Git & GitHub Premanand S

Technical understanding

- Git tool
- Github website



- Manage our projects codes / files
- Tool for version control



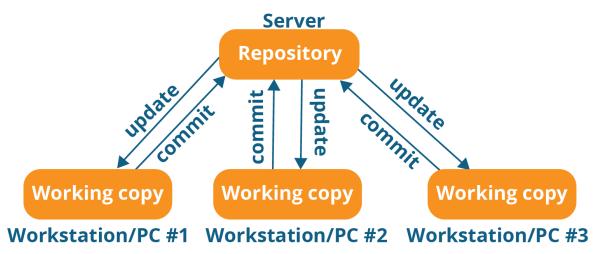
 Management of changes to documents and collection of information's

Types of version control

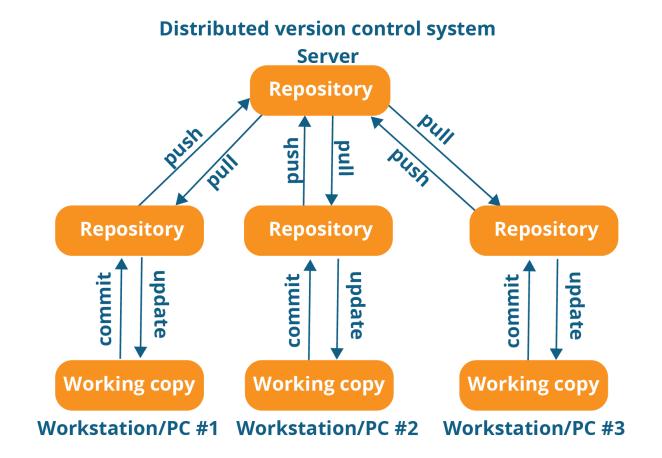
- Centralized Version Control System (CVCS)
- Distributed Version Control System (DVCS)

Centralized Version Control System

Centralized version control system



Distributed
Version Control
System (DVCS)



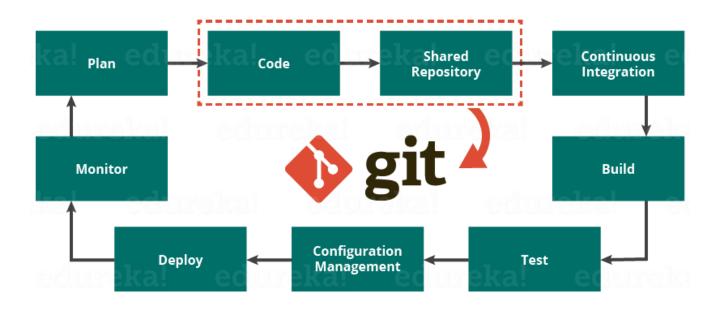


- Distributed Version Control System
- Non linear workflow
- Tool for version control

Features of GIT

- Free and open source
- Speed
- Scalable (lossless compressed)
- Reliable (lost data can be recovered)
- Secure (SHA1 (Secure Hash Function))
- Economical (CVCS Vs DVCS)
- Non linear development
- Branching

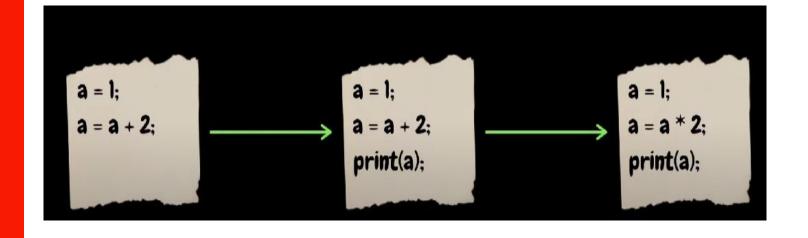
How Git used for developers?



Need for version control

- Keep tracking of code
- Synchronization

Tracking of code?



Synchronization of code?



Why Version Control?

