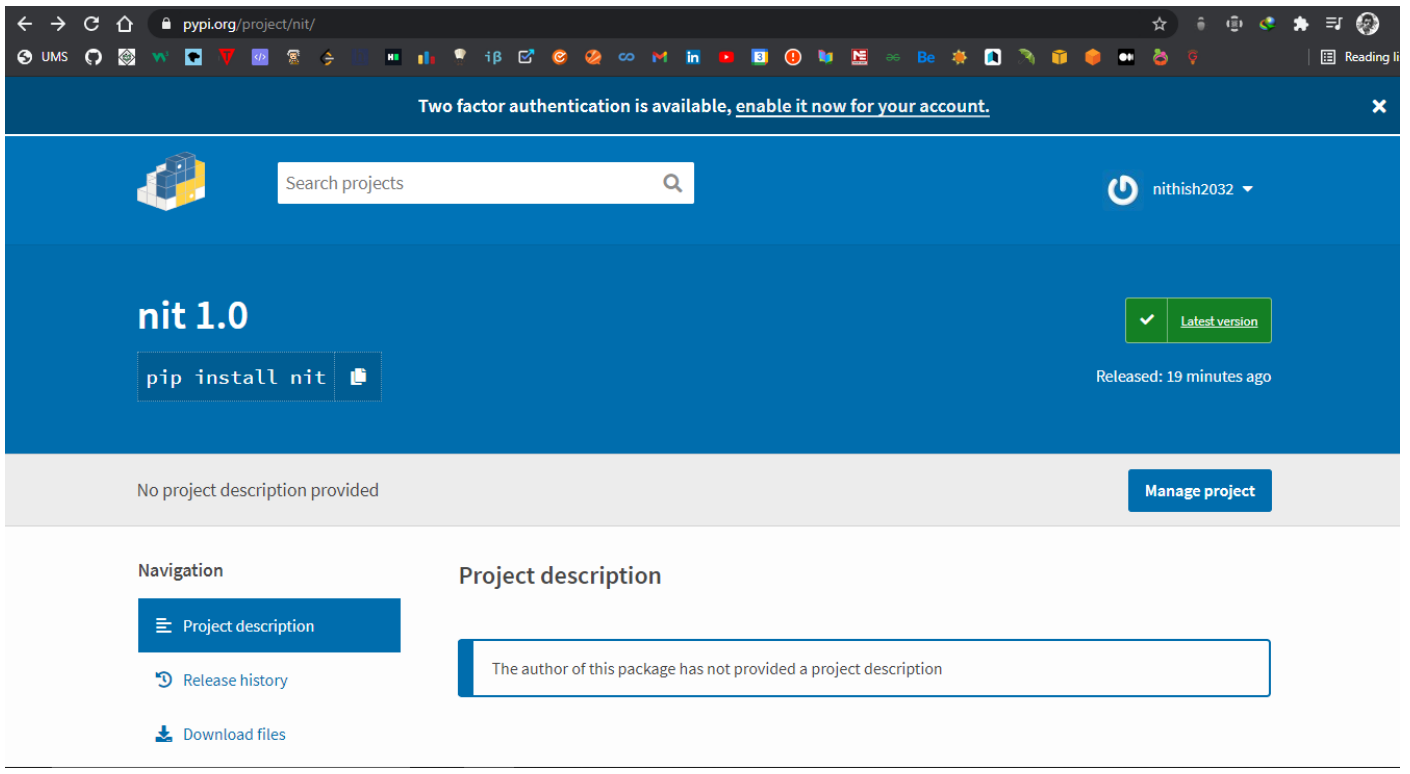


VCS SCREENSHOTS



It is available in pypi.org. You can install it with “pip install nit” command.

```
C:\Windows\System32\cmd.exe
A:\PROJECTS\VCS Project\ClientSide>pip install nit
Collecting nit
  Downloading nit-1.0.tar.gz (7.9 kB)
Requirement already satisfied: Click in c:\users\nithish\appdata\local\programs\python\python38\lib\site-packages (from nit) (7.1.2)
Building wheels for collected packages: nit
  Building wheel for nit (setup.py) ... done
  Created wheel for nit: filename=nit-1.0-py3-none-any.whl size=11131 sha256=b5956ac99dc3b386ccf01553fdd1fb577b0016ee2d215dfe113d91ad88b364e0
  Stored in directory: c:\users\nithish\appdata\local\pip\cache\wheels\d0\ba\7b\f0117cd9c7e27ff1f2d33acd0bf72b06fd559ab2e43610b997
Successfully built nit
Installing collected packages: nit
Successfully installed nit-1.0
A:\PROJECTS\VCS Project\ClientSide>
```

```

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit --help
Usage: nit [OPTIONS] COMMAND [ARGS]...

    user the commands mentioned below

Options:
  --help  Show this message and exit.

Commands:
  addDev      Add developers to your remote repository with this command.
  branches    Shows all the branches that are present in the repository.
  chbr        You can change your current working branch with this...
  commit      It takes a snapshot of the current version of your...
  createAccount You can create account with this command .
  diff        compares two files
  getHash     Gives you hash number of a certain tag.
  getTag      Gives you tag of a certain hash number.
  history     You can view your commit history with this command.
  ignore      Ignore the files that you dont want to track with this...
  init        Initializes the repository.
  mkrbr       You can make a new branch with this command.
  mkrrep      You can make a new repository in the server .
  push        Upload your repository to server with this command.
  revert      You can go back to any commit you have made earlier with...
  showDevs    Shows all the developers that are added to your remote...
  status      Shows the status of your repository
  track       Added files to you want track using this command.

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>

```

After installing nit .you have to use it by typing nit followed by a command .If you are stuck you can use “ nit --help “ command for help

For detailed information about specific command you can type “nit commandname --help”

```

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit track --help
Usage: nit track [OPTIONS] [ARG]

    Add files to you want track using this command. nit track * for tracking
    every file in the current path. nit track filename for tracking one file.
    nit track for adding multiple files (type DONE! when your are done).

Options:
  --help  Show this message and exit.

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>

```







```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit createAccount
```

ENTER DETAILS

```
Enter your first name :Nithish  
Enter your last name :Kandepi  
Enter your email id :nithish.kandepi@gmail.com  
Set your username :nithish1727  
Enter password :Nithish@10  
Confirm password :Nithish@10
```

After installing you have to create account.

Now lets say you have a project folder with bunch of files in it and you want manage it.

Name	Date modified	Type	Size
 file1.py	29-04-2021 00:49	Python File	1 KB
 file2.py	29-04-2021 00:49	Python File	1 KB
 file3.py	29-04-2021 00:49	Python File	1 KB
 file4.py	29-04-2021 00:49	Python File	1 KB
 LICENSE	29-04-2021 00:49	File	1 KB
 README.md	29-04-2021 00:49	MD Document	1 KB

First you have to type “nit init” command to initialize repository in the current path.

