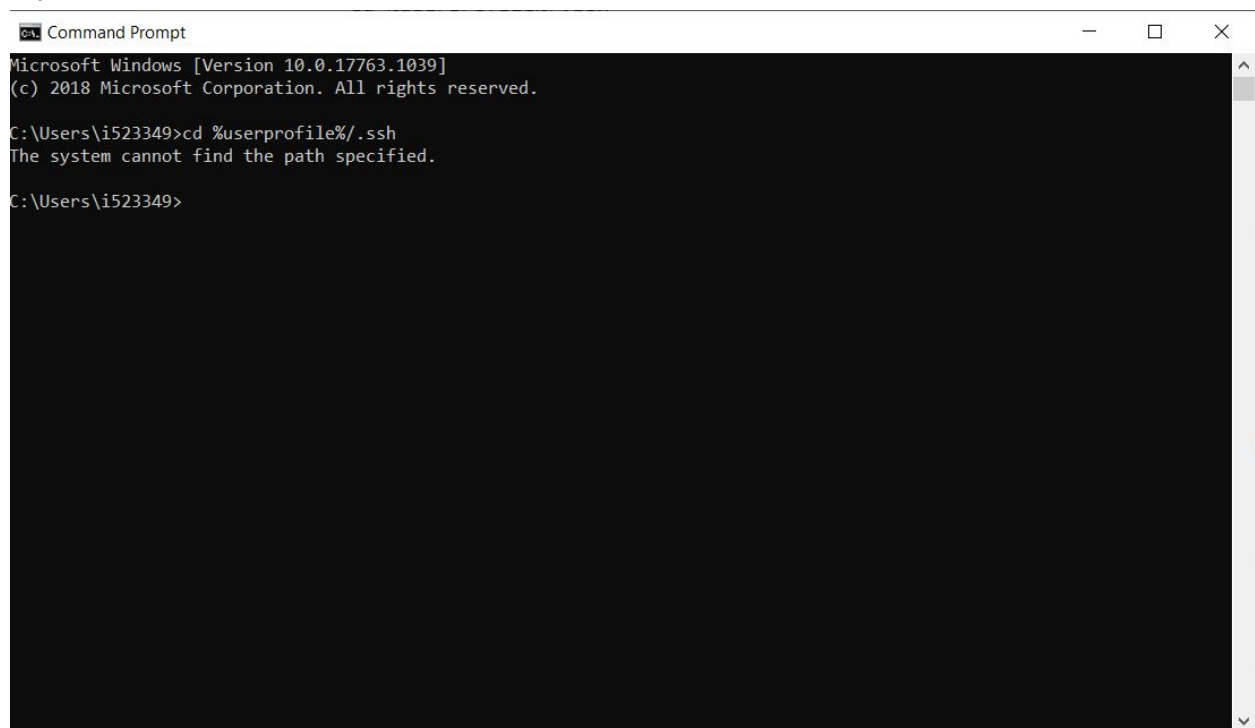
Task 1 - Git CLI Assignment
1. Create a git repository on any git server (GitHub, Gitlab or Bitbucket). Find out what an SSH key is. Add an SSH key to the git server. Provide evidence that the SSH key is working properly.