- Collaboration
- Storing versions
- Backup
- Analyze (What exactly changed and when it changed?)

Host Repository

- AWS CodeCommit
- Azure repos
- Backlog
- Beanstalk
- Bitbucket
- Buddy
- CloudForge
- CloudRepo
- Codebase
- CodeGiant
- FusionForge
- GitLab
- Gogs etc...

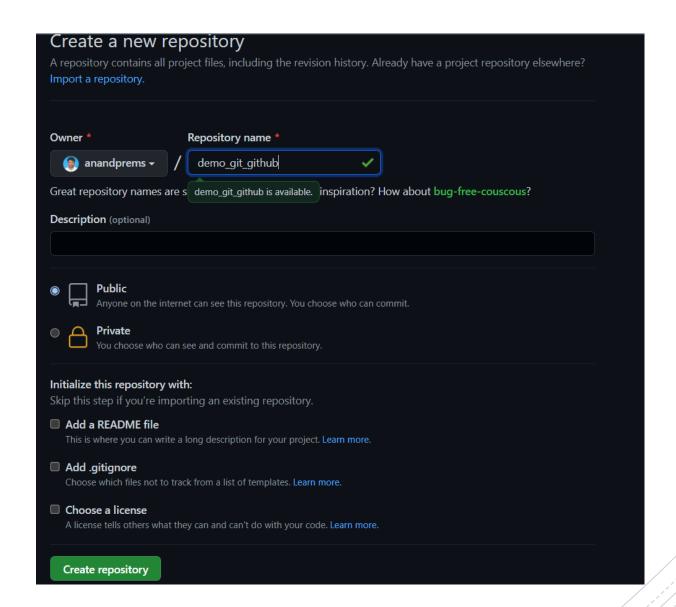


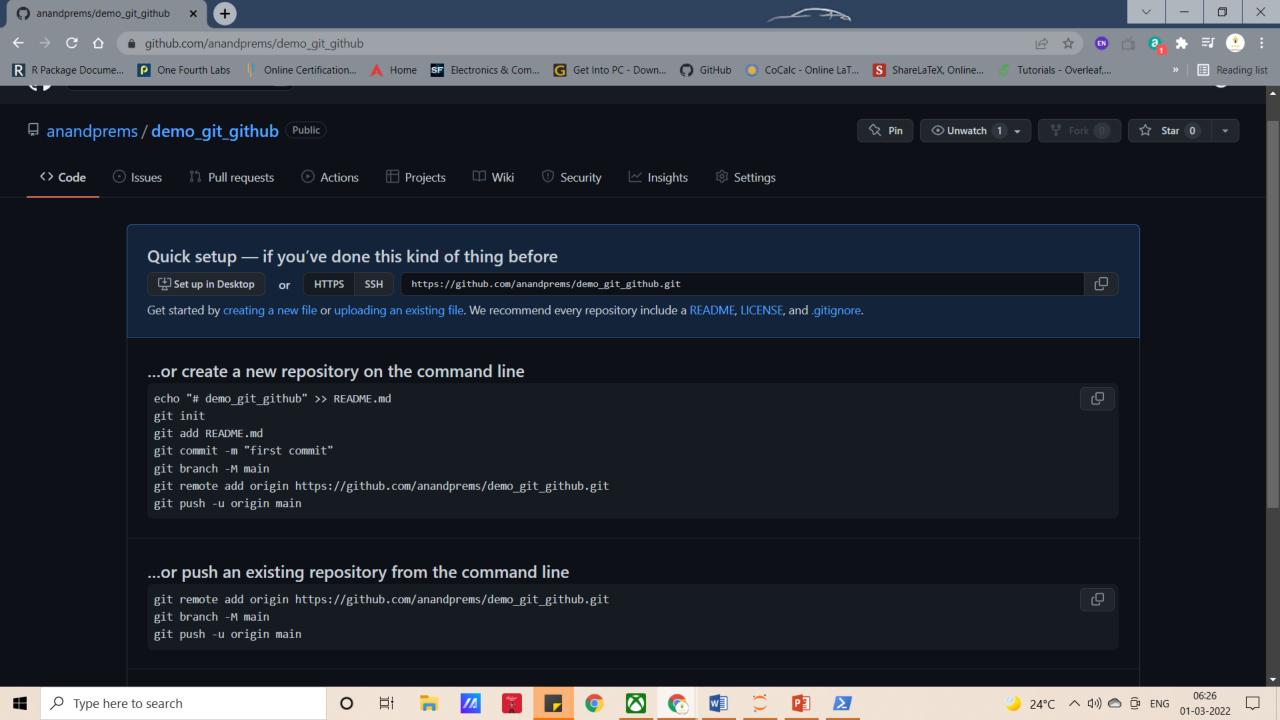
- https://github.com
- Signup if new or Sign in option
- Server concept GitHub

