بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

قَالَ رَبِّ ٱشْرَحْ لِى صَدْرِى وَيَسِّرْ لِىٓ أَمْرِى
وَٱحْلُلْ عُقْدَةً مِّن لِّسَانِى يَفْقَهُوا۟ قَوْلِى

وَقُل رَّبِّ زِدْنِى عِلْمًا

قَالُوا۟ سُبْحَٰنَكَ
لَا عِلْمَ لَنَآ إِلَّا مَا عَلَّمْتَنَآ
إِنَّكَ أَنتَ ٱلْعَلِيمُ ٱلْحَكِيمُ

VCS

Mobile Computing

LECTURE 02

VCS

Instructor:

Maulana Haq Nawaz

تصحیح نیت

حضرت محمد صلی اللہ علیہ وسلم نے فرمایا

اِنَّمَا الْاَعْمَالُ بِالنِّـیَّاتِ

ترجمہ

اعمال کا دارومدار نیتوں پر

دُعا

((اللَّهُـــمَّ اغْفِرْ لِي ،

وَ ارْحَمْنِي ،

وَ عَـافِنِي ،

وَ ارْزُقْنِي))

عن أبي مالك الأشجعي رضي الله عنه أن النبي ﷺ قال : ((اللهم اغفر لي ... فإن هؤلاء تجمع لك دنياك وآخرتك)).

رواه مسلم (2697)

مجالس الذكر

تصحیح نیت

- اگر دنیا میں کسی نے کوئی کام کیا ہے تو آپ بھی کر سکتے ہیں
- میں دل سے عمل کی نیت کرتا ہوں کہ
- میری زندگی کا مقصد ہے خوش رہنا اور خوش رکھنا
- میری زندگی کا مقصد اللہ کو پانا ہے
- میری زندگی کا مقصد حضرت محمد صلی اللہ علیہ وسلم سے کامل عشق اور آپ صلی اللہ علیہ وسلم کی کامل اتباع
- میری زندگی کا مقصد اپنے شعبے میں پوری دنیا میں پہلے نمبر پر آنا
- میری زندگی کا مقصد مخلوق خدا کی بے لوث خدمت ہے

Course Focus

Life = Technical Skills (15%) + Human Engineering (85%)

- **To Master the Art of Living, mainly get Excellence in two things**
  - **Become a Balanced and Characterful Personality**
  - **Become an Authority in Mobile Computing in the whole World**

Little Efforts Daily Will Make You the Greatest

To systematically learn and get excellence in any concept / subject

- روز کا کام روز کریں
- اک مہینے کا کھانا ایک دن میں نہیں کھایا جا سکتا،
ایسے ہی ایک مہینے کا کام ایک دن میں نہیں ہو سکتا

Little Efforts Daily Will Make You the Greatest

Importance of completing tasks on daily basis

Main Reason of Failure in Life

- یہ کام کل کریں گے
- جو کام کبھی بھی ہو سکتا ہے وہ کبھی نہیں ہوتا
- زندگی ایک دن ہے اور وہ ہے آج۔ زندگی میں کل نام کی کوئی چیز نہیں ہے
- جو دن آپ کی زندگی سے چلا گیا اب واپس نہیں آئے گا
- آج کا کام آج ہی ہوسکتا ہے
- جو گز گیا وہ آنا نہیں ، آنے والے دن کا پتہ نہیں ، آج میدان جما ہے تو اینے جوہر دکھاؤ

How to Achieve BIG Goals in Life

Balanced Life is Ideal Life ☺

To achieve BIG Goals in Life

- **Make a Schedule of 24 Hours with a focus on Five main components of Human Life**
  - **Health**
    - **Physical Health**
    - **Mental Health**
    - **Social Health**
  - **Spirituality**
  - **Work**
  - **Family**
  - **Friends**

جو کام کریں دل سے کریں

کام کرنا.

خوشی خوشی کام کرنا.

اللہ کو ساتھ لے کرخوشی خوشی کام کرنا.

آیت: إِيَّاكَ نَعْبُدُ وإِيَّاكَ نَسْتَعِينُ

ترجمہ: یا اللہ ہم تیری ہی عبادت کرتے ہیں.
اور تجھ ہی سے مد د مانگتے ہیں

Lecture Outline

1. Best Teaching and Learning Methodology of the World
2. Using a Template-based Approach to Systematically Perform a Real-world Task
3. Learn about Version Control System
4. Create an Account on GitHub
5. Clone a Repository
6. Git Commit
7. Git Status
8. Git Push
9. Git Pull, log, online editing
10. Branching, Merge, delete
11. Stop Complaining! Stop Criticizing! Let's Start Contributing
12. Lecture Summary

VCS-git

Keep track of changes to code

20220309Class notes .docx	3/9/2022 10:13 AM
20220310.pptx	3/10/2022 12:56 PM
20220310Class notes .docx	3/10/2022 2:39 PM
20220311Class notes .docx	3/11/2022 4:36 PM
2022031014Class notes .docx	3/14/2022 5:09 PM
2022031015Class notes .docx	3/15/2022 12:22 PM
2022031016Class notes .docx	3/16/2022 9:02 AM
2022031017Class notes .docx	3/17/2022 9:07 AM
2022031018Class notes .docx	3/18/2022 11:02 AM

VCS-git

Different developer

VCS-git

Different developer

VCS-git

Keep track of changes to code

Created a File

```
int a= 0;
string name= “Musa”;
```

Added Code

```
int a= 0, b=1;
string name= “Musa”;
```

VCS-git

Keep track of changes to code

Modified Code

```
int a= 23, b=1;
string name= “Musa”;
```

Deleted Code

int a= 23; ~~b=1~~
string name= “Musa”;

VCS-git

Keep track of changes to code

```
int a= 0;
string name= “Musa”;
```

```
int a= 23, b=1;
string name= “Musa”;
```

```
int a= 0, b=1;
string name= “Musa”;
```

int a= 23; ~~b=1~~
string name= “Musa”;