Step 1: Checking for existing keys

Open Command Prompt, and input the command cd %userprofile%/.ssh
In my case, as there are no ssh keys existing in the system. I will now try to generate a new ssh key.


```
Command Prompt                                          —    □    ×
Microsoft Windows [Version 10.0.17763.1039]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\i523349>cd %userprofile%/.ssh
The system cannot find the path specified.

C:\Users\i523349>
```
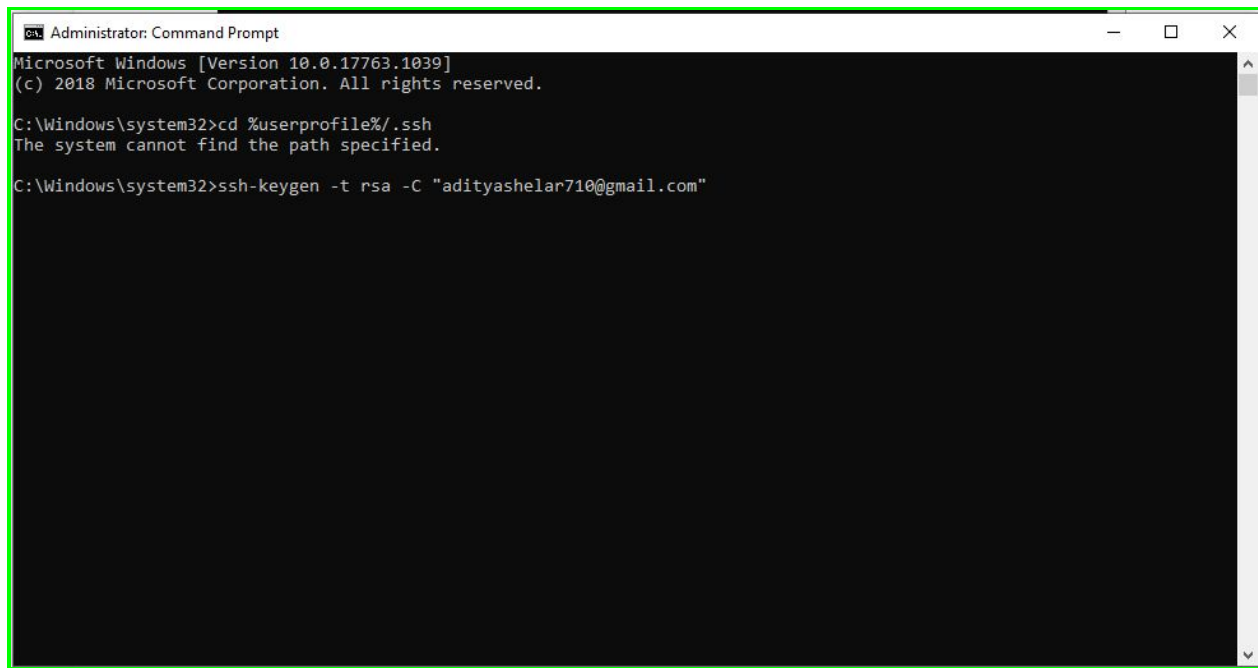
Step 2: Generate ssh key

For generating ssh key, use the command ssh-keygen -t rsa -C "your_email@example.com"

In my case, the command will be related to my email id shown as follows:
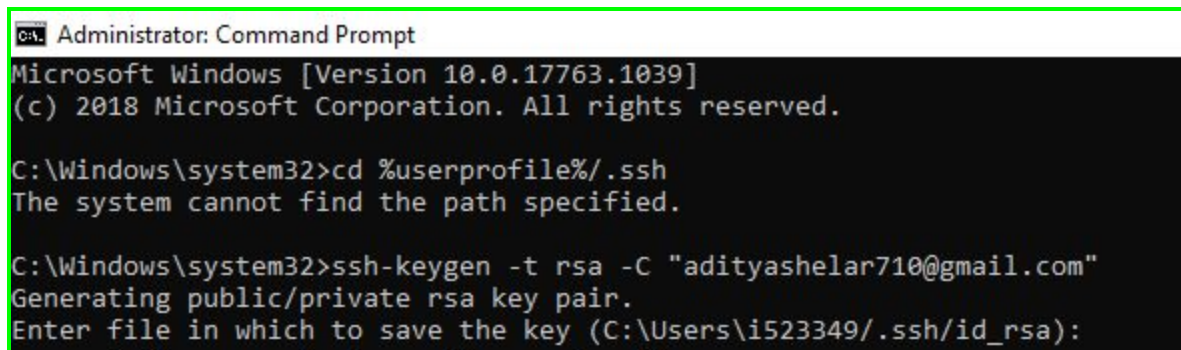ssh-keygen -t rsa -C "adityashelar710@gmail.com"

Once you enter the command, you will be asked for a path where you want to store your key.

Press 'Enter' to save the default path.

The ssh key is generated in the path you mentioned.