New Repository?

- + new repository or https://github.com/new
- Repository name
- Public / Private depends on the demands create!

Create repository in github





PowerShell

- Git <enter>
- If not available git https://git-scm.com/downloads

Type here to search

























- If you need to alter the code from existing or new repository from GitHub account
- Download and a create a copy in our local computer

PS C:\Users\S.A.N> git clone https://github.com/anandprems/demo_git_github.git Cloning into 'demo_git_github'...
warning: You appear to have cloned an empty repository.

PS C:\Users\S.A.N> ls_

Directory: C:\Users\S.A.N

Mode	LastWriteTime		Length Name
d	15-03-2021	20:14	.astropy
d	26-11-2021	05:50	. conda
d	15-03-2021	20:18	.config
d	31-05-2021	23:15	.gsutil
d	23-01-2022	00:25	.ipynb_checkpoints
d	17-11-2020	18:59	.ipython
d	21-12-2021	16:26	.julia
d	31-12-2021	21:07	.jupyter
d	17-11-2021	13:45	.kaggle
d	09-08-2021	11:40	.keras
d	06-10-2021	10:37	.matplotlib
d	07-06-2021	13:29	.pyforest
d	20-01-2022	16:00	.spyder-py3
d-r	06-09-2020	00:42	3D Objects
d	24-11-2021	15:11	anaconda3
d	11-10-2020	12:30	ansel
d	25-02-2022	13:05	chumma
d-r	06-09-2020	00:42	Contacts
d	26-02-2022	23:58	demo
d	01-03-2022	06:33	demo_git_github
d-r	27-02-2022	08:56	Desktop
d-r	07-12-2021	20:01	Documents
d-r	01-03-2022	05:40	Downloads
d-r	06-09-2020	00:42	Favorites
d	26-02-2022	23:10	git_github
d	26-02-2022	23:31	git_github_1
d	06-12-2021	12:51	LIBTwinSVM
d-r	06-09-2020	00:42	Links
d-r	25-01-2022	17:05	Music
darl	01-03-2022	05:47	OneDrive
d-r	10-01-2022	09:35	Pictures
d	13-03-2021	19:30	PycharmProjects
d-r	06-09-2020	00:42	Saved Games
d-r	06-09-2020	00:43	Searches
d	26-02-2022	12:14	testing
d-r	28-02-2022	19:10	Videos
-a	26-02-2022	23:30	1533 .bash_history
-a	04-10-2021	17:26	43 .condarc
-a	26-02-2022	23:04	52 .gitconfig
-a	13-03-2021	17:18	14 .minttyrc
-a	19-01-2022	16:12	<pre>25 .python_history</pre>
-a	26-11-2020	18:24	116 debug.log
-a	26-02-2022	23:42	75 demo1.py
-a	23-01-2022	01:54	8614 python_hash_functions.ipynb

PS C:\Users\S.A.N>





























```
PS C:\Users\S.A.N> cd .\demo_git_github\
PS C:\Users\S.A.N\demo_git_github> ls_
PS C:\Users\S.A.N\demo_git_github> _
```