Code Synchronizing

Code Synchronizing between different groups

Central Repository

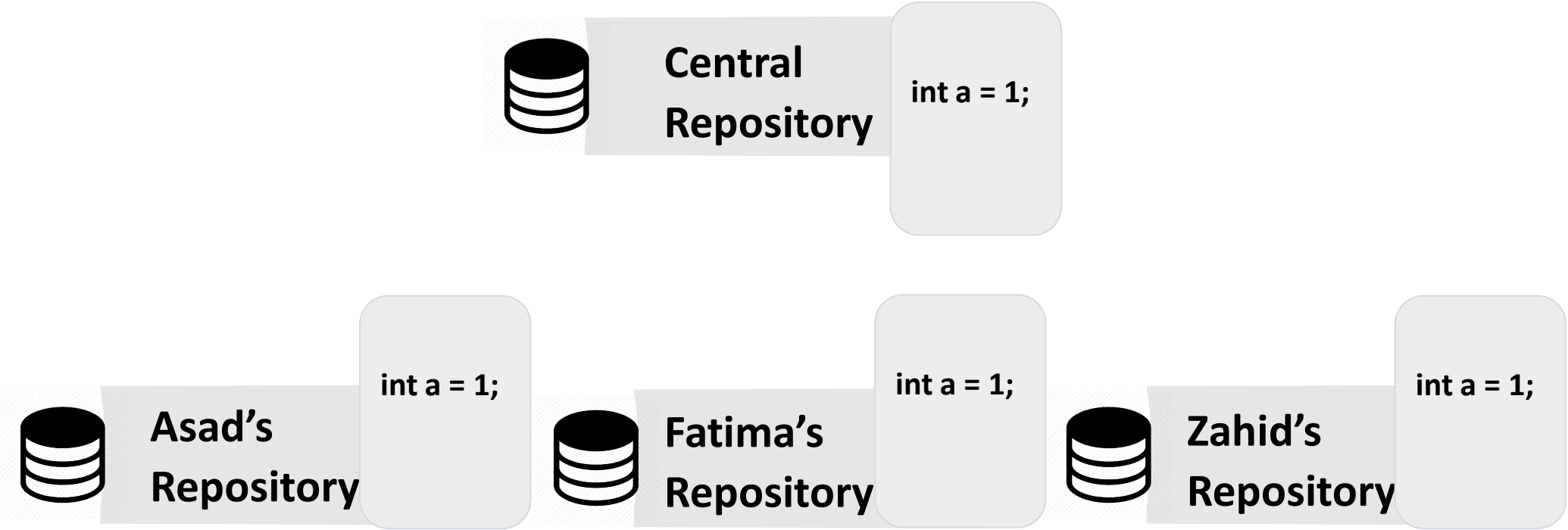
Asad's Repository

Fatima's Repository

Zahid's Repository

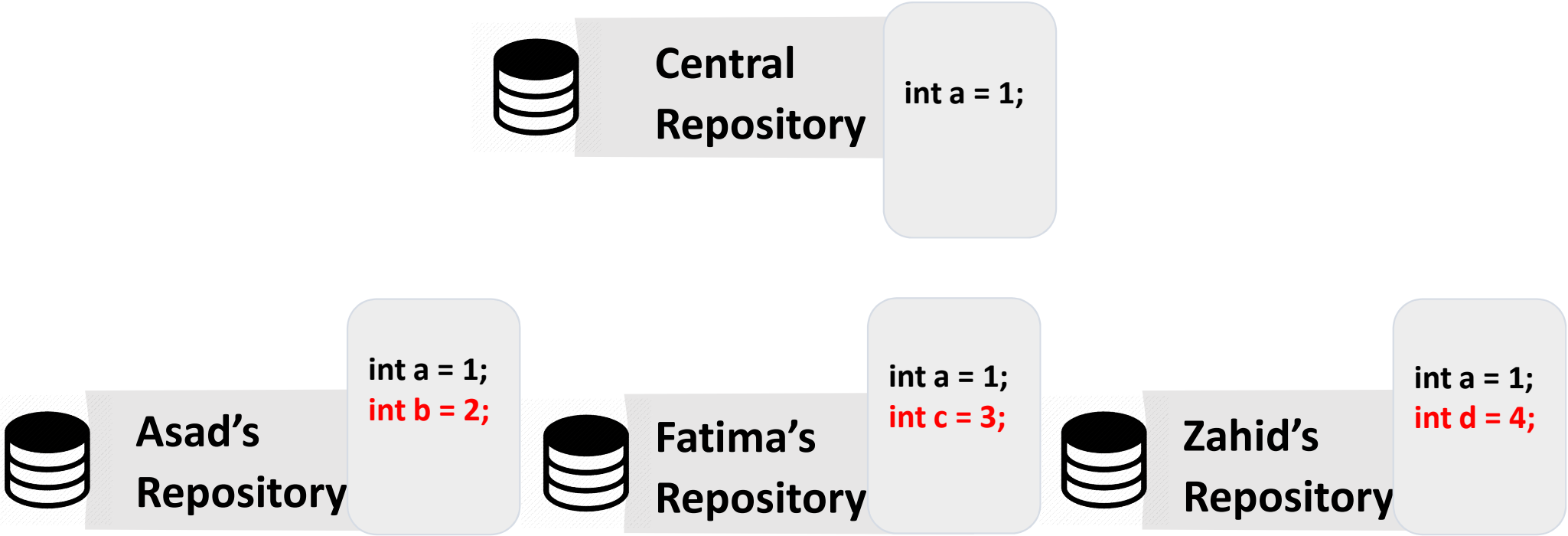
Code Synchronizing

Same code available to all members



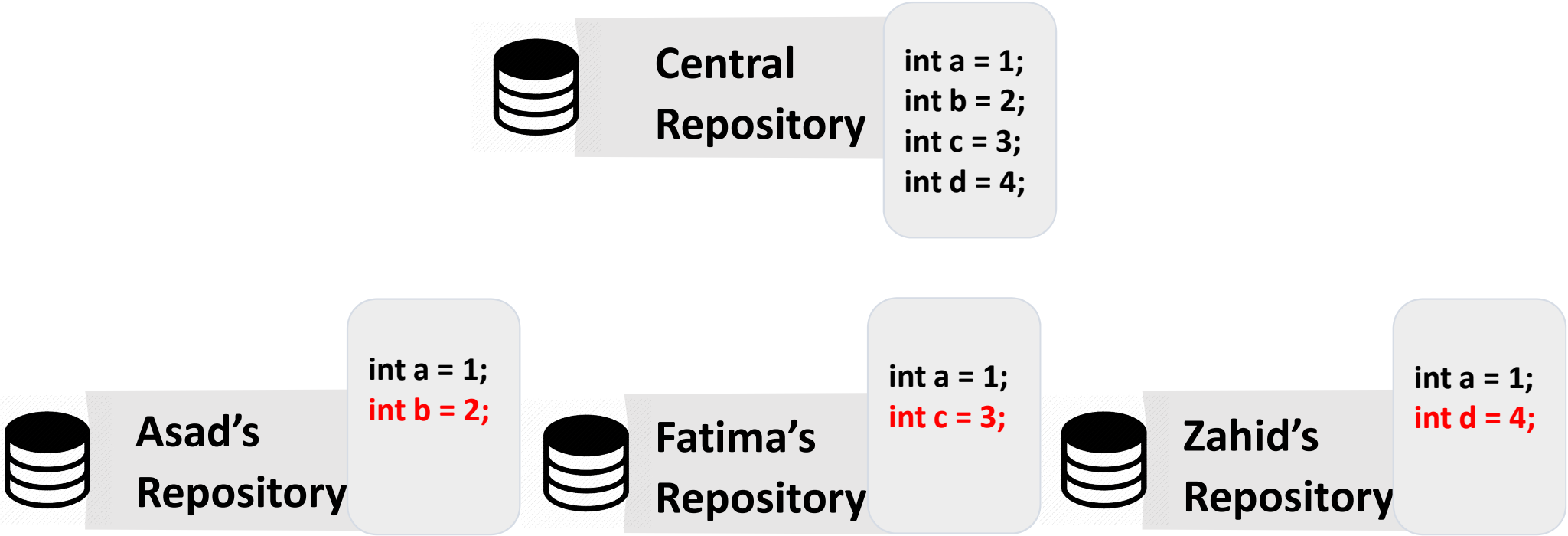
Code Synchronizing

Different people working on different files



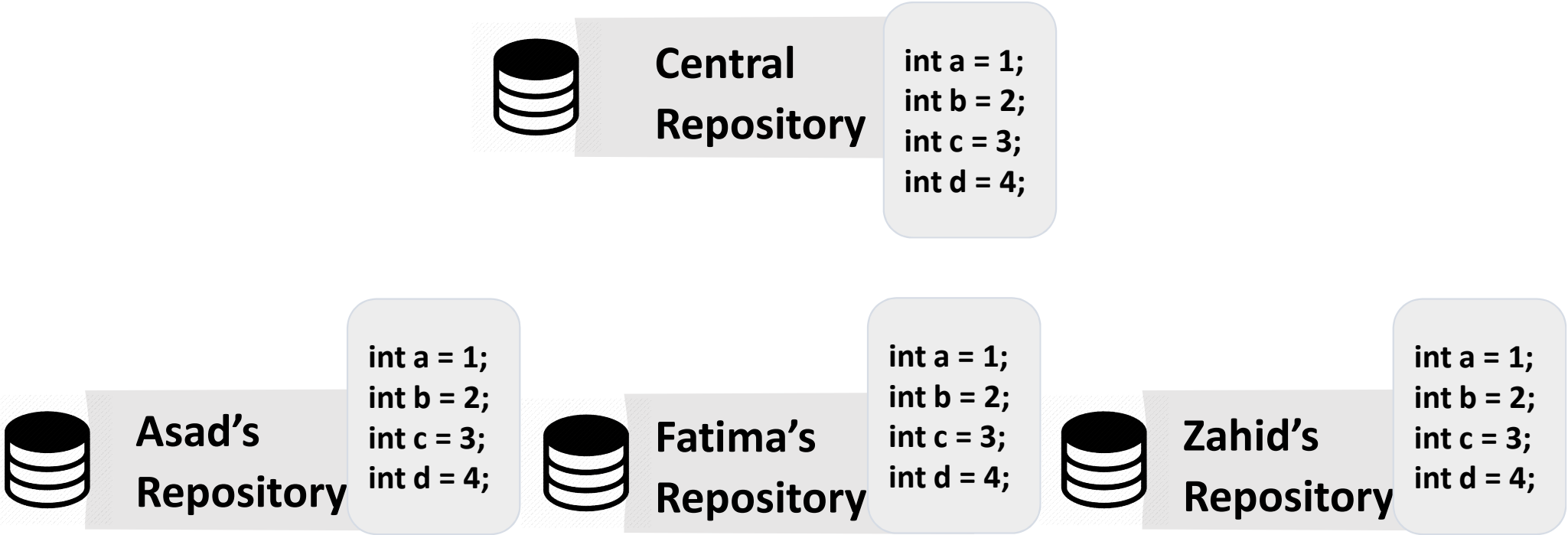
Code Synchronizing

Different people working on different files



Code Synchronizing

Different people working on different files



Code Testing

Test changes without loosing original

code1
code2

code1
code2
code3
code4

code1
code2
code3
code4

Revert

Revert back to old versions

code1
code2

code1
code2
code3

code1
code2
code3
code4

code1
code2
code3
code4
code5

VCS Competitors

Shair No 01

یہ صرف آنسو نہیں ہیں میرے، جو قطرہ قطرہ چھلک رہے ہیں
یہ ایک اندازِ گفتگو ہے، کلام کرتی ہیں میری آنکھیں

Shikwa/Jawab e Shikwa (شِکوہ جوابِ شِکوہ) No 01

تھے ہمیں اک ترے معرکہ آ راوں میں
خشکیوں میں کبھی لڑتے ، کبھی دریاوں میں
دیں اذانیں کبھی یورپ کے کلیساؤں میں
کبھی افریقہ کے تپتے ہوئے صحراؤں میں
شان آنکھوں میں نہ جچتی تھی جہاں داروں کی
کلمہ پڑھتے تھے ہم چھاؤں میں تلواروں کی

حضرت علامہ اقبال رحمۃ اللہ علیہ

Ghazal No 01

وہ اپنے گھر کے دریچوں سے جھانکتا کم
ہے
تعلقات تو اب بھی ہیں رابطہ کم ہے
تم اس خموش طبیعت پہ طنز مت کرنا
وہ سوچتا ہے بہت اور بولتا کم ہے
بلا سبب ہی میاں تم اداس رہتے ہو
تمہارے گھر سے تو مسجد کا فاصلا کم
ہے
فضول تیز ہواؤں کو دوش دیتا ہے
اسے چراغ جلانے کا حوصلہ کم ہے

Joke No 01

ایک آدمی کی نئی نئی شادی ہوئی ، لیکن پِھر بھی اسے گھر جانے کی کوئی جلدی نہیں ہوتی ، وہ دیر تک آفس میں ہی بیٹھا رہتا