Please see below screenprint

```
Administrator: Command Prompt                                     —  □  ✕

Microsoft Windows [Version 10.0.17763.1039]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>cd %userprofile%/.ssh
The system cannot find the path specified.

C:\Windows\system32>ssh-keygen -t rsa -C "adityashelar710@gmail.com"
Generating public/private rsa key pair.
Enter file in which to save the key (C:\Users\i523349/.ssh/id_rsa):
Created directory 'C:\Users\i523349/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\i523349/.ssh/id_rsa.
Your public key has been saved in C:\Users\i523349/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:FnAP3KsTyxLFhU/Co2ka/aK/9LWw28hLDOIwgRaVknI adityashelar710@gmail.com
The key's randomart image is:
+---[RSA 2048]----+
| .o.. .+o+.      |
|.+E.   oOoo      |
|ooo  . +.=..     |
|.  .. * ..o      |
|  o .+.+S+       |
|   +..o+*        |
|   ...o+..       |
|   .. + * .      |
|    .o.Boo       |
+----[SHA256]-----+

C:\Windows\system32>
```

For adding the key to your github account, you need to copy the content of pub version of the key and add it to your github account through **Settings > SSH and GPG keys > New SSH key**

SSH keys / Add new

Title

```
My Key
```

Key

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAABAQDFiq/5ezazqOHLWt7N1mSV7OOHMZWOKSAMIBqmlPo34toRB7WKOecn3
hQkSS6qtv2Hwpeacl/dIWYkmXhXwxuWZ3gNnD0/axRzsImt4flHpnkCamxKoNNCEWALjdMuDAsipM4sOVClm+86E06
iLIrX/hnfMWhSfykOnuNRFLG9UqyPUUAn/fg3Ru4MLcvXReoUt7ImechkwxfDqanbnOws45Elizu/lX+e4ruvHciwaWBnBj
qYfGC5jphkaTX0fVQOSZkOobfcPapRQJot3Mn8upZr4lv5uvyOlB/9GudFyhxsFInRGdpM5d3X2jhdrmFTahcL55ZoTRV4S
A1laE3h adityashelar710@gmail.com
```

Add SSH key

You will be asked to confirm your github password to add the key.

Once the authorization is done, your key is added successfully. Please refer below screenprint.

2. Create a local repository like taught in the class. Push all the code to your git server.

<mark>Step 1: Create repository on github</mark>
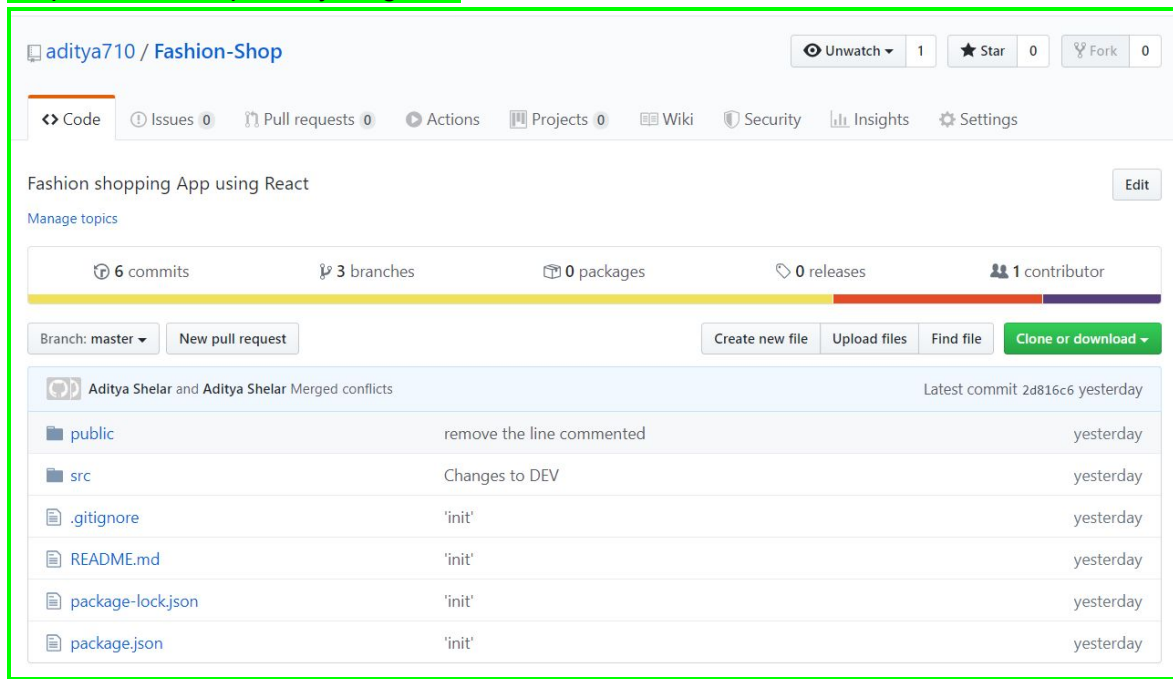
<mark>Step 2: Initialize the local repository</mark>
Once the repository is created, initialize an empty repository in your project folder using git init command.

You need to add all the files before you commit the files to the server. This can be done using
git add . command which adds all the files and then you can commit all the files using command
git commit -m 'init', where -m stands for commit message and later message is written.

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   .gitignore
        new file:   README.md
        new file:   package-lock.json
        new file:   package.json
        new file:   public/favicon.ico
        new file:   public/index.html
        new file:   public/logo192.png
        new file:   public/logo512.png
        new file:   public/manifest.json
        new file:   public/robots.txt
        new file:   src/App.css
        new file:   src/App.js
        new file:   src/App.test.js
        new file:   src/index.css
        new file:   src/index.js
        new file:   src/logo.svg
        new file:   src/serviceWorker.js
        new file:   src/setupTests.js


C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git add .

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git commit -m 'init'
[master (root-commit) c0b52dc] 'init'
 18 files changed, 15119 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 README.md
 create mode 100644 package-lock.json
 create mode 100644 package.json
 create mode 100644 public/favicon.ico
 create mode 100644 public/index.html
 create mode 100644 public/logo192.png
 create mode 100644 public/logo512.png
 create mode 100644 public/manifest.json
 create mode 100644 public/robots.txt
 create mode 100644 src/App.css
 create mode 100644 src/App.js
 create mode 100644 src/App.test.js
 create mode 100644 src/index.css
 create mode 100644 src/index.js
 create mode 100644 src/logo.svg
 create mode 100644 src/serviceWorker.js
 create mode 100644 src/setupTests.js

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>
```