- Powershell + Any editors
- Notepad++

Type here to search































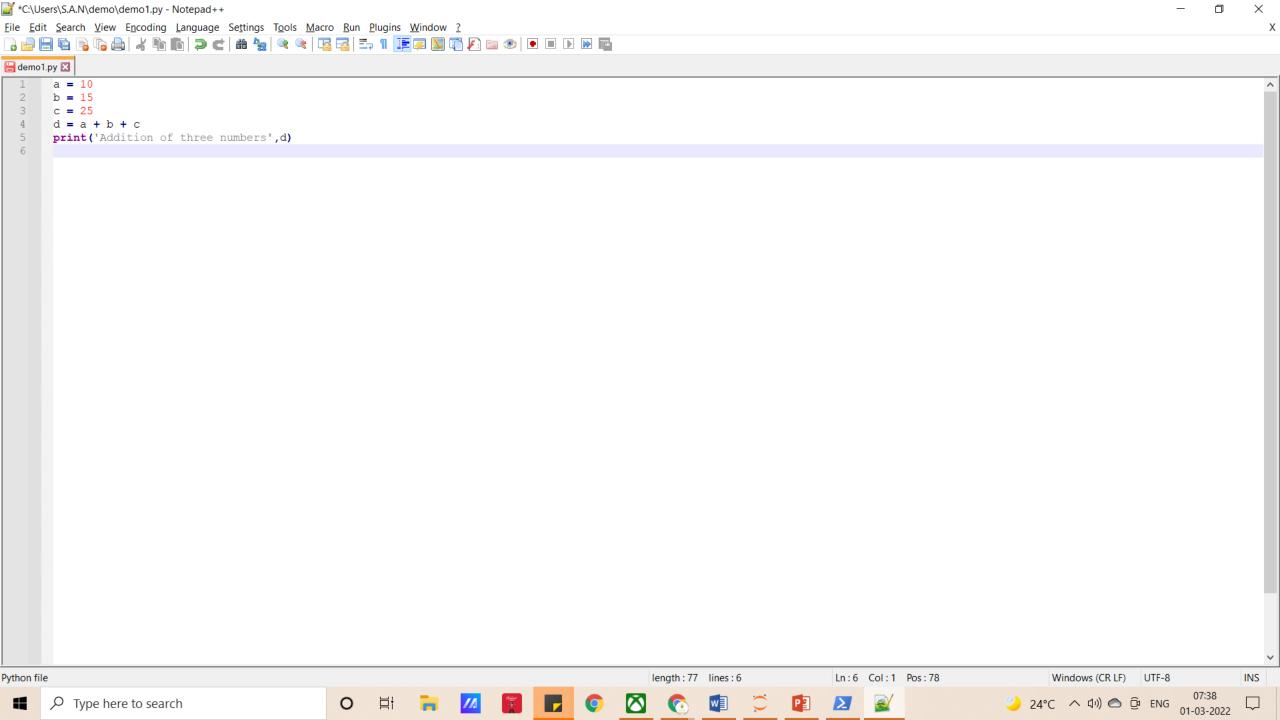


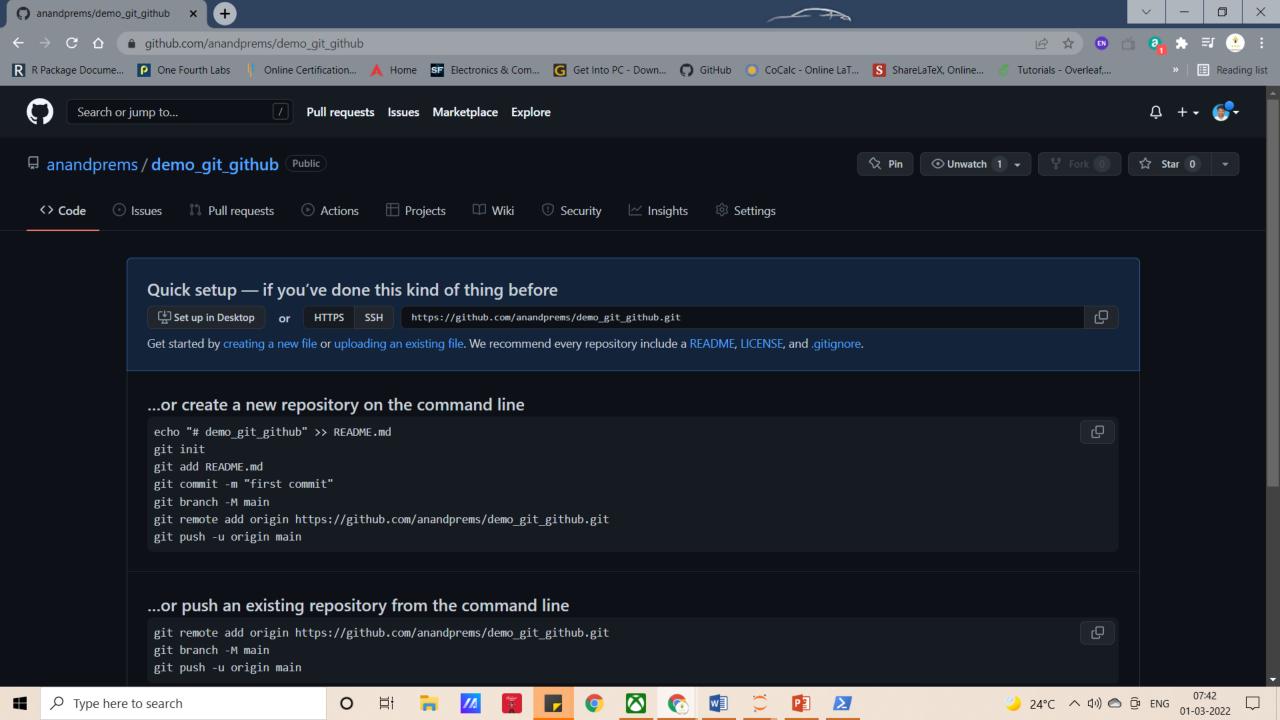












How to send from laptop to local repository?

- Still our code is in local place (laptop)
- How to send to local repository? ADD + COMMIT