ایک دن باس نے پوچھا :

بیوی سے جھگڑا چل رہا ہے کیا ؟

جواب ملا :

نہیں سر ! ! ! ایسی کوئی بات نہیں ، اصل میں میری بیوی جاب کرتی ہے ، شام کو ہم دونوں میں سے جو بھی پہلے گھر پہنچتا ہے ، کھانا اسے ہی بنانا پڑتا ہے

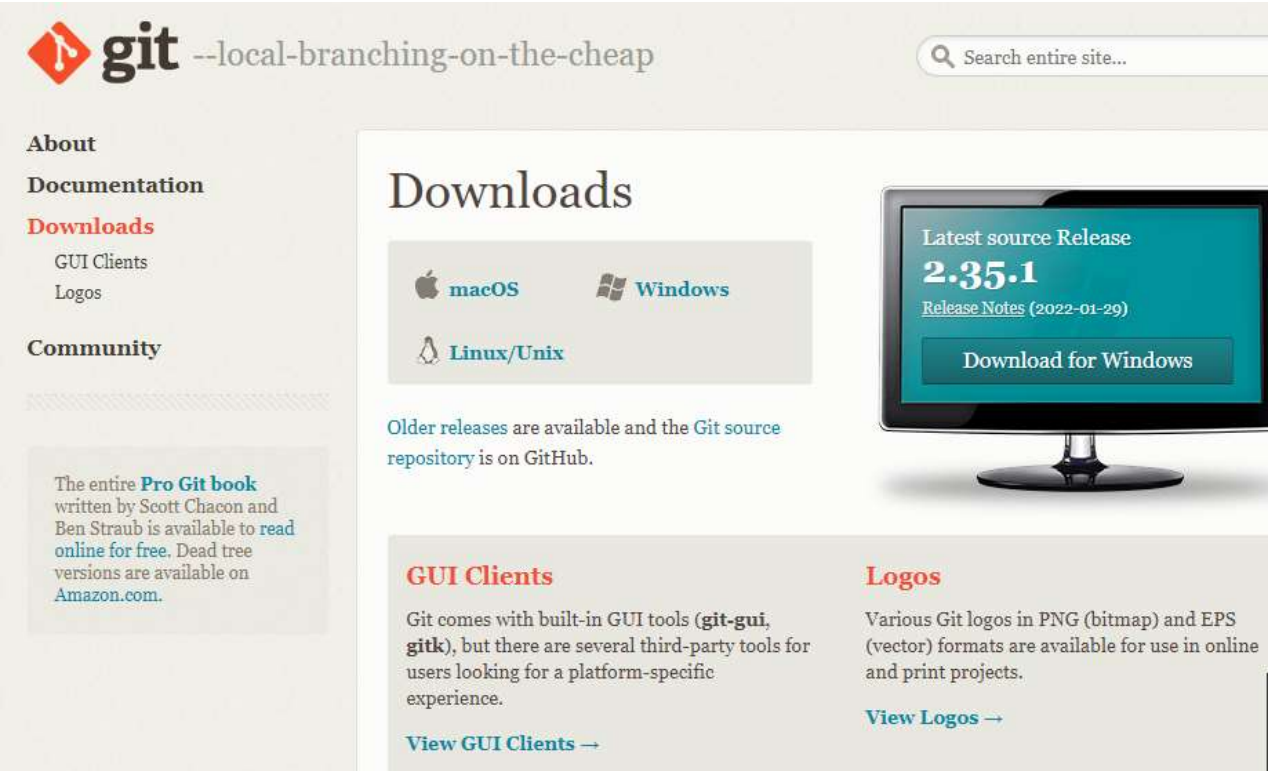
GitHub Account

Create a Account on github.com

GitHub

Download git

https://git-scm.com/downloads



Git Init

git init

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git init
Initialized empty Git repository in C:/Teaching/PUCIT/MC PUCIT Spring 2022/MC_PUCIT_OC_Spring_2022/
Morning/Code/20220320/.git/

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>_
```

.git	3/20/2022 10:27 PM	File folder

hooks	3/20/2022 10:27 PM	File folder	
info	3/20/2022 10:27 PM	File folder	
objects	3/20/2022 10:27 PM	File folder	
refs	3/20/2022 10:27 PM	File folder	
config	3/20/2022 10:27 PM	File	1 KB
description	3/20/2022 10:27 PM	File	1 KB
HEAD	3/20/2022 10:27 PM	File	1 KB

Git Status

create a html file

OPEN EDITORS
Get Started
test.html A
20220320
test.html A

test.html > html > body > h1

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Test Document</title>
</head>
<body>
    <h1>It is heading 1</h1>
</body>
</html>
```

Git Status

git status

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

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

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

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>_
```

Git Add

git add test.html

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git add test.html
```

Git Status

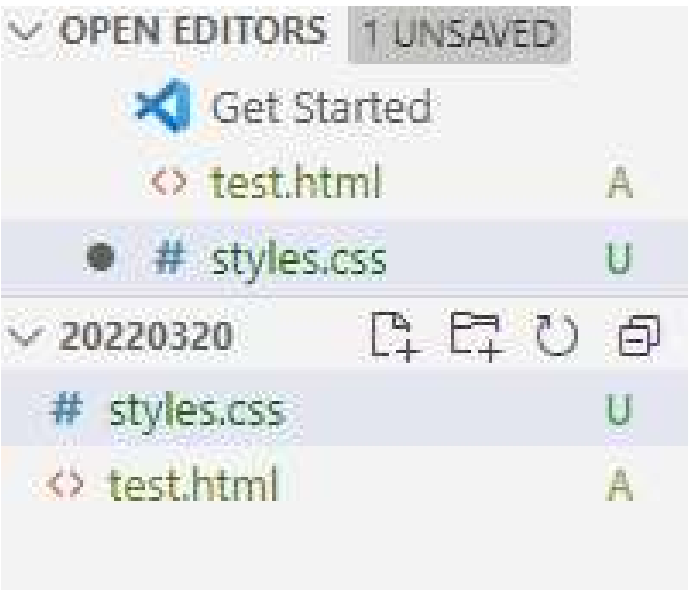
git status

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   test.html
```

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

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

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

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>_
```

Add File

add css file



Git Status

git status

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   test.html

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

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>
```

Git Add

git add .

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git add .

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   styles.css
        new file:   test.html
```

Git Status

git rm --cached test.html

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git rm --cached test.html
rm 'test.html'

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   styles.css

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

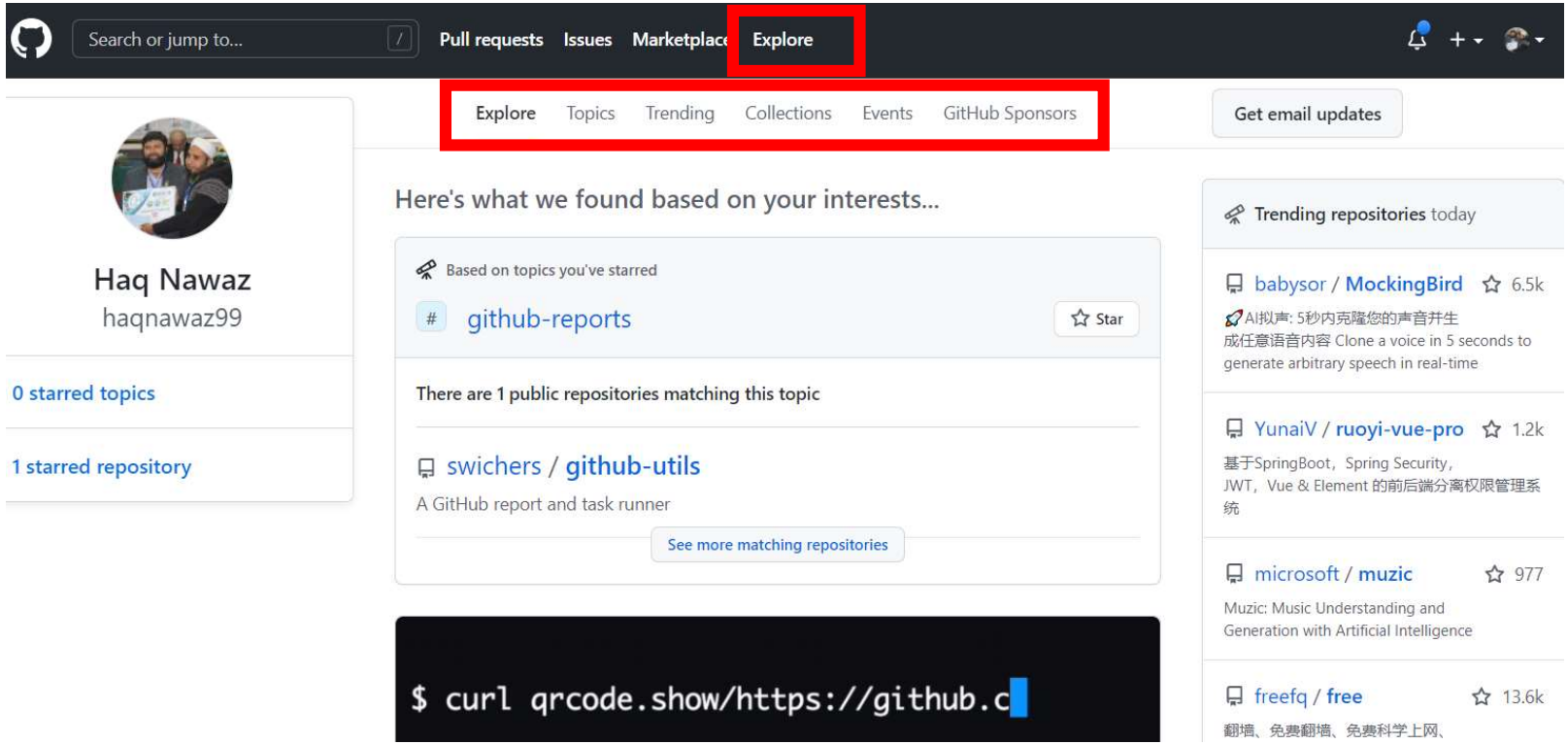
Git Add

git add .