3. Create at least 2 branches, change code and push your code to git server.

You can create branches using the the command git branch branchName, where branchName is the name of the branch.

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git branch Dev

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git branch Test
```

To switch to a particular branch, you can use the command git checkout branchName and you will be switched to that branch as shown below.

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout Dev
Switched to branch 'Dev'

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>
```

Now i push all my code to both the 'master', 'Dev' and 'Test' branches using the command:
git push -u origin 'branchName' and all the code gets pushed to both the branches as shown below.

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin master
Enumerating objects: 22, done.
Counting objects: 100% (22/22), done.
Delta compression using up to 8 threads
Compressing objects: 100% (22/22), done.
Writing objects: 100% (22/22), 167.84 KiB | 4.66 MiB/s, done.
Total 22 (delta 0), reused 0 (delta 0)
To https://github.com/aditya710/Fashion-Shop.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin Dev
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 378 bytes | 189.00 KiB/s, done.
Total 4 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
remote:
remote: Create a pull request for 'Dev' on GitHub by visiting:
remote:      https://github.com/aditya710/Fashion-Shop/pull/new/Dev
remote:
To https://github.com/aditya710/Fashion-Shop.git
 * [new branch]      Dev -> Dev
Branch 'Dev' set up to track remote branch 'Dev' from 'origin'.
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout Test
Switched to branch 'Test'