Enter the details required.

```
C:\Windows\System32\cmd.exe
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit init  
Repository Name :calculator  
Author Name :nithish2032  
Author Email :nithish2032@gmail.com  
Description :This is a calculator  
  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

After initializing the repository you have to add those files which you want to maintain versions of.

You can see the status of repository by using “nit status” command.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status  
On branch master.  
Tracking : None  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

It says we are on master branch.I will explain what it is later.

And currently we are not tracking any file. So we need to add some files to track.

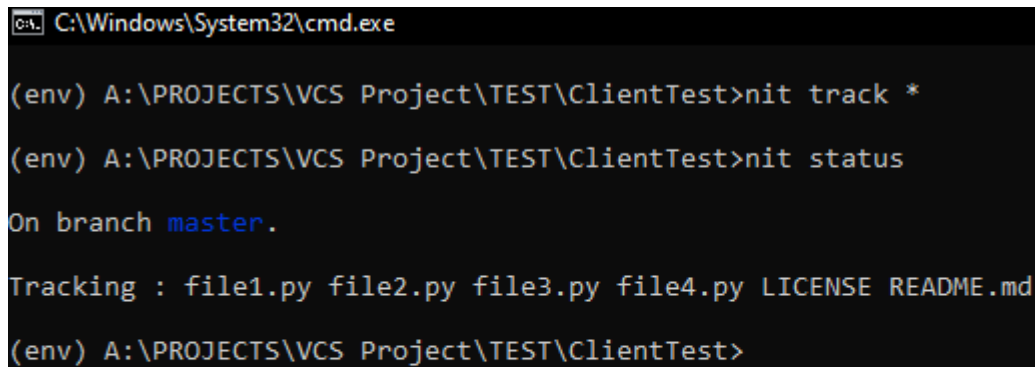
```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status  
On branch master.  
Tracking : None  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit track file1.py  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status  
On branch master.  
Tracking : file1.py  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

You can add a single file as shown in above picture.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit track  
file2.py  
file3.py  
DONE!  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status  
On branch master.  
Tracking : file1.py file2.py file3.py  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

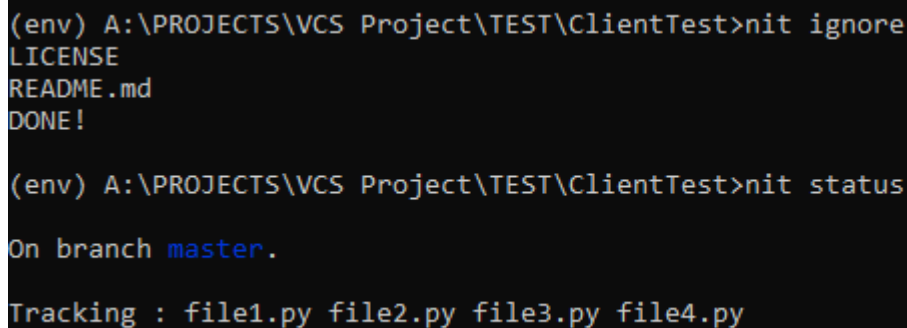
Or you can add multiple files and type DONE! When you are done.

Or you can add all files using asterisk.

A terminal window titled 'C:\Windows\System32\cmd.exe' showing the execution of 'nit track *'. The output indicates the current branch is 'master' and lists the files being tracked: file1.py, file2.py, file3.py, file4.py, LICENSE, and README.md.

```
C:\Windows\System32\cmd.exe
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit track *
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status
On branch master.
Tracking : file1.py file2.py file3.py file4.py LICENSE README.md
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

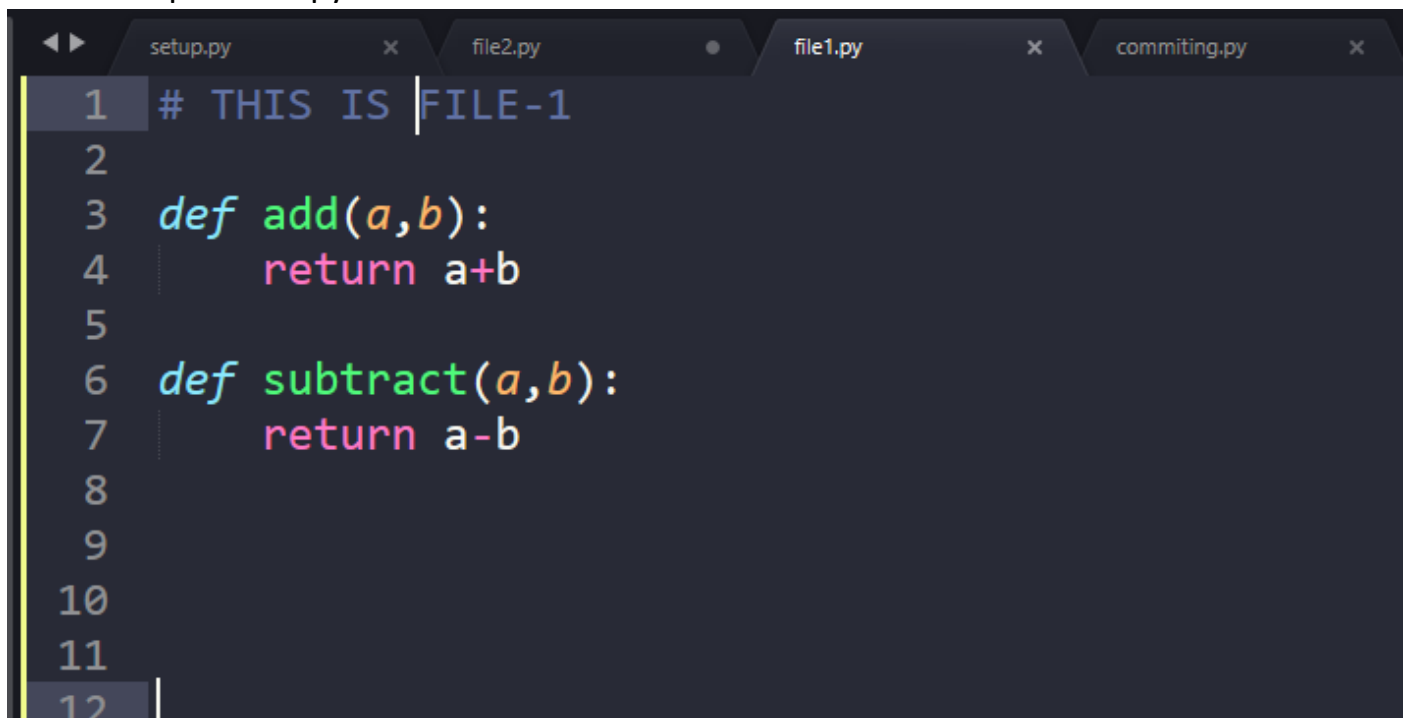
But I don't want track some files like LICENSE and README.md so I will ignore them by using "nit ignore command" similar to "nit track " command

A terminal window showing the execution of 'nit ignore' followed by 'nit status'. The output shows that LICENSE and README.md are now ignored, and the tracking list only includes file1.py, file2.py, file3.py, and file4.py.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit ignore
LICENSE
README.md
DONE!
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status
On branch master.
Tracking : file1.py file2.py file3.py file4.py
```

ignore * and ignore filename works too.

Now lets open file1.py in the current folder and write some code.

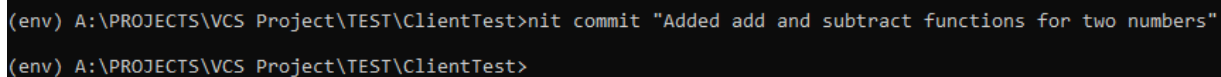
A screenshot of a code editor with a dark theme. The editor has several tabs at the top: 'setup.py', 'file2.py', 'file1.py' (which is the active tab), and 'commiting.py'. The code in 'file1.py' is as follows:

```
1 # THIS IS FILE-1
2
3 def add(a,b):
4     return a+b
5
6 def subtract(a,b):
7     return a-b
8
9
10
11
12
```

I wrote two simple functions . In reality these funcitons could be more than 100 lines .I am just trying to keep it simple.