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git add .

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Morning\Code\20220320>git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   styles.css
        new file:   test.html
```

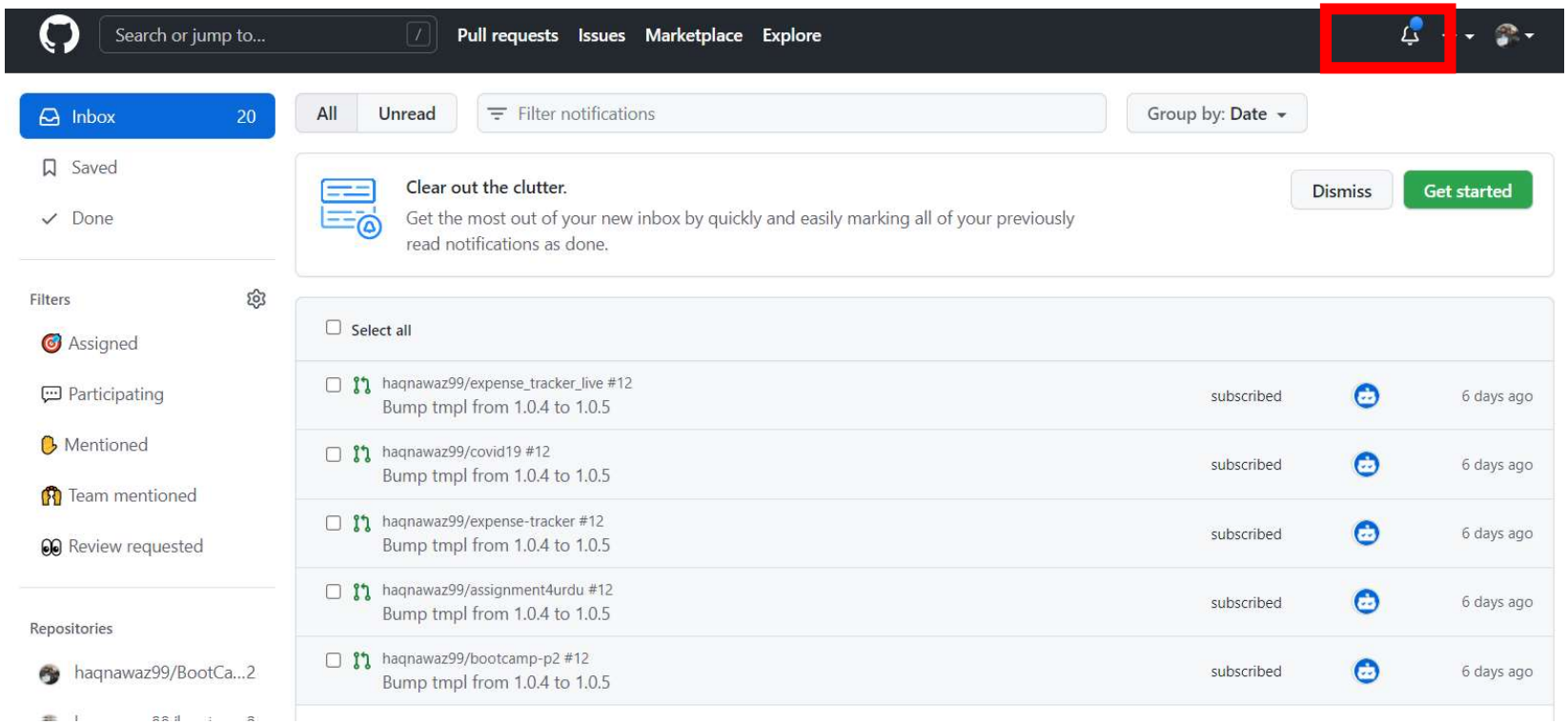
GitHub Explore

Explore to see latest trending repos, developers



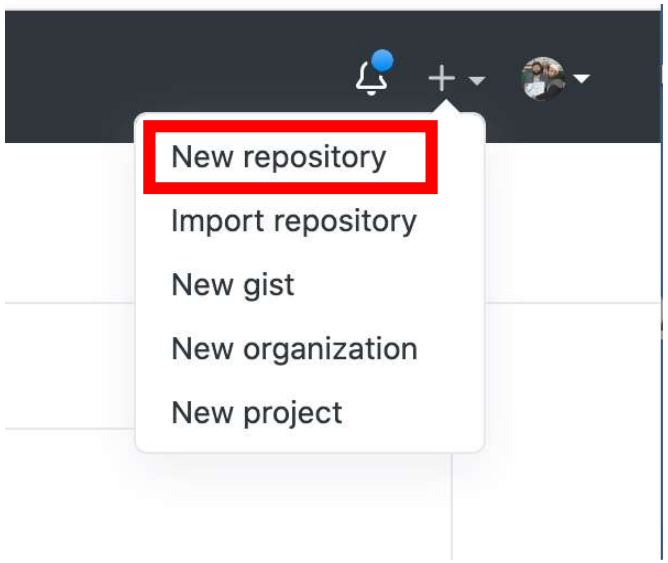
GitHub Notifications

Explore to see latest trending repos, developers



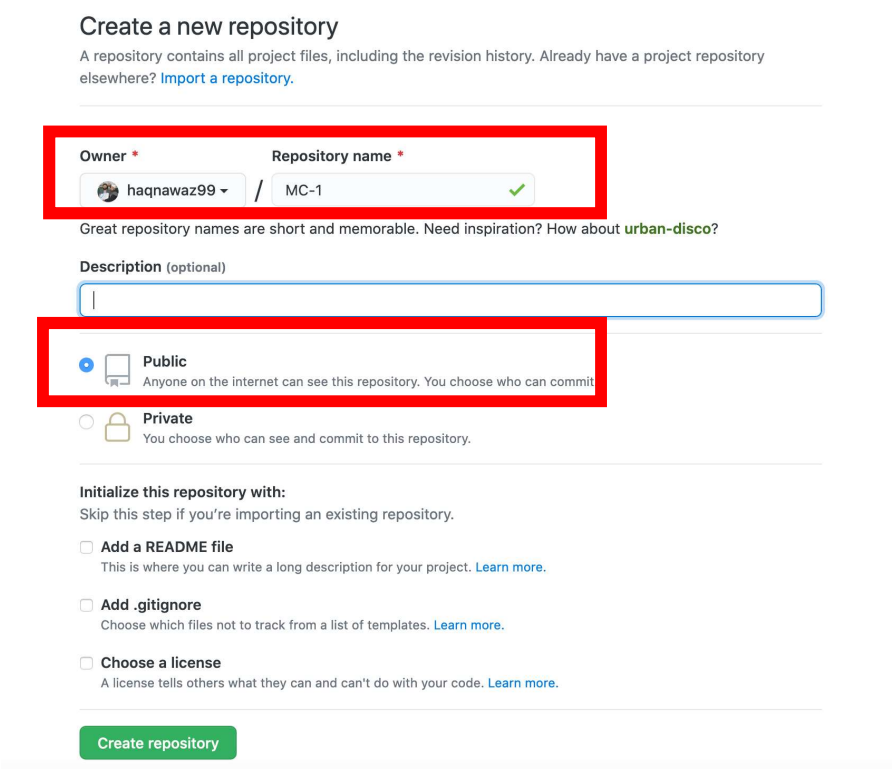
GitHub Repository

Create a repository on GitHub



GitHub Repository

Provide details of repository on your account



GitHub Repository

url of repository on your account

Quick setup — if you've done this kind of thing before

Set up in Desktop or HTTPS SSH https://github.com/haqnawaz99/MC-1.git

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo "# MC-1" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M master
git remote add origin https://github.com/haqnawaz99/MC-1.git
git push -u origin master
```

Git Clone

Clone a repository

code1
code2
code3
code4

git clone [url]

code1
code2
code3
code4

Git Clone

Clone a repository

git clone https://github.com/haqnawaz99/20220322_A

```
C:\Teaching\PUCIT\MC_PUCIT_Spring_2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\202220323>
git clone https://github.com/haqnawaz99/20220322_A
Cloning into '20220322_A'...
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 13 (delta 2), reused 12 (delta 1), pack-reused 0
Receiving objects: 100% (13/13), done.
Resolving deltas: 100% (2/2), done.

C:\Teaching\PUCIT\MC_PUCIT_Spring_2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\202220323>
```

File Content

changed file at another local repository

C: > Teaching > PUCIT > MC PUCIT Spring 2022 > MC_PUCI

```
1  h1 {
2    color: green;
3    background-color: red;
4  }
5  h2 {
6    color: red;
7    background-color: green;
8  }
```

File Content

changed file at local repository

style.css > ...

```
1   h1 {
2     color: green;
3     background-color: red;
4     font-size: larger;
5   }
```