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git add .
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git commit -m "Commit to Test"
[Test 4a227bf] Commit to Test
 1 file changed, 1 insertion(+)
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin Test
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 376 bytes | 188.00 KiB/s, done.
Total 4 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
remote:
remote: Create a pull request for 'Test' on GitHub by visiting:
remote:      https://github.com/aditya710/Fashion-Shop/pull/new/Test
remote:
To https://github.com/aditya710/Fashion-Shop.git
 * [new branch]      Test -> Test
Branch 'Test' set up to track remote branch 'Test' from 'origin'.
```

4. Merge branch changes to master. Learn what merge conflicts are. Change code in one/more of your branches so that it creates a conflict while trying to merge with master branch. Resolve this merge conflict on CLI. Push changes.

Step 1: Merge changes from 'Dev' branch to 'master' branch

You can merge the code from 'Dev' to 'master' using the command git merge branchName and the code from branchName gets merged to 'master' branch

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git merge Dev
Updating c0b52dc..e84c220
Fast-forward
 src/App.js | 1 +
 1 file changed, 1 insertion(+)
```

I change the code in a single file twice so as to create the conflicts while i try to merge the code with master. You can see below there are conflicts shown while i try to pull the code for 'Dev' branch as the code on server is different and my 2 changes are different.

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git add .

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git commit -m "Change in Master Code"
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin master
Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/aditya710/Fashion-Shop.git
   c0b52dc..e84c220  master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout Dev
Switched to branch 'Dev'
Your branch is up to date with 'origin/Dev'.

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion> git add.
git: 'add.' is not a git command. See 'git --help'.

The most similar command is
        add

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git add .

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git commit -m "Changes to DEV"
[Dev 5b9ae8a] Changes to DEV
 1 file changed, 1 insertion(+)

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin Dev
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 378 bytes | 378.00 KiB/s, done.
Total 4 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
To https://github.com/aditya710/Fashion-Shop.git
   e84c220..5b9ae8a  Dev -> Dev
Branch 'Dev' set up to track remote branch 'Dev' from 'origin'.
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin Dev
To https://github.com/aditya710/Fashion-Shop.git
 ! [rejected]        Dev -> Dev (fetch first)
error: failed to push some refs to 'https://github.com/aditya710/Fashion-Shop.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.

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git merge Dev
Updating 5b9ae8a..798e9bc
Fast-forward
 public/index.html | 1 -
 1 file changed, 1 deletion(-)

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout Dev
Switched to branch 'Dev'
Your branch is ahead of 'origin/Dev' by 1 commit.
  (use "git push" to publish your local commits)

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git pull
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 4 (delta 3), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (4/4), 743 bytes | 23.00 KiB/s, done.
From https://github.com/aditya710/Fashion-Shop
   5b9ae8a..dfacd1c  Dev        -> origin/Dev
Auto-merging public/index.html
CONFLICT (content): Merge conflict in public/index.html
Automatic merge failed; fix conflicts and then commit the result.

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git status
On branch Dev
Your branch and 'origin/Dev' have diverged,
and have 1 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)

Unmerged paths:
  (use "git add <file>..." to mark resolution)
        both modified:   public/index.html

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

You can see, when i go to the file where i made changes, it shows the 2 conflicts and asks to take a specific decision as shown below. I click on 'Accept Current Change' as i wanted the current changes. You can select any other option as per your requirement.

```
Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
<<<<<<< HEAD (Current Change)

=======
    commented manifest.json provides metadata used when your web app is installed on a
>>>>>>> dfacd1c5c81a748bd792fa2223e9c59bb4e44b8f (Incoming Change)
    user's mobile device or desktop. See https://developers.google.com/web/fundamentals/web-app-manifest/
```

```
C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git merge Dev
Updating 798e9bc..2d816c6
Fast-forward

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git push -u origin master
Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/aditya710/Fashion-Shop.git
   5b9ae8a..2d816c6  master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

C:\ADITYA\Usability Testing and Verification\Fashion Shopping App\fashion>git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean
```

After the conflicts are resolved, the merge from 'Dev' to 'master' takes place successfully as shown above.

Git Repository Link: https://github.com/aditya710/Fashion-Shop.git