After writing these functions I feel that i need a snapshot of current repository.

So I use “nit commit” command to take a snapshot.

A screenshot of a terminal window with a black background and white text. It shows the following commands and their output:

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit commit "Added add and subtract functions for two numbers"
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

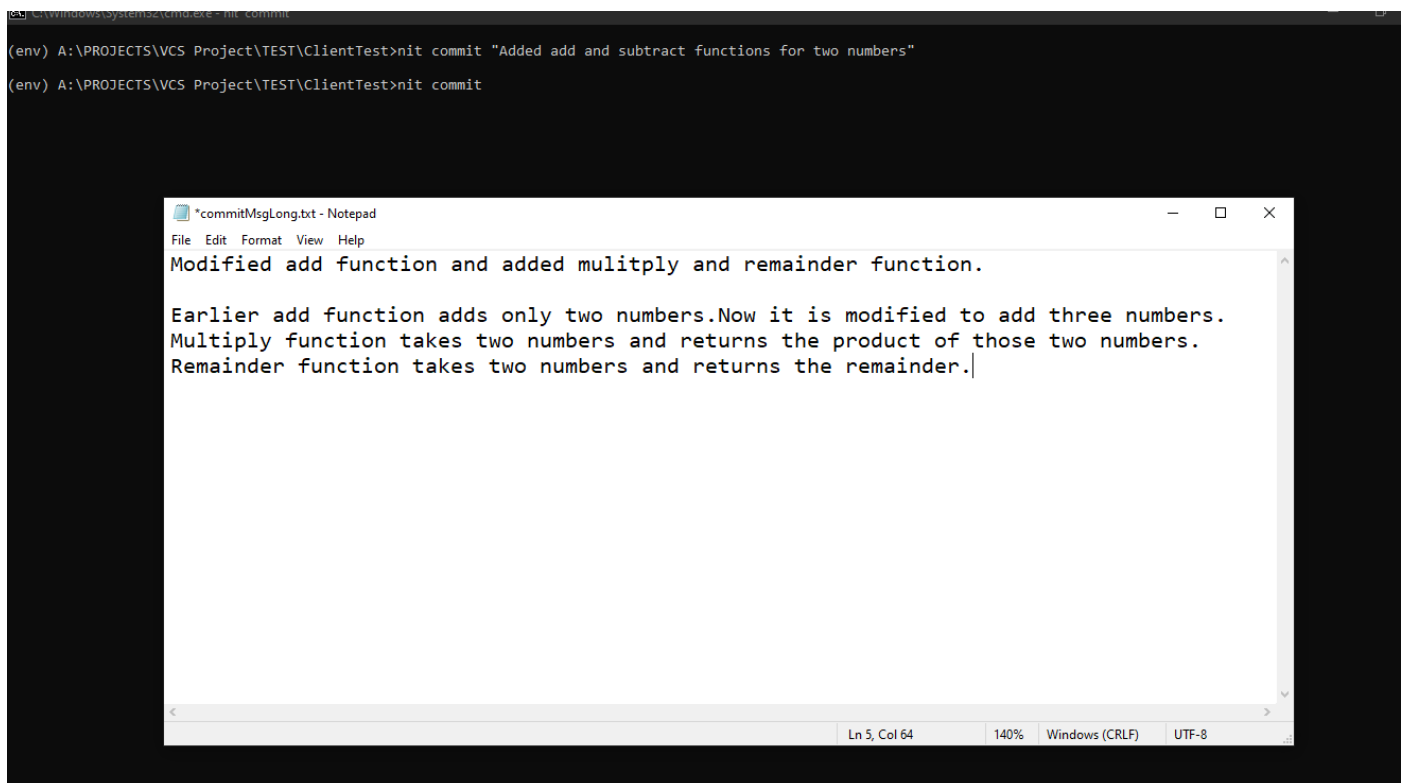
You can add a short message about what you have done that commit as you can see in the above picture.

After making a commit I continue to write my code.

```
1 # THIS IS FILE-1
2
3 def add(a,b,c):
4     return a+b+c
5
6 def subtract(a,b):
7     return a-b
8
9 def multiply(a,b,c):
10    return a*b*c
11
12 def remainder(a,b):|
13     return a%b
14
15
```

Now I have two more functions and changed the add functions to take three numbers as input.

Again I will make a commit.



The screenshot shows a terminal window with the following commands and output:

```
C:\Windows\System32\cmd.exe - nit commit
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit commit "Added add and subtract functions for two numbers"
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit commit
```

Overlaid on the terminal is a Notepad window titled "commitMsgLong.txt - Notepad". The text in the Notepad window is:

```
File Edit Format View Help
Modified add function and added mulitply and remainder function.

Earlier add function adds only two numbers.Now it is modified to add three numbers.
Multiply function takes two numbers and returns the product of those two numbers.
Remainder function takes two numbers and returns the remainder.
```


The status bar at the bottom of the Notepad window shows: "Ln 5, Col 64", "140%", "Windows (CRLF)", and "UTF-8".

Now I have made lots of changes and i want to write detailed explanation about what I have done in this commit.

So rather than typing “ nit commit short-message “ I just type “nit commit” and hit enter.

It automatically opens a file in which you can write detailed information about the commit and when you are done hit save.

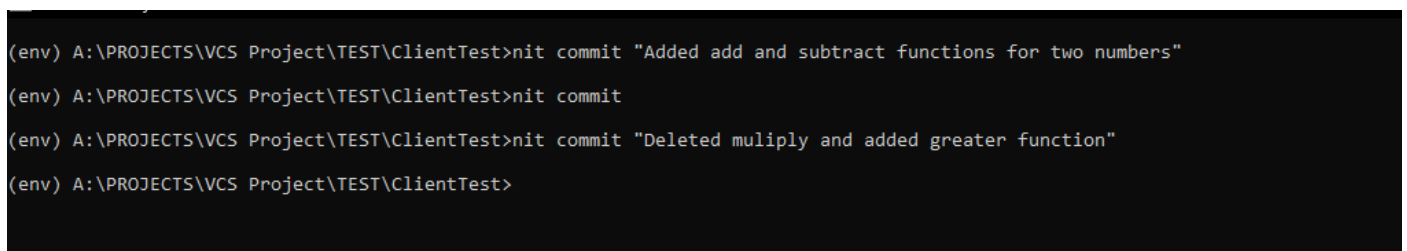
Now again we modify our code.



```
1  # THIS IS FILE-1
2
3  def add(a,b,c):
4      return a+b+c
5
6  def subtract(a,b):
7      return a-b
8
9  #Multiply function deleted here
10
11 def remainder(a,b):
12     return a%b
13
14 def greater(a,b):
15     return a if a>b else b
16
17
```

I felt that multiply function is not needed for the project .So I just deleted it .And I also added a greater function.

Now I will make a commit.



```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit commit "Added add and subtract functions for two numbers"
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit commit
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit commit "Deleted muliply and added greater function"
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```


Now I realise that I am heading in wrong direction. I feel that I should not have deleted multiply function and should not have modified addition function.

If this was a real coding project and there was no version control system I would have to hit ctrl + z so many times to go back. Still it is not efficient way.

Hopefully we are using nit.

Now I want to see all the commits I made. So I type "nit history".

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history

commit c9b37a7d64b93e368db9cf8f576300f0    v0.0.1
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:02:11 2021
Message : Added add and subtract functions for two numbers

commit d1cf913974ba0813b7bdab86f32e8b85    v0.0.2
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:09:30 2021
Message : Modified add function and added mulitply and remainder function.

commit 987a1791742676f43b3af891e44ffc23    v0.0.3
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:12:39 2021
Message : Deleted mulitply and added greater function
```

It shows all the commits I made.