Git Push

Push file to repository

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\20220322_A>git status
On branch main
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   style.css

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        attendance20220322.txt

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

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\20220322_A>git add style.css

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\20220322_A>git commit -m "Font size changed"
[main 21b8c8e] Font size changed
 1 file changed, 1 insertion(+)

C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\20220322_A>git push
To https://github.com/haqnawaz99/20220322_A.git
 ! [rejected]        main -> main (fetch first)
error: failed to push some refs to 'https://github.com/haqnawaz99/20220322_A.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.
```

Git Pull

Pull file from repository

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\20220322_A>git pull

remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 324 bytes | 29.00 KiB/s, done.
From https://github.com/haqnawaz99/20220322_A
   01f46c7..aa7eab5  main       -> origin/main
Auto-merging style.css
Merge made by the 'recursive' strategy.
 style.css | 4 ++++
 1 file changed, 4 insertions(+)
```

File Content Updated

changes pull from remote repository

```
1  h1 {
2    color: green;
3    background-color: red;
4    font-size: larger;
5  }
6  h2 {
7    color: red;
8    background-color: green;
9  }
```

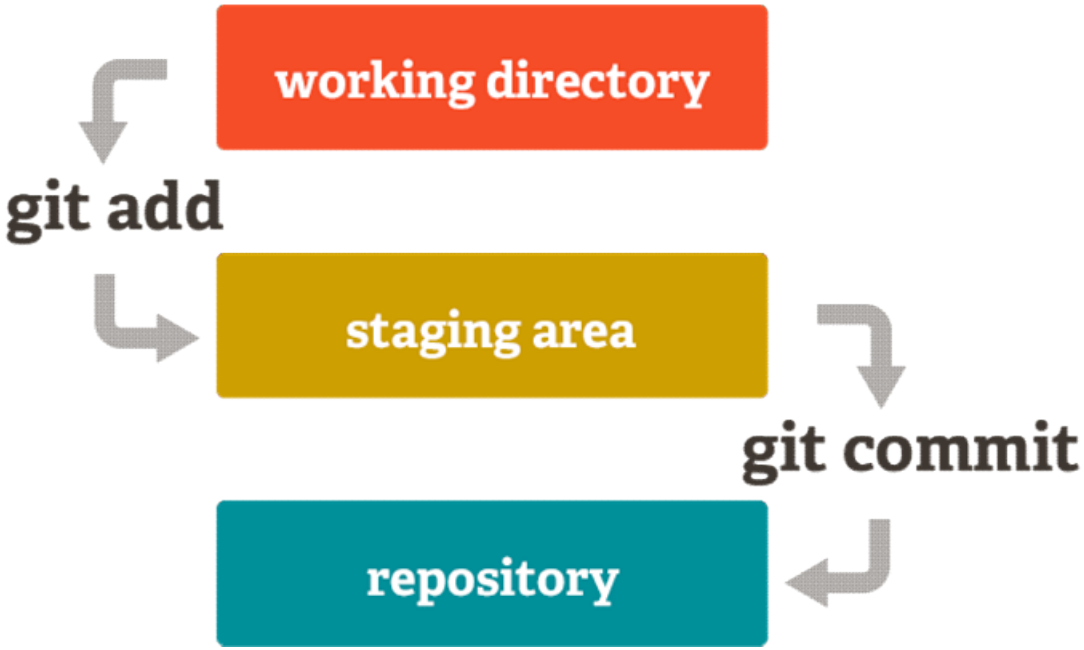
File Content Updated

changes pull from remote repository

```
C:\Teaching\PUCIT\MC PUCIT Spring 2022\MC_PUCIT_OC_Spring_2022\Afternoon\Code\20220322_A>git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
  (use "git push" to publish your local commits)
```

Git Stagging area

Stagging



Git Commit

Changes made with message to track changes

git commit -m “Message ”

git commit -m “First Commit ”

Git Commit

Changes made with message to track changes

```
(base) haqnawaz@Zahids-MBP MC-1 % git commit -m "First Commit"
[master (root-commit) 5b1ebd4] First Commit
 1 file changed, 12 insertions(+)
 create mode 100644 mc01.html
(base) haqnawaz@Zahids-MBP MC-1 %
```

Git Status

Tells about the **status** of the **repository**

git status

```
(base) haqnawaz@Zahids-MBP MC-1 % git status
On branch master
Your branch is based on 'origin/master', but the upstream is gone.
  (use "git branch --unset-upstream" to fixup)
```

Git Push

Push changes to the server

git push

```
(base) haqnawaz@Zahids-MBP MC-1 % git push
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 328 bytes | 328.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/haqnawaz99/MC-1.git
 * [new branch]      master -> master
(base) haqnawaz@Zahids-MBP MC-1 %
```

GitHub Repository

url of repository on your account

Quick setup — if you've done this kind of thing before

Set up in Desktop or HTTPS SSH https://github.com/haqnawaz99/MC-1.git

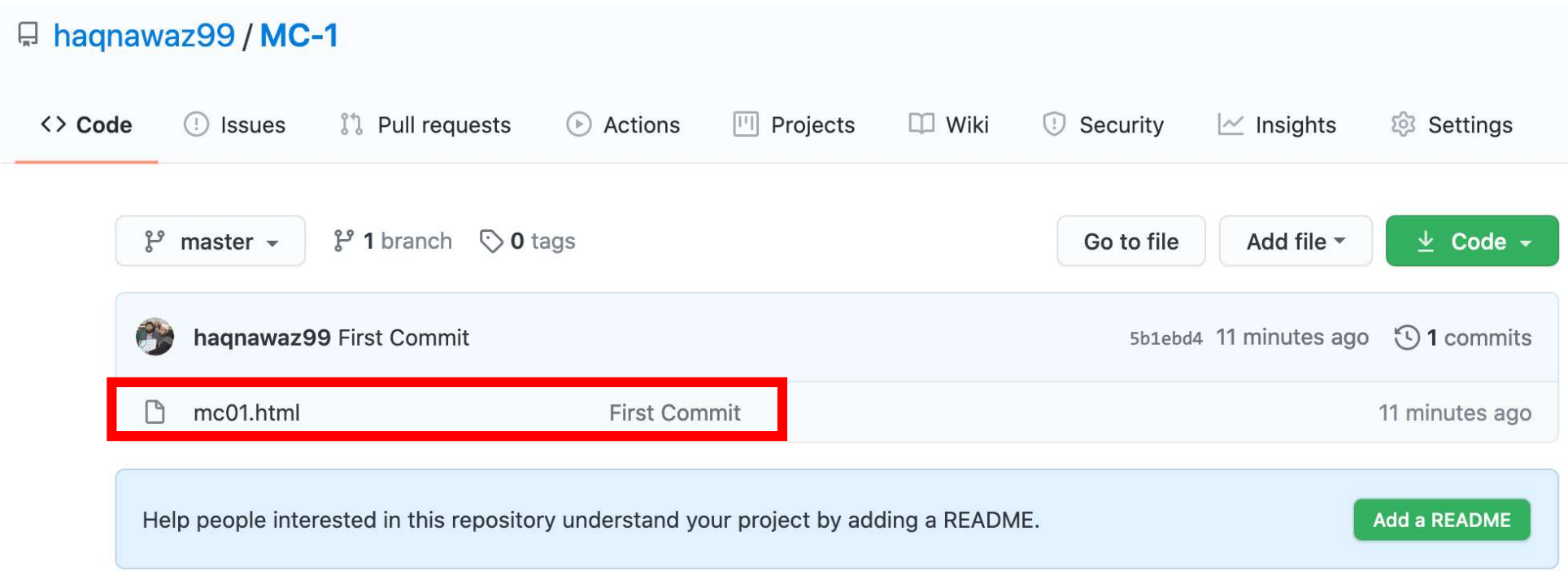
Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo "# MC-1" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M master
git remote add origin https://github.com/haqnawaz99/MC-1.git
git push -u origin master
```

GitHub Repository

view of repository after push



GitHub Repository

content of file in repository

master

MC-1 / mc01.html

haqnawaz99 First Commit

1 contributor

12 lines (10 sloc) | 142 Bytes