- Need to add to local repository
- Tracking our code like one file or more

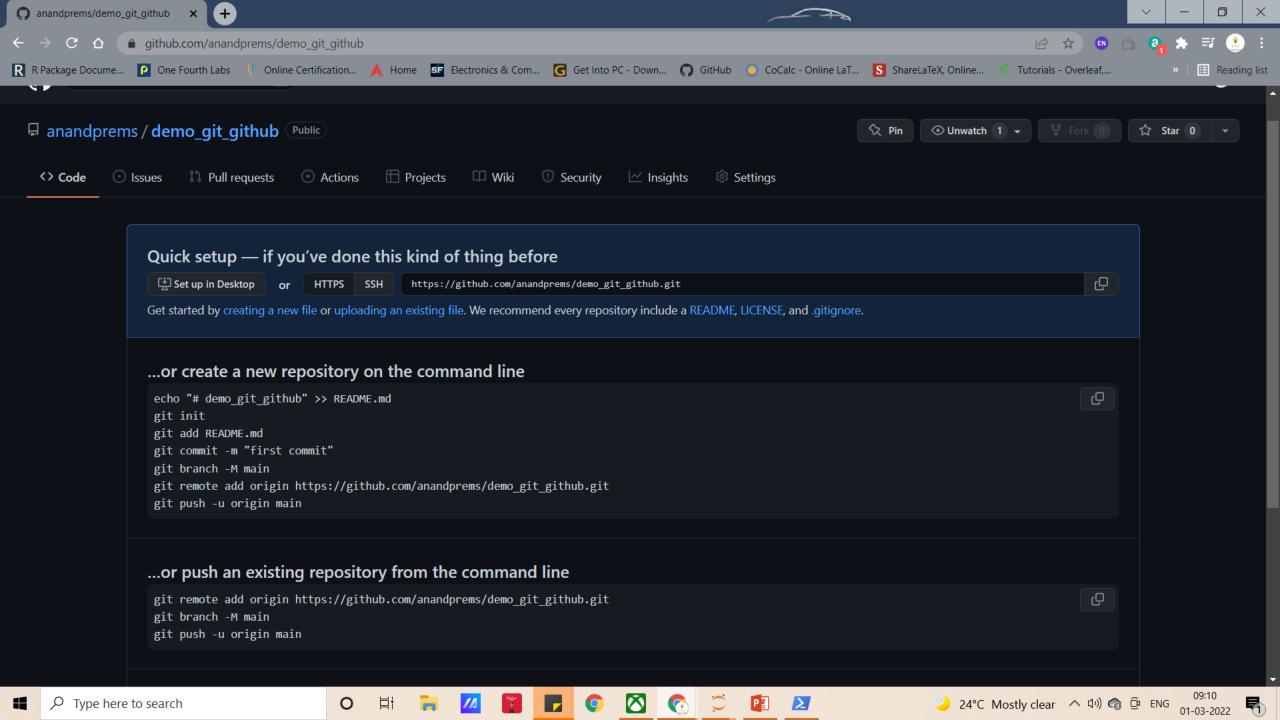
```
PS C:\Users\S.A.N\demo_git_github> ls
   Directory: C:\Users\S.A.N\demo_git_github
Mode
                    LastWriteTime
                                         Length Name
             26-02-2022 23:58
                                              85 demo1.py
-a----
PS C:\Users\S.A.N\demo_git_github> git add .\demo1.py
PS C:\Users\S.A.N\demo_git_github> git status
On branch main
No commits yet
Changes to be committed:
 (use "git rm --cached <file>..." to unstage)
```