If history log too big and you want see only two or three commits, you can do that using

nit --head 2 or short form : nit -h 1 for old commits

nit --tail 1 or short form : nit -t 2 for recent commits

Check below images.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history --head 2
```

```
commit c9b37a7d64b93e368db9cf8f576300f0    v0.0.1
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:02:11 2021
Message : Added add and subtract functions for two numbers
```

```
commit d1cf913974ba0813b7bdab86f32e8b85    v0.0.2
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:09:30 2021
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history -h 1
```

```
commit c9b37a7d64b93e368db9cf8f576300f0    v0.0.1
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:02:11 2021
Message : Added add and subtract functions for two numbers
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history --tail 2
```

```
commit d1cf913974ba0813b7bdab86f32e8b85    v0.0.2
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:09:30 2021
Message : Modified add function and added mulitply and remainder function.
```

```
commit 987a1791742676f43b3af891e44ffc23    v0.0.3
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:12:39 2021
Message : Deleted muliply and added greater function
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history -t 1
```

```
commit 987a1791742676f43b3af891e44ffc23    v0.0.3
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:12:39 2021
Message : Deleted muliply and added greater function
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

After looking at the history I decided that I want to go back to first commit.

Each commit has two reference numbers using which we can access our previous commits .Primary reference is 32 digit hash digest and secondary reference number is a tag.

The tag of the first commit is v0.0.1

Now I type “nit revert v0.0.1”

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history

commit c9b37a7d64b93e368db9cf8f576300f0    v0.0.1
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:02:11 2021
Message : Added add and subtract functions for two numbers

commit d1cf913974ba0813b7bdab86f32e8b85    v0.0.2
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:09:30 2021
Message : Modified add function and added mulitply and remainder function.

commit 987a1791742676f43b3af891e44ffc23    v0.0.3
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:12:39 2021
Message : Deleted mulitply and added greater function

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit revert v0.0.1

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

After typing that command I go back to my code editor .The file is reverted back to how it was earlier in the first commit.

```
1  # THIS IS FILE-1
2
3  def add(a,b):
4      return a+b
5
6  def subtract(a,b):
7      return a-b
8
9
10
11
12
13
14
15
```

Now I want to go to v0.0.2.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit history

commit c9b37a7d64b93e368db9cf8f576300f0    v0.0.1
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:02:11 2021
Message : Added add and subtract functions for two numbers

commit d1cf913974ba0813b7bdab86f32e8b85    v0.0.2
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:09:30 2021
Message : Modified add function and added mulitply and remainder function.

commit 987a1791742676f43b3af891e44ffc23    v0.0.3
branch : master
user : nithish2032    nithish2032@gmail.com
Time : Thu Apr 29 16:12:39 2021
Message : Deleted mulitply and added greater function

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit revert v0.0.2

(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

Now if I go to my code editor the file is changed again to how it was in 2nd commit.

```
1  # THIS IS FILE-1
2
3  def add(a,b,c):
4      return a+b+c
5
6  def subtract(a,b):
7      return a-b
8
9  def multiply(a,b,c):
10     return a*b*c
11
12 def remainder(a,b):
13     return a%b
14
15
16
17
```

If there were 100 hundreds commit ,you can go back to any commit you want any time.

Now I will show other functionalities briefly.

Until now we have worked on master branch. If I want do a separate version I can do that in separate branch .For example : There is pubg mobile game if they want to separate version for india like adding some scooters and separate version for other countries they don't have to create a new repository for each country .Because core part of the game is same.So they will just create new branch for pubg mobile india and start coding in it .

```
C:\Windows\system32\cmd.exe
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status
On branch master.
Tracking : file1.py file2.py file3.py file4.py
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit branches
Branches : master
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

In nit we can make new branch with “nit mkbr” command.

Until now we are making a normal calculator. Now I want to make a scientific calculator too.But scientific calculator also contains additions , subtractions etc which are present in the normal calculator .So I don't have to write code from scratch . I will just make a new branch named scientific-calculator.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit mkbr scientific-calculator
```

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status
On branch scientific-calculator.
Tracking : file1.py file2.py file3.py file4.py
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit branches
Branches : master scientific-calculator
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

“nit mkbr” command creates a branch and moves to that branch as you can see in image above. You can also use “nit branches” command to see all the branches you have created. Now If I want move to another branch I can do that with “nit chbr branchname” command.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status
On branch scientific-calculator.
Tracking : file1.py file2.py file3.py file4.py
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit chbr master
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit status
On branch master.
Tracking : file1.py file2.py file3.py file4.py
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

I will explain about more branching once I have coded it completely.

Until now we have worked on the repository present in our computer. Now I want to make a remote repository i.e., repository in the server so that other people can access it.

We can make remote repo with “nit mkrrep reponame” command.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit mkrrep calculator
Repository successfully created.
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

If you want your repository to be public you can just type above command .

If you want your repository to be private so that no one can access it , you can do that with “nit mkrrep reponame -a private” command

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit mkrrep newrepo -a private
Repository successfully created.
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

Now I want to upload my calculator project onto server so that other developers can also join and start developing the calculator. (wtf)

“nit push” command for uploading repository to server.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit push  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

Currently I don't have any developers added to my remote repository .We just created it.

“nit showDevs” command to check developers assigned to the project.

```
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit showDevs  
No developer other than you working on this repository.  
  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

You can add developers in two ways .Just see image below.Figure it out for ourselves.

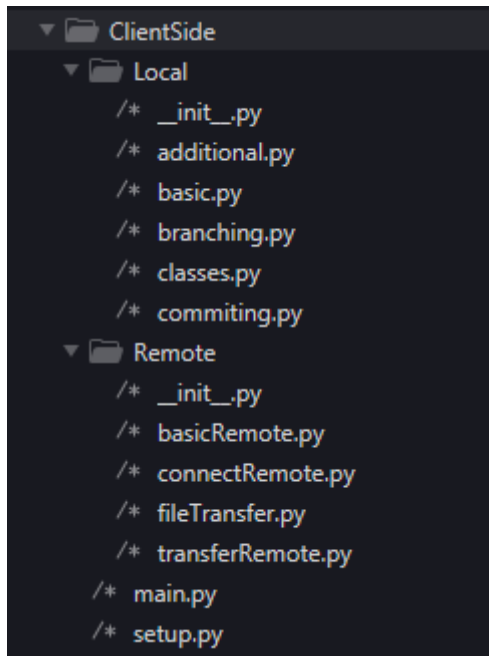
You can also set permissions of a developer. RWA as in Read,Write,Admin.

RW- means he/she can access repository to see source code(i.e., all the commits) and send pullrequest to repository i.e., he can work on project and when he/she wants to upload his work he will send a pullrequest .Admins will check tha pullrequest and decides whether they want add the commit to project to discard it.

--- means they are blocked from accessing your repository.

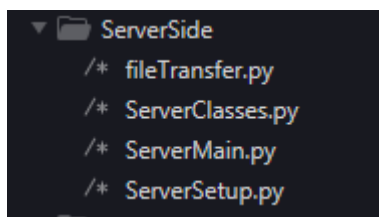
```
C:\Windows\System32\cmd.exe  
  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit addDev calculator surya45 RW-  
Developer successfully added to the repository.  
  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit addDev calculator  
  