```
 <!DOCTYPE html>
<html>
<head>
<title>PMC-1</title>
</head>
<body>

<h1>Mobile Computing</h1>
<p>Testing for the Github.</p>

</body>
</html>
```

File Content

changes made at local repository

```
3   <head>
4   <title>PMC-1</title>
5   </head>
6   <body>
7
8   <h1>Mobile Computing</h1>
9   <p>Testing for the Github.</p>
10  <h2>It is new Heading added</h2>
11
12  </body>
13  </html>
```

Adding new commit

Committing changes to repository

- git add mc01.html
- git commit –m ”Heading 2 added ”
- git push

Adding new commit

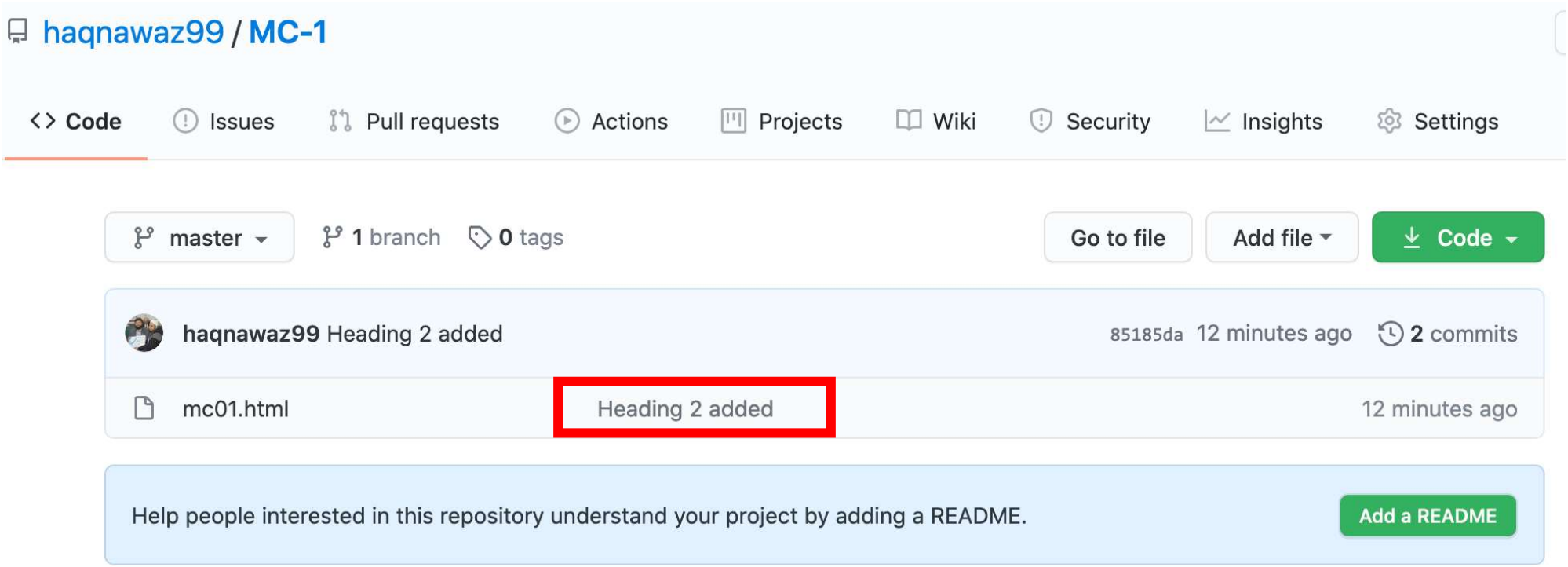
Committing changes to repository

MC-1 — -zsh — 100×24

```
(base) haqnawaz@Zahids-MBP MC-1 % git add mc01.html
(base) haqnawaz@Zahids-MBP MC-1 % git commit -m "Heading 2 added"
[master 85185da] Heading 2 added
 1 file changed, 1 insertion(+)
(base) haqnawaz@Zahids-MBP MC-1 % git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 319 bytes | 319.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/haqnawaz99/MC-1.git
   5b1ebd4..85185da  master -> master
(base) haqnawaz@Zahids-MBP MC-1 % $
```

GitHub Repository

view of repository after second push



GitHub Repository

Track of changes

master

MC-1 / mc01.html

haqnawaz99 Heading 2 added

1 contributor

13 lines (11 sloc) | 175 Bytes

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <title>PMC-1</title>
5  </head>
6  <body>
7
8  <h1>Mobile Computing</h1>
9  <p>Testing for the Github.</p>
10 <h2>It is new Heading added</h2>
11
12 </body>
13 </html>
```

Qualities of متقین

الٓمّٓ ﴿۱﴾

ذٰلِکَ الْکِتٰبُ لَا رَیْبَ ۛ فِیْہِ ۛ ہُدًی لِّلْمُتَّقِیْنَ ﴿۲﴾

الَّذِیْنَ یُؤْمِنُوْنَ بِالْغَیْبِ وَ یُقِیْمُوْنَ الصَّلٰوۃَ وَ مِمَّا رَزَقْنٰہُمْ یُنْفِقُوْنَ ﴿۳﴾

وَ الَّذِیْنَ یُؤْمِنُوْنَ بِمَآ اُنْزِلَ اِلَیْکَ وَ مَآ اُنْزِلَ مِنْ قَبْلِکَ ۚ وَ بِالْاٰخِرَۃِ ہُمْ یُوْقِنُوْنَ ﴿۴﴾

اُولٰٓئِکَ عَلٰی ہُدًی مِّنْ رَّبِّہِمْ ۟ وَ اُولٰٓئِکَ ہُمُ الْمُفْلِحُوْنَ ﴿۵﴾

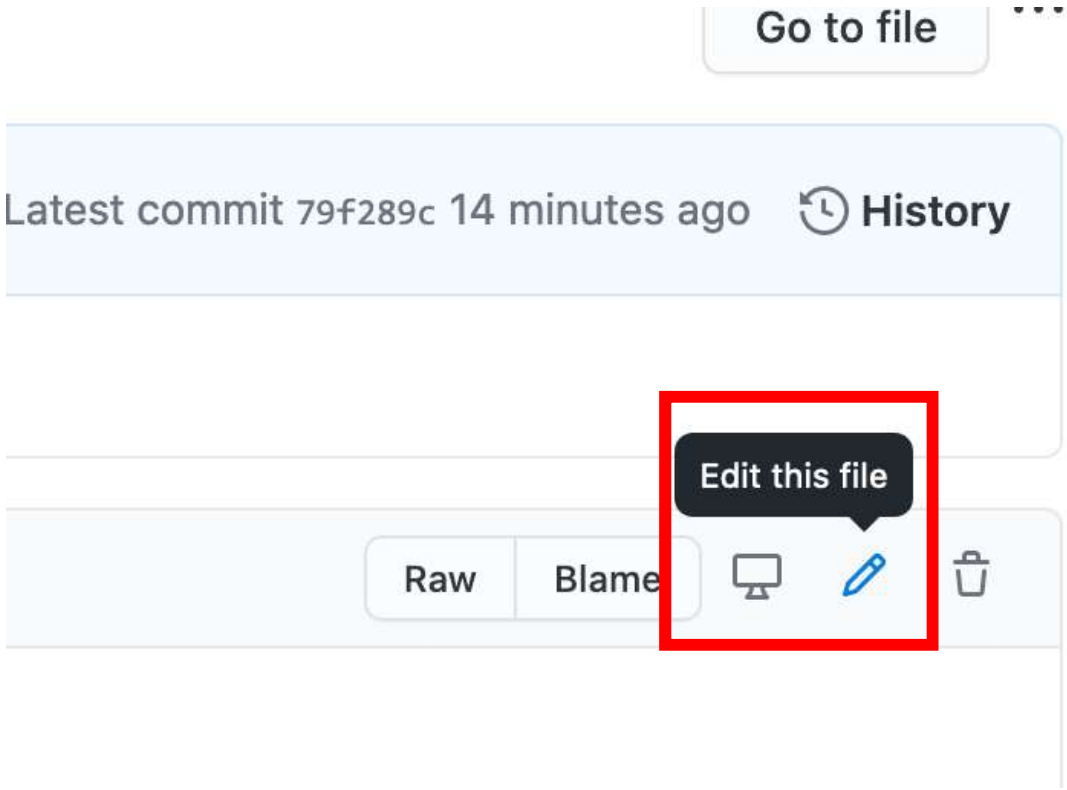
Who is Intellectual

الكيسُ منْ دانَ نفسَهُ، و عملَ لمَا بعدَ الموتِ، و العاجزُ منْ أَتْبَعَ نفسَهُ هواهَا، و تمنَّى على اللهِ الأمانيَّ

The Prophet ((ﷺ said, "A wise man is the one who calls himself to account (and refrains from doing evil deeds) and does noble deeds to benefit him after death; and the foolish person is the one who subdues himself to his temptations and desires and seeks from Allah the fulfillment of his vain desires".

Edit Online

How to edit files at repository



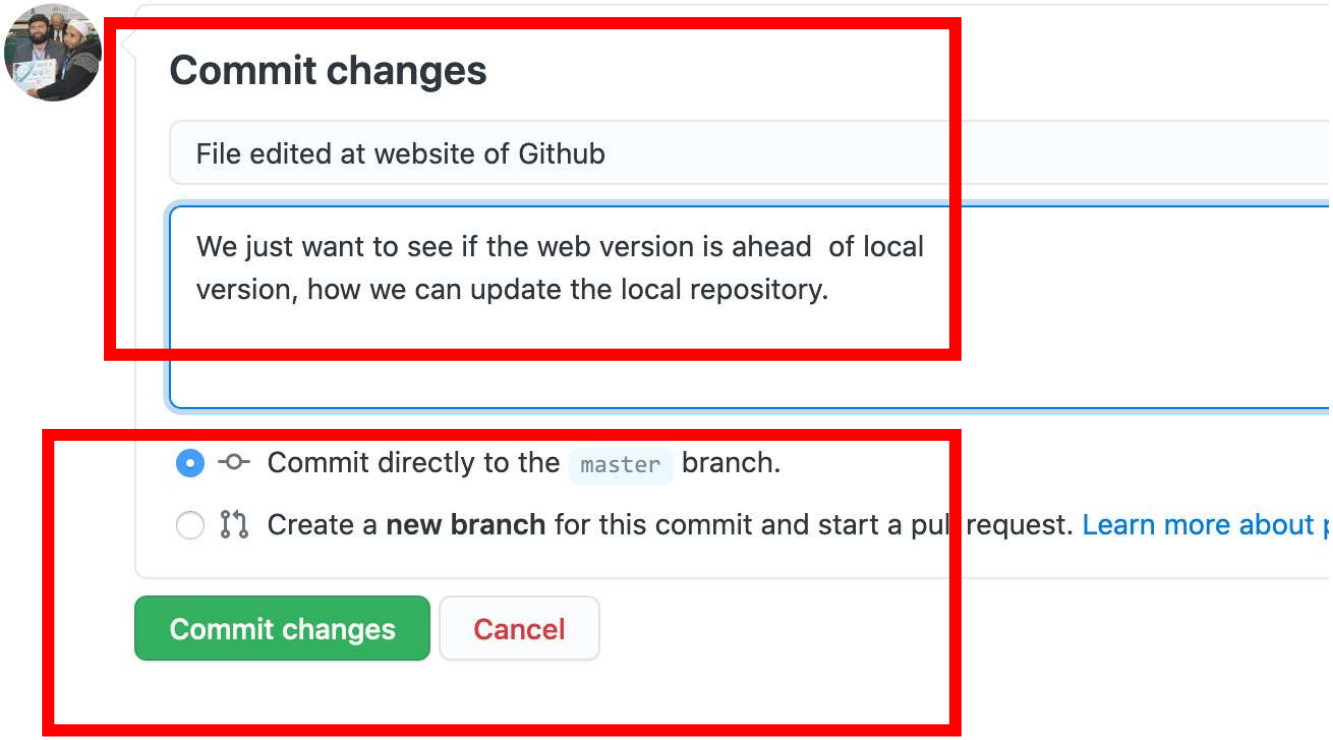
Edit Online

How to edit files at repository

```
 <!DOCTYPE html>
<html>
<head>
<title>PMC-1</title>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>

</body>
</html>
```