ENTER DEVELOPERS WITH PERMISSIONS  
  
madhu756 RW-  
Developer successfully added.  
varun8090 RWA  
Developer successfully added.  
DONE!  
  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>nit showDevs  
Developer Permissions  
surya45 : RW-  
varun8090 : RWA  
madhu756 : RW-  
  
(env) A:\PROJECTS\VCS Project\TEST\ClientTest>
```

Check above image. Now surya45 and madhu756 can access calculator repo and can send pull requests but varun8090 and I are the admins .We decide what to do with that pullrequest.



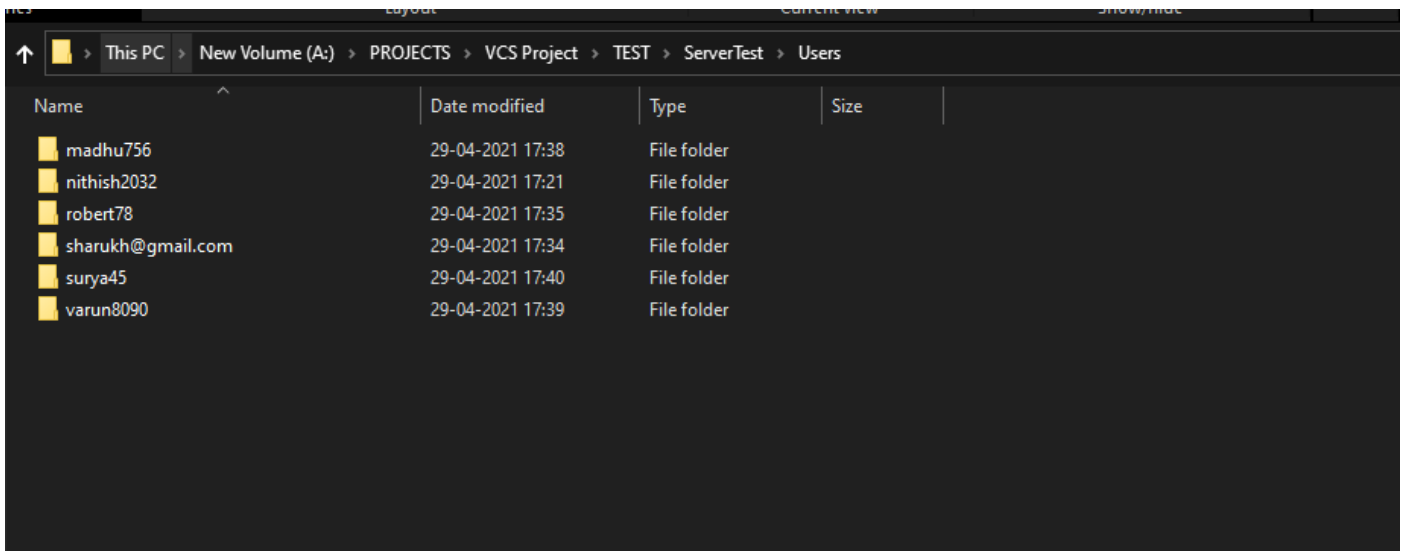
Modules present in the clientside code. One module Local and another one Remote.You can see all the files in those modules.

On the server side I did not divide into separate modules much because of some reasons.



It is a multithreaded server i.e., each connection will start on a new thread so that it can serve multiple users simultaneously.Since it a multithreades server I had to use locks also.I created my own locking system to lock files from reading or writing when required.Could have used binary semaphores but whatever.

Check picture below . Whenever a persons creates an account a directory is created for him.And in that directory all his repositories and information about him is present.



Database below .Just some random accounts.

File Edit View Tools Help						
New Database Open Database Write Changes Revert Changes Open Project Save Project Attach Database Close Database						
Database Structure Browse Data Edit Pragmas Execute SQL						
Table: USERS Filter in all columns						
USERNAME	FIRSTNAME	LASTNAME	EMAIL	PASSWORD	TIME_CREATED	
Filter	Filter	Filter	Filter	Filter	Filter	
1 nithish2032	Nithish	Kandepi	nithish2032@gmail.com	Nithish@10	Thu Apr 29 15:22:54 2021	
2 sharukh@gmail.com	sharukh	khan	sharukh1789	sharuk99	Thu Apr 29 17:34:40 2021	
3 robert78	Robert	Downey	robert987@yahoo.com	robert8898	Thu Apr 29 17:35:50 2021	
4 madhu756	madhu	swetha	madhuswetha127@gmail.com	Happy87	Thu Apr 29 17:38:32 2021	
5 varun8090	varun	gurrar	varungurram@yahoo.com	Password@55	Thu Apr 29 17:39:23 2021	
6 surya45	surya	prakash	suryaprakashsangala@gmail.com	Idontknow	Thu Apr 29 17:40:13 2021	

On server side(just an instance)

```
A:\PROJECTS\VCS Project\TEST\ServerTest>py ../../ServerSide/ServerMain.py
Server started.
Server connected to ('192.168.43.176', 3569).
Client with ('192.168.43.176', 3569) starts in new thread.
PACKET : {'CMD': 'CREATE_ACCOUNT', 'account': {'firstName': 'Nithish', 'lastName': 'Kandepi', 'email': 'nithish.kandepi@gmail.com', 'username': 'nithish1727', 'password': 'Nithish@10'}}
Connected to database successfully.
```

In case you are wondering how data is stored :

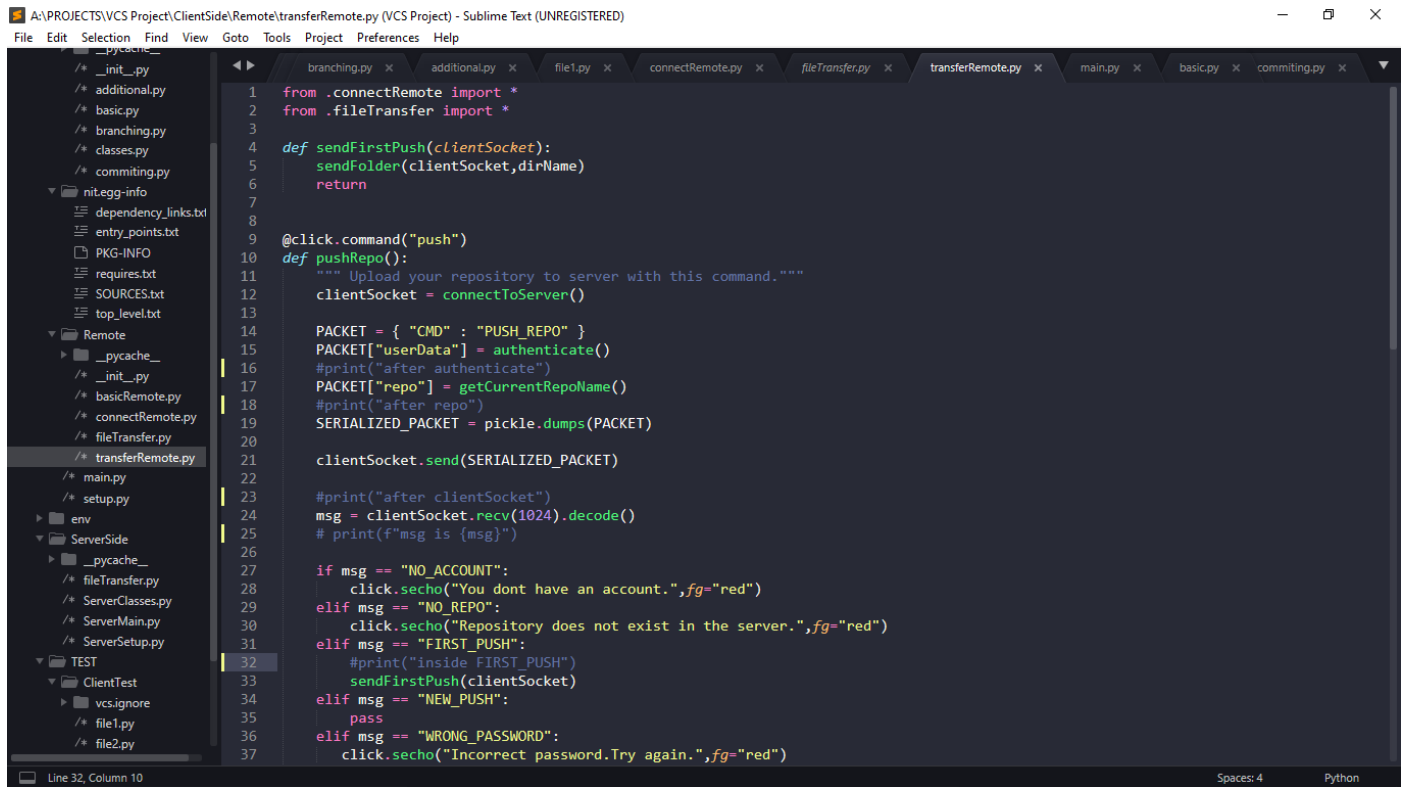
I used python classes and created objects and serialized them(i.e., extracted binary data from the objects and store it into files).These files will be shared with server and server will extract the python object from those files and use it.

In case you want to know about the breadth of source code.

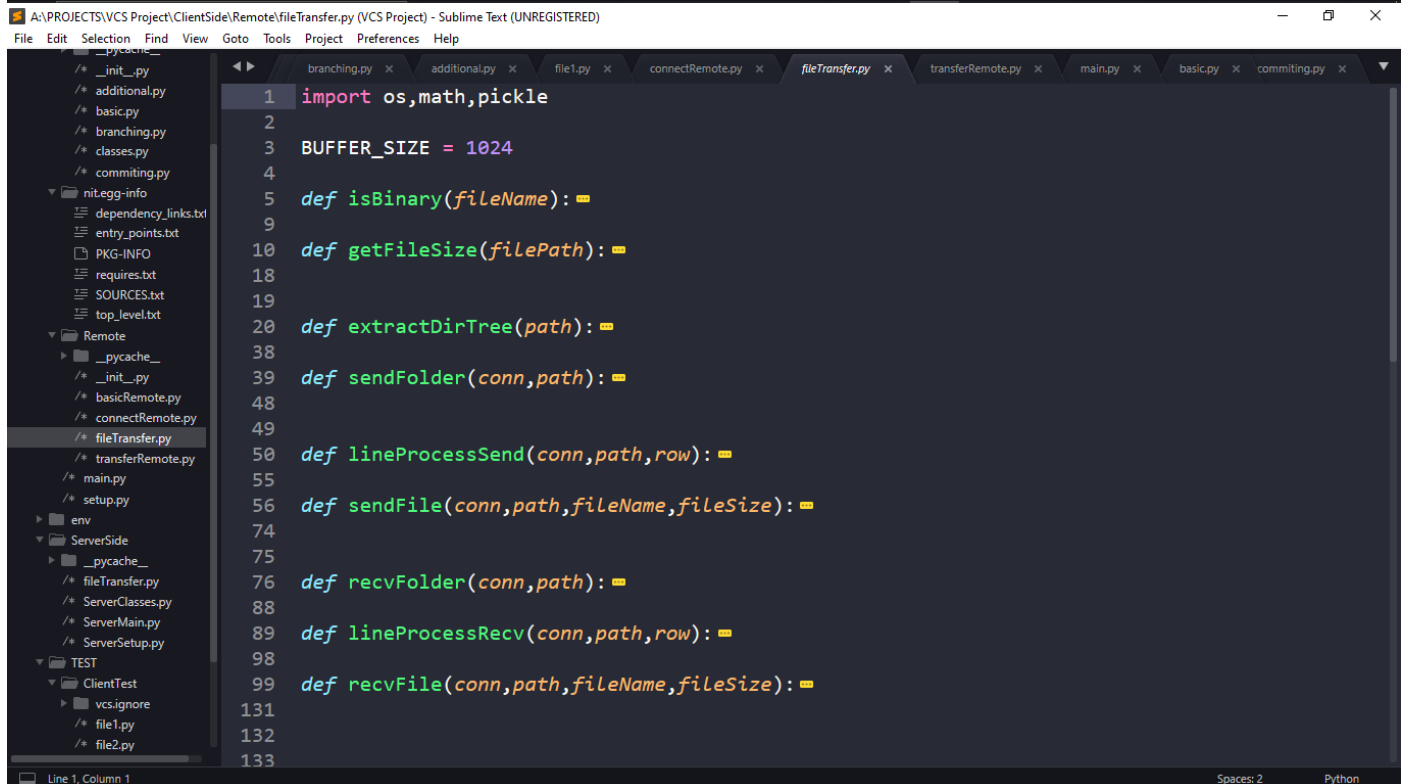
On clientside : More than thousand lines of code

On serverside : around 400 lines of code

PICTURES BELOW MAY NOT INTEREST YOU .FEEL FREE TO JUMP TO LATER PART.



```
1 from .connectRemote import *
2 from .fileTransfer import *
3
4 def sendFirstPush(clientSocket):
5     sendFolder(clientSocket,dirName)
6     return
7
8
9 @click.command("push")
10 def pushRepo():
11     """ Upload your repository to server with this command."""
12     clientSocket = connectToServer()
13
14     PACKET = { "CMD" : "PUSH_REPO" }
15     PACKET["userData"] = authenticate()
16     #print("after authenticate")
17     PACKET["repo"] = getCurrentRepoName()
18     #print("after repo")
19     SERIALIZED_PACKET = pickle.dumps(PACKET)
20
21     clientSocket.send(SERIALIZED_PACKET)
22
23     #print("after clientSocket")
24     msg = clientSocket.recv(1024).decode()
25     # print(f"msg is {msg}")
26
27     if msg == "NO_ACCOUNT":
28         click.secho("You dont have an account.",fg="red")
29     elif msg == "NO_REPO":
30         click.secho("Repository does not exist in the server.",fg="red")
31     elif msg == "FIRST_PUSH":
32         #print("inside FIRST_PUSH")
33         sendFirstPush(clientSocket)
34     elif msg == "NEW_PUSH":
35         pass
36     elif msg == "WRONG_PASSWORD":
37         click.secho("Incorrect password.Try again.",fg="red")
```