Commit changes at Web

How Commit at repository



View changes

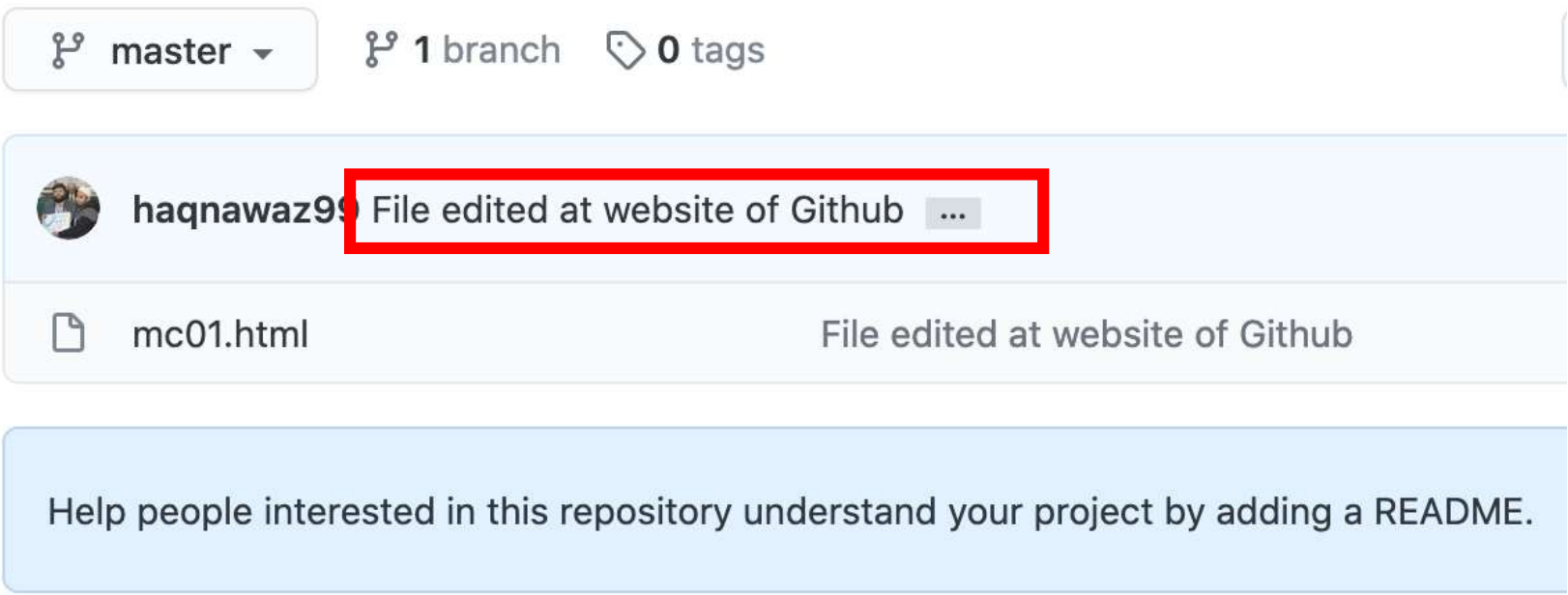
To view changes made online repository

15 lines (13 sloc) | 258 Bytes

```
1   <!DOCTYPE html>
2   <html>
3   <head>
4   <title>PMC-1</title>
5   </head>
6   <body>
7
8   <h2>It is change in web version of GIthub</h2>
9   <h1>Mobile Computing</h1>
10  <p>Testing for the Github.</p>
11  <h2>It is new Heading added</h2>
12  <h3>It is third Heading added</h3>
13
14  </body>
15  </html>
```

Version Hierarchy

File showing with latest commit



Version Hierarchy

File showing with latest commit

File edited at website of Github

We just want to see if the web version is ahead of local version, how we can update the local repository.

master

haqnawaz99 committed 9 minutes ago Verified

1 parent 79f289c

Showing **1 changed file** with **2 additions** and **1 deletion**.

3 mc01.html

```
@@ -5,10 +5,11 @@
5  5    </head>
6  6    <body>
   8  + <h2>It is change in web version of GIthub</h2>
8  9    <h1>Mobile Computing</h1>
10 11   <h2>It is new Heading added</h2>
11 12   <h3>It is third Heading added</h3>
12 13
13 14   </body>
14    - </html>
   15 + </html>
```

Version Hierarchy

File showing with latest commit

third change made in the file

master

haqnawaz99 committed 32 minutes ago

1 parent 85185da

Showing 1 changed file with **1 addition** and **0 deletions**.

1 mc01.html

```
@@ -8,6 +8,7 @@
8   8     <h1>Mobile Computing</h1>
9   9     <p>Testing for the Github.</p>
10  10    <h2>It is new Heading added</h2>
    11  + <h3>It is third Heading added</h3>
11  12
12  13    </body>
13  14    </html>
```

Add Collaborators

File showing with latest commit

Git pull

To get changes from Github to local repository

```
(base) haqnawaz@Zahids-MBP MC-1 % git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/haqnawaz99/MC-1
   79f289c..a1384da  master     -> origin/master
Updating 79f289c..a1384da
Fast-forward
 mc01.html | 3 ++-
 1 file changed, 2 insertions(+), 1 deletion(-)
(base) haqnawaz@Zahids-MBP MC-1 %
```

Git pull

To get changes from Github to local repository

```html
<!DOCTYPE html>
<html>
<head>
<title>PMC-1</title>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>

</body>
</html>
```

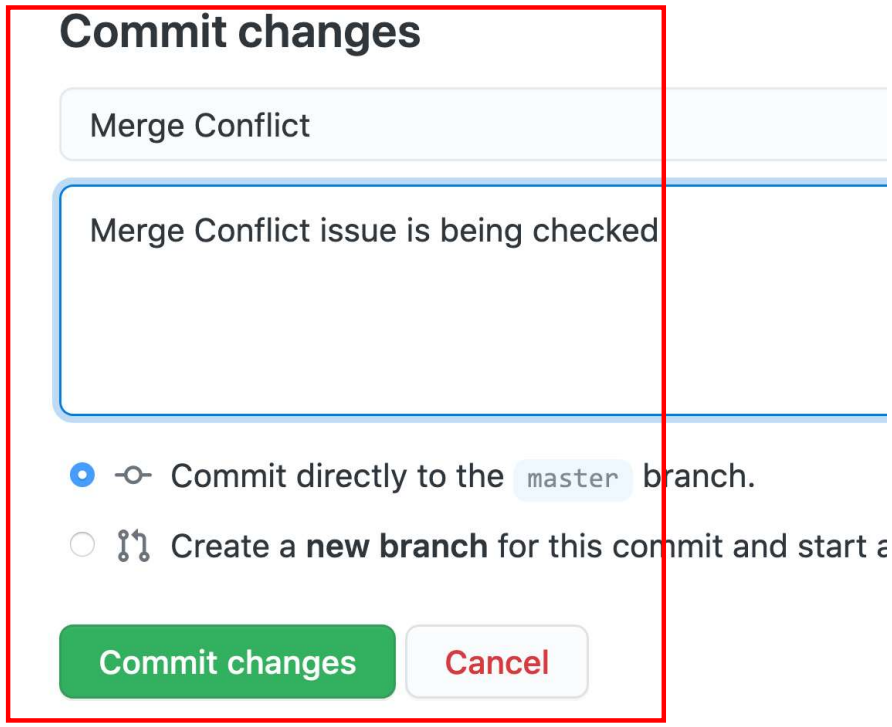
Merge Conflicts

File changed at github.com

```
 <!DOCTYPE html>
<html>
<head>
<title>PMC-1</title>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>

</body>
</html>
```

Merge Conflicts

New commit added



Merge Conflicts

Same line changed at local repository

mc01.html

mc01.html

2020 Mobile Computing New Campus > Lectures > Lectures > MC-Lect-1 >

```
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <title>PMC-1</title>
5  </head>
6  <body>
7
8  <h2>It is change in web version of GIthub</h2>
9  <h1>Mobile Computing Same Line changed</h1>
10 <p>Testing for the Github.</p>
11 <h2>It is new Heading added</h2>
12 <h3>It is third Heading added</h3>
13
14 </body>
15 </html>
16
```