```
1 import os,math,pickle
2
3 BUFFER_SIZE = 1024
4
5 def isBinary(fileName): =
6
7
8
9
10 def getFileSize(filePath): =
11
12
13
14
15
16
17
18
19
20 def extractDirTree(path): =
21
22
23
24
25
26
27
28
29 def sendFolder(conn,path): =
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50 def lineProcessSend(conn,path,row): =
51
52
53
54
55
56 def sendFile(conn,path,fileName,fileSize): =
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76 def recvFolder(conn,path): =
77
78
79
80
81
82
83
84
85
86
87
88
89 def lineProcessRecv(conn,path,row): =
90
91
92
93
94
95
96
97
98
99 def recvFile(conn,path,fileName,fileSize): =
100
101
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131
132
133
```

```

1  from .basicRemote import *
2
3  def checkValidPermissions(perm):
4
5
6
7
8
9
10 def getCurrentRepoName():
11
12
13
14
15
16
17
18
19
20
21 def addDevOne(clientSocket,PACKET,name,permissions):
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49 def addDevMul(clientSocket,PACKET):
50
51
52
53
54
55
56
57
58
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62
63
64
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91
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93
94
95
96
97 @click.command("addDev")
98 @click.argument("repo",default=".")
99 @click.argument("name",default="")
100 @click.argument("permissions",default="")
101 def addDevs(repo,name,permissions):
102
103
104
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112
113
114
115
116
117
118
119
120
121
122
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124
125
126
127
128
129
130
131
132
133
134 @click.command("showDevs")
135 @click.argument("repo",default=".")
136 def showDevs(repo):
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
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```

Line 128, Column 10

Spaces: 4

Python

```

13 IP = socket.gethostbyname(socket.gethostname())
14 PORT = 9998
15
16
17 def pickleLoad(objPath):
18
19
20
21 def pickleDump(obj,objPath):
22
23
24
25 def connectToServer():
26
27
28
29
30
31
32
33
34
35 def getAccountDetails():
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52 @click.command("createAccount")
53 def createAccount():
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75 def authenticate():
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100 @click.command("mkrrep")
101 @click.argument("name",default="")
102 @click.option("--access","-a",default="public")
103 def makeRemoteRepo(name,access):
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
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128
129
130
131
132 if __name__=="__main__":
133     pass
134
135
136
137
138
139
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141
142
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183

```

Line 1, Column 1

Spaces: 4

Python

FOLDERS

- VCS Project
 - ClientSide
 - __pycache__
 - Local
 - __pycache__
 - _init_.py
 - additional.py
 - basic.py
 - branching.py
 - classes.py
 - committing.py
 - nit.egg-info
 - dependency_links.txt
 - entry_points.txt
 - PKG-INFO
 - requires.txt
 - SOURCES.txt
 - top_level.txt
 - Remote
 - main.py
 - setup.py
 - env
 - ServerSide
 - __pycache__
 - fileTransfer.py
 - ServerClasses.py
 - ServerMain.py
 - ServerSetup.py
 - TEST
 - ClientTest
 - vcsignore
 - file1.py
 - file2.py

```

1 import click, difflib
2 import sys
3 from .committing import *
4
5 def simplifiediff(filename, tag1, tag2):
6
7     hash1, branch1 = getHashAndBranch(tag1)
8     hash2, branch2 = getHashAndBranch(tag2)
9
10    file1 = f"{branchesPath}/{branch1}/{hash1}/{filename}"
11    file2 = f"{branchesPath}/{branch2}/{hash2}/{filename}"
12
13    if not (os.path.exists(file1) or os.path.exists(file2)):
14        click.secho("Invalid Command")
15        return
16
17    with open(file1, "r") as f1:
18        f1_text = f1.read()
19    with open(file2, "r") as f2:
20        f2_text = f2.read()
21
22    d = difflib.Differ()
23    result = list(d.compare(f1_text, f2_text))
24    sys.stdout.writelines(result)
25
26 @click.command("diff")
27 @click.argument("filename", type=click.STRING)
28 @click.argument("tag1", type=click.STRING)
29 @click.argument("tag2", type=click.STRING)
30 # @click.option("--detailed", "-d", default=False)
31
32 def diff(filename, tag1, tag2):
33     """ compares two files """
34     simplifiediff(filename, tag1, tag2)
35     return
36
37

```

Line 33, Column 28 Spaces: 4 Python

FOLDERS

- VCS Project
 - ClientSide
 - __pycache__
 - Local
 - __pycache__
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 - file2.py

```

1 class userData:
2     def __init__(self, uname=None, email=None, password=None):
3         self.uname = uname
4         self.email = email
5         self.password = password
6
7 class repoData:
8
9 class originData:
10    def __init__(self, aname, email, desc, timeCreated):
11        self.aname = aname
12        self.email = email
13        self.desc = desc
14        self.timeCreated = timeCreated
15
16 class Node:
17    def __init__(self, tag, hashValue, branch, uname, email, timeCommitted, commitMsgShort):
18        self.tag = tag
19        self.hashValue = hashValue
20        self.branch = branch
21        self.uname = uname
22        self.email = email
23        self.timeCommitted = timeCommitted
24        self.commitMsgShort = commitMsgShort
25        self.prev = []
26        self.next = []
27
28    def addNext(self, nextTag):
29        self.next.append(nextTag)
30
31    def addPrev(self, prevTag):
32        self.prev.append(prevTag)
33
34 class Tree:
35    def __init__(self, myGraph, base, heads):
36        self.myGraph = myGraph
37        self.base = base
38        self.heads = heads
39
40    def setNodeInTree(self, tag, NodeObj):
41        self.myGraph[tag] = NodeObj
42
43    def setEdge(self, oldNodeTag, newNodeTag):
44        oldNode = self.myGraph[oldNodeTag]
45        newNode = self.myGraph[newNodeTag]
46
47        oldNode.addNext(newNodeTag)
48        newNode.addPrev(oldNodeTag)
49
50    def getObjFromTag(self, tag):
51        return self.myGraph[tag]
52
53
54
55
56

```

Line 1, Column 1 Spaces: 2 Python

FOLDERS

- VCS Project
 - ClientSide
 - __pycache__
 - Local
 - __pycache__
 - _init_.py
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 - basic.py
 - branching.py
 - classes.py
 - commiting.py
 - nit.egg-info
 - dependency_links.txt
 - entry_points.txt
 - PKG-INFO
 - requires.txt
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 - top_level.txt
 - Remote
 - main.py
 - setup.py
 - env
 - ServerSide
 - __pycache__
 - fileTransfer.py
 - ServerClasses.py
 - ServerMain.py
 - ServerSetup.py
 - TEST
 - ClientTest
 - vcignore
 - file1.py
 - file2.py

```

4  def getHashAndBranch(tag):
8
9  @click.command("getHash")
10 @click.argument("tag")
11 def getHash(tag):
16
17 @click.command("getTag")
18 @click.argument("hash")
19 def getTag(hash):
27
28 def getTagValue(tagNumber):
32
33 def getTagNumber(tagValue):
44
45 def writeToLog(newTag,hashValue,curBranch,uname,email,timeCommitted,commitMsgShort):
52
53 def nextTag(curTag):
58
59 def makeNewCommitFolder(curBranch,trackList):
80
81 def writeCommitMsg(arg,newCommitPath):
93
94 def setNodeInTree(tag,hashValue,curBranch,uname,email,timeCommitted,commitMsgShort):
116
117 @click.command("commit")
118 @click.argument('arg',default="")
119 def commit(arg):
143
144 def tailRead(fh,n):
145     return fh.readlines()[n:]
146
147 def headRead(fh,n):
148     return fh.readlines()[n:]
149
150 @click.command("history")
151 @click.option("--date","-d",default="")
152 @click.option("--tail","-t",default=-1,help="shows recent commits")
153 @click.option("--head","-h",default=-1,help="shows old commits")
154 def history(tail,head):
173
174 @click.command("revert")
175 @click.argument("arg")
176 def revert(arg):
191
192