Merge Conflicts

Git add and commit

```
(base) haqnawaz@Zahids-MBP mc-1 % git add mc01.html

(base) haqnawaz@Zahids-MBP mc-1 % git commit -m "Git Merge Conflict"
[master 2852bb0] Git Merge Conflict
 1 file changed, 1 insertion(+), 1 deletion(-)
(base) haqnawaz@Zahids-MBP mc-1 % git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/haqnawaz99/MC-1
   a1384da..e1ea5cf  master     -> origin/master
Auto-merging mc01.html
CONFLICT (content): Merge conflict in mc01.html
Automatic merge failed; fix conflicts and then commit the result.
```

Merge Conflicts

New commit added

```
8   <h2>It is change in web version of GIthub</h2>
    Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
9   <<<<<<< HEAD (Current Change)
10  <h1>Mobile Computing Same Line changed</h1>
11  =======
12  <h1>Mobile Computing Course</h1>
13  >>>>>>> e1ea5cfdc116828b23678d777fdb502cd46c510c (Incoming Change)
14  <p>Testing for the Github.</p>
15  <h2>It is new Heading added</h2>
```

Merge Conflicts

Resolved Merge Conflicts

```
<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course Android Development</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>
```

```
(base) haqnawaz@Zahids-MBP mc-1 % git commit -am "Merge issue resolved"
[master ca5af55] Merge issue resolved
(base) haqnawaz@Zahids-MBP mc-1 % git push
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 607 bytes | 607.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/haqnawaz99/MC-1.git
```

Merge Conflicts

Same data at github.com

```
<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course Android Development</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>
```

Git log

Details of commits

```
(base) haqnawaz@Zahids-MBP mc-1 % git log
commit ca5af55d2fcf63df4a2ab26fa7a1ec987d4c53c9 (HEAD -> master, origin/master)
Merge: 2852bb0 e1ea5cf
Author: Haq Nawaz <haqnawaz99@yahoo.com>
Date:   Mon Sep 21 08:33:13 2020 +0500

    Merge issue resolved

commit 2852bb0727dc7b968d1e455367e9ba02ecd2719c
Author: Haq Nawaz <haqnawaz99@yahoo.com>
Date:   Mon Sep 21 07:45:06 2020 +0500

    Git Merge Conflict

commit e1ea5cfdc116828b23678d777fdb502cd46c510c
Author: Haq Nawaz <haqnawaz99@yahoo.com>
Date:   Mon Sep 21 07:31:22 2020 +0500

    Merge Conflict

    Merge Conflict issue is being checked

commit a1384dac07b45629ae67c10f703108c94e0f75fe
Author: Haq Nawaz <haqnawaz99@yahoo.com>
:...skipping...
```

Branching

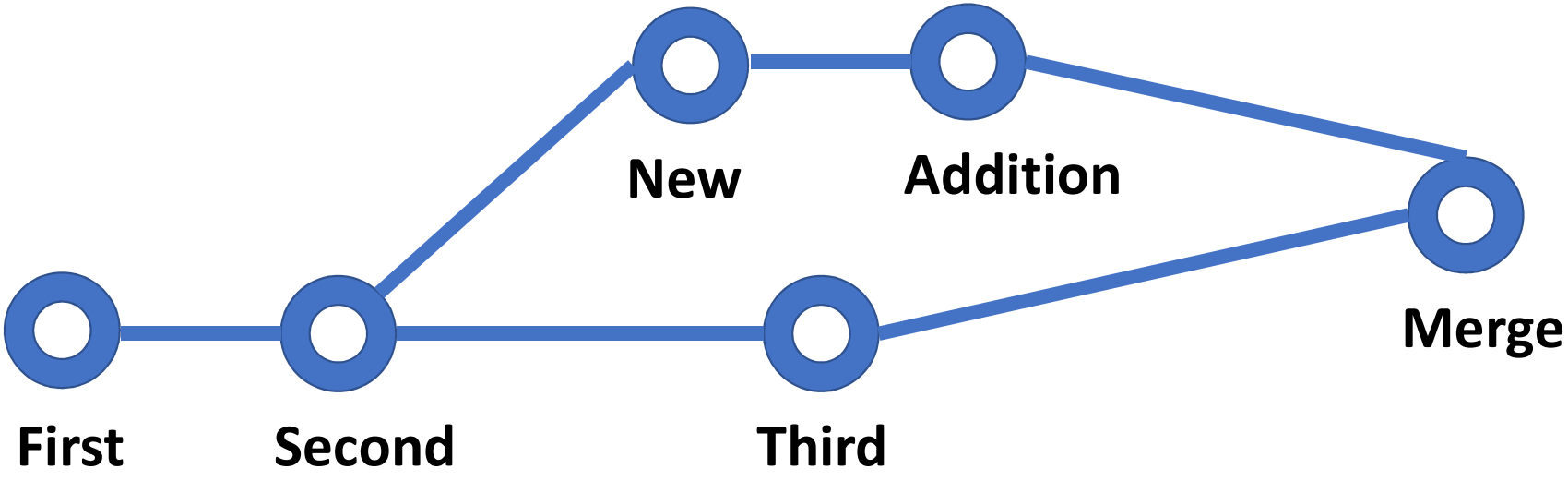
Create a Branch

When you're working on a project, you're going to have a bunch of different features or ideas in progress at any given time – some of which are ready to go, and others which are not. Branching exists to help you manage this workflow.

When you create a branch in your project, you're creating an environment where you can try out new ideas. Changes you make on a branch don't affect the main branch, so you're free to experiment and commit changes, safe in the knowledge that your branch won't be merged until it's ready to be reviewed by someone you're collaborating with.

Branching

Working with branches



Branching

Create a Branch

- git branch
- git check
- git merge

Branching

Create a Branch

```
(base) haqnawaz@zahids-mbp mc-1 % git branch
* master
(base) haqnawaz@zahids-mbp mc-1 % git checkout -b newbranch
Switched to a new branch 'newbranch'
(base) haqnawaz@zahids-mbp mc-1 % git branch
  master
* newbranch
(base) haqnawaz@zahids-mbp mc-1 %
```

Branching

Create a Branch

```
<style>
    body {background-color: aqua;}
</style>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course Android Development</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>
```

Branching

Commit Added

```
(base) haqnawaz@zahids-mbp mc-1 % git commit -am "Styles applied"
[newbranch c9bd486] Styles applied
 1 file changed, 3 insertions(+)
(base) haqnawaz@zahids-mbp mc-1 %
```

Branching

Switch to Master Branch

```
(base) haqnawaz@zahids-mbp mc-1 % git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
(base) haqnawaz@zahids-mbp mc-1 %
```

Branching

Master Branch

```html
<head>
<title>PMC-1</title>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course Android Development</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>

</body>
</html>
```

Branching

Switch to Newbranch Branch

```
(base) haqnawaz@zahids-mbp mc-1 % git checkout newbranch
Switched to branch 'newbranch'
(base) haqnawaz@zahids-mbp mc-1 %
```

Branching

Newbranch Branch

```
<title>PMC-1</title>
<style>
    body {background-color: aqua;}
</style>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course Android Development</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>
```

Merge

Merge different branches

```
(base) haqnawaz@zahids-mbp mc-1 % git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
(base) haqnawaz@zahids-mbp mc-1 % git merge newbranch
Updating ca5af55..c9bd486
Fast-forward
 mc01.html | 3 +++
 1 file changed, 3 insertions(+)
(base) haqnawaz@zahids-mbp mc-1 %
```

Branching

Main Branch

```
<title>PMC-1</title>
<style>
    body {background-color: aqua;}
</style>
</head>
<body>

<h2>It is change in web version of GIthub</h2>
<h1>Mobile Computing Course Android Development</h1>
<p>Testing for the Github.</p>
<h2>It is new Heading added</h2>
<h3>It is third Heading added</h3>
```

Delete Branch

Main Branch

```
(base) haqnawaz@zahids-mbp mc-1 % git branch
* master
  newbranch
(base) haqnawaz@zahids-mbp mc-1 % git branch -D newbranch
Deleted branch newbranch (was c9bd486).
(base) haqnawaz@zahids-mbp mc-1 %
```

Ghazal No 01

تو سمجھتا ہے کہ رشتوں کی دہائی دیں گے
ہم تو وہ ہیں ترے چہرے سے دکھائی دیں گے

ہم کو محسوس کیا جائے ہے خوشبو کی طرح
ہم کوئی شور نہیں ہیں جو سنائی دیں گے

فیصلہ لکھا ہوا رکھا ہے پہلے سے خلاف
آپ کیا صاحب عدالت میں صفائی دیں گے

پچھلی صف میں ہی سہی ہے تو اسی محفل میں
آپ دیکھیں گے تو ہم کیوں نہ دکھائی دیں گے

Ghazal No 01

تو سمجھتا ہے کہ رشتوں کی دہائی دیں گے
ہم تو وہ ہیں ترے چہرے سے دکھائی دیں گے

ہم کو محسوس کیا جائے ہے خوشبو کی طرح
ہم کوئی شور نہیں ہیں جو سنائی دیں گے

فیصلہ لکھا ہوا رکھا ہے پہلے سے خلاف
آپ کیا صاحب عدالت میں صفائی دیں گے

پچھلی صف میں ہی سہی ہے تو اسی محفل میں
آپ دیکھیں گے تو ہم کیوں نہ دکھائی دیں گے