```

Line 26, Column 48

FOLDERS

- VCS Project
 - ClientSide
 - __pycache__
 - Local
 - __pycache__
 - _init_.py
 - additional.py
 - basic.py
 - branching.py
 - classes.py
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 - PKG-INFO
 - requires.txt
 - SOURCES.txt
 - top_level.txt
 - Remote
 - main.py
 - setup.py
 - env
 - ServerSide
 - __pycache__
 - fileTransfer.py
 - ServerClasses.py
 - ServerMain.py
 - ServerSetup.py
 - TEST
 - ClientTest
 - vcignore
 - file1.py
 - file2.py

```

1  import click,os
2  from .basic import *
3
4  @click.command("mkbr")
5  @click.argument("branchname")
6  def makeBranch(branchname):
9
10 @click.command("chbr")
11 @click.argument("branchname")
12 def changeBranch(branchname):
15
16 def chbr(branchname):
24
25 def mkbr(branchname):
45
46 @click.command("branches")
47 def showBranches():
53
54
55
56
57
58
59

```

Line 45, Column 1

```

4 #GLOBAL VARIABLES
5 dirName = "vcs.ignore"
6 dataPath = f"{dirName}/data"
7 userDataPath = f"{dataPath}/userData.object"
8 repoDataPath = f"{dataPath}/repoData.object"
9 commitLogPath = f"{dataPath}/commit.log"
10 treePath = f"{dataPath}/workingTree.object"
11 originDataPath = f"{dataPath}/originData.object"
12 branchesPath = f"{dirName}/branches"
13
14 def pickleLoad(objPath):
15
16
17
18 def pickleDump(obj,objPath):
19
20
21
22 def checkFile(filePath):
23
24
25
26
27
28
29 @click.command("init")
30 def init():
31
32
33
34
35
36
37
38
39
40
41
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44
45
46
47
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49
50
51
52
53
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56
57
58
59
60
61
62 @click.command("track")
63 @click.argument("arg",default="mul")
64 def track(arg):
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
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87
88
89
90
91
92
93
94
95
96
97
98 @click.command("ignore")
99 @click.argument('arg',default="mul")
100 def ignore(arg):
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
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120
121
122
123
124
125
126
127
128
129
130
131 @click.command("status")
132 def status():
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
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FOLDERS

- VCS Project
 - ClientSide
 - _pycache_
 - Local
 - nitegg-info
 - dependency_links.txt
 - entry_points.txt
 - PKG-INFO
 - requires.txt
 - SOURCES.txt
 - top_level.txt
 - Remote
 - main.py
 - setup.py
 - env
 - ServerSide
 - _pycache_
 - fileTransfer.py
 - ServerClasses.py
 - ServerMain.py
 - ServerSetup.py
 - TEST
 - ClientTest
 - vcsignore
 - file1.py
 - file2.py
 - file3.py
 - file4.py
 - LICENSE
 - README.md
 - ServerTest

```

1 import click
2 from Local import basic, committing, branching, additional
3 from Remote import basicRemote, connectRemote, transferRemote
4
5
6 @click.group(help="user the commands mentioned below")
7 def main():
8     """ See below """
9
10    main.add_command(basic.init)
11    main.add_command(basic.track)
12    main.add_command(basic.ignore)
13    main.add_command(basic.status)
14
15    main.add_command(committing.commit)
16    main.add_command(committing.history)
17    main.add_command(committing.getHash)
18    main.add_command(committing.getTag)
19    main.add_command(committing.revert)
20
21    main.add_command(branching.changeBranch)
22    main.add_command(branching.makeBranch)
23    main.add_command(branching.showBranches)
24
25    main.add_command(additional.diff)
26
27    main.add_command(basicRemote.createAccount)
28    main.add_command(basicRemote.makeRemoteRepo)
29
30    main.add_command(connectRemote.addDevs)
31    main.add_command(connectRemote.showDevs)
32
33    main.add_command(transferRemote.pushRepo)
34
35
36 if __name__ == "__main__":
37     main()

```

Line 26, Column 1

Tab Size: 4 Python

FOLDERS

- VCS Project
 - ClientSide
 - _pycache_
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 - _pycache_
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 - file2.py
 - ServerTest

```

1 import sqlite3, os
2
3 def setupServer():
4     conn = sqlite3.connect("database.db")
5     print(f"database.db created successfully")
6
7     conn.execute('''CREATE TABLE USERS
8                     (USERNAME TEXT PRIMARY KEY,
9                      FIRSTNAME TEXT,
10                     LASTNAME TEXT,
11                     EMAIL TEXT,
12                     PASSWORD TEXT,
13                     TIME_CREATED TEXT);
14                 ''')
15
16     print(f"Table created successfully")
17     os.mkdir("Users")
18     print(f"Users directory created successfully")
19
20
21 if __name__ == "__main__":
22     setupServer()
23
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```

Line 1, Column 1

Spaces: 2 Python

```
1 import time
2 class accessData:
3
4
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21
22 class Lock:
23     def __init__(self):
24         self.locked = []
25
26     def acquire(self, path):
27         print("In class acquire function")
28         while True:
29             print("running in acquire lock")
30             time.sleep(0.5)
31             print(self.locked)
32             if path not in self.locked:
33                 print("inside path not in")
34                 break
35             print("before locked append")
36             self.locked.append(path)
37             print("after locked append")
38             return
39
40     def release(self, path):
41         self.locked.remove(path)
42         return
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7 PORT = 9998
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9 readLock = Lock()
10 writeLock = Lock()
11
12 def handler(conn):
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STATUS OF THE PROJECT:

I didn't completely do the project the way I designed it before starting the project. As I started developing, I keep getting errors, so I frequently had to go back and rewrite the code in some files from scratch and change the direction I was going.

Later I realized I have made a serious mistake in design because of this design flaw I had to rip off the core part of the software alter it .

I did not reveal all the functionalities of the project . In the above screenshots I showed only the functionalities which are working. There are several other functionalities I have developed but not working because of one problem and I am trying to find a solution for that.

I did not completely develop what I had in mind. Like a website etc. I dropped the plan of developing website when the team shrunked to just three of us.

I wont work on project tomorrow (30th april) as I have exam on 1st May.

I learned that ETPs start from 6th may . So I will finish the project before that date.

I will add some functionalities like chatting etc if I have time.

I feel that whatever I have developed until now is more than enough for our ETP.

Besides it will be impossible to demonstrate all the functionalities of our project to them considering we have time not more than half an hour(I don't know for sure).

And we don't know how much they care about coding part .I heard that coding part is not even necessary research paper is primary . I don't know if it is true or not .

If other functionalities are not developed in time , we will show the functionalities that are working to them which were not easy to make.

I sent the screenshots along with this .Refer source code if you will.Do a ppt with these screenshots for each command explaining what it does. If you have any doubt message me .

Since it is our LPU ETP ,you can consider our project as finished.

Not required:

If you want help me and you are good at socket programming you can write a python module for sharing all types of files(binary and text files) between server and client and think of an algorithm for displaying graphs on terminal. Or don't worry about it.

So ,Finally consider the project is done and do a ppt .Meanwhile I will develop rest of the project which probably will not be even asked in the ETP.