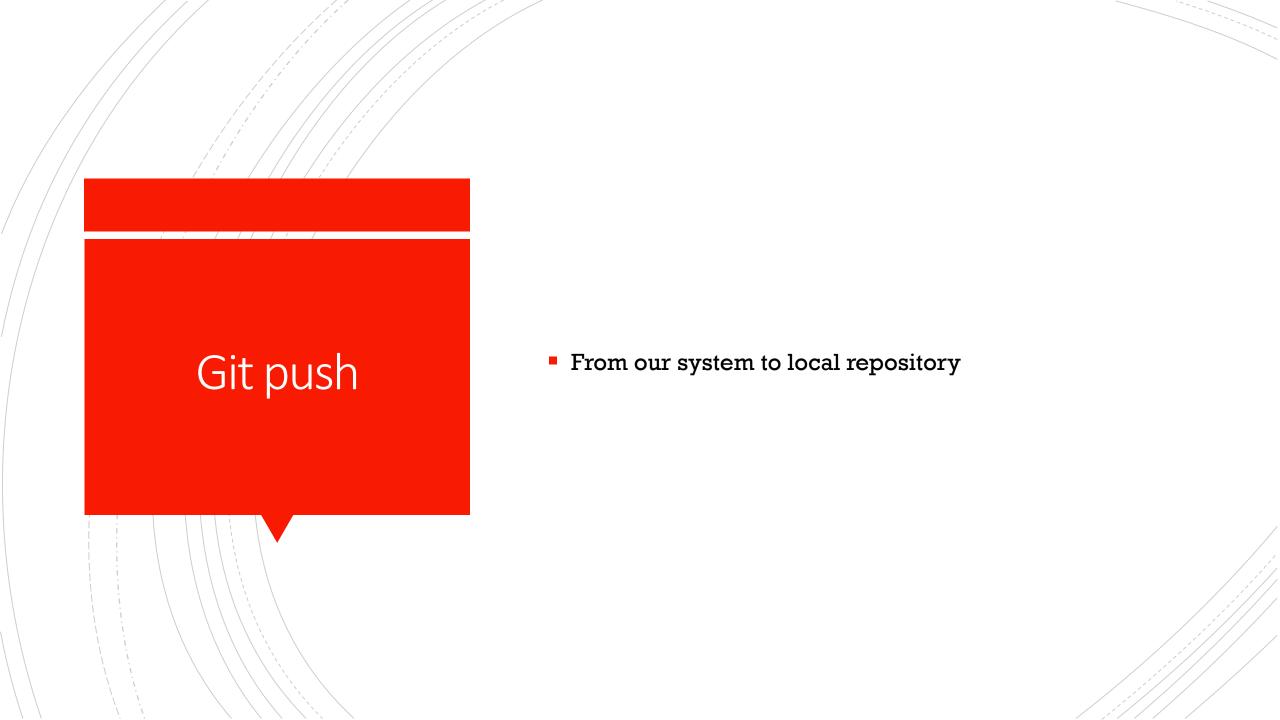
- Continuation of git add
- Git commit –m "xxxx"
- What we made change

```
PS C:\Users\S.A.N\demo_git_github> git commit -m "first commit"
[main (root-commit) 085f770] first commit

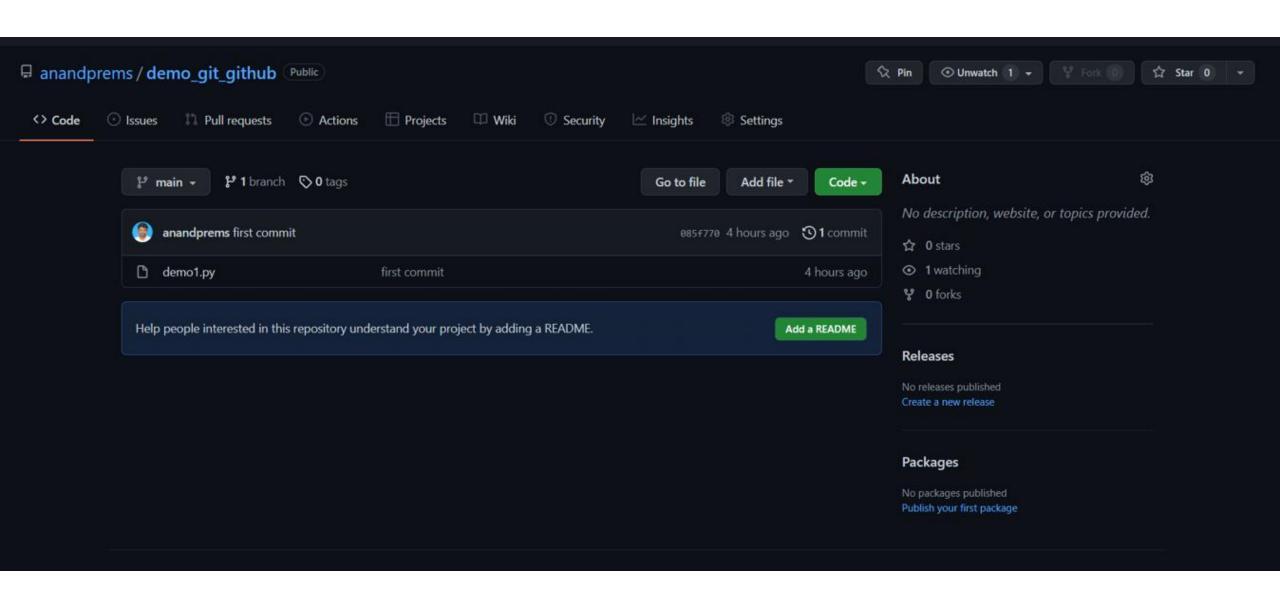
1 file changed, 6 insertions(+)
create mode 100644 demo1.py
PS C:\Users\S.A.N\demo_git_github>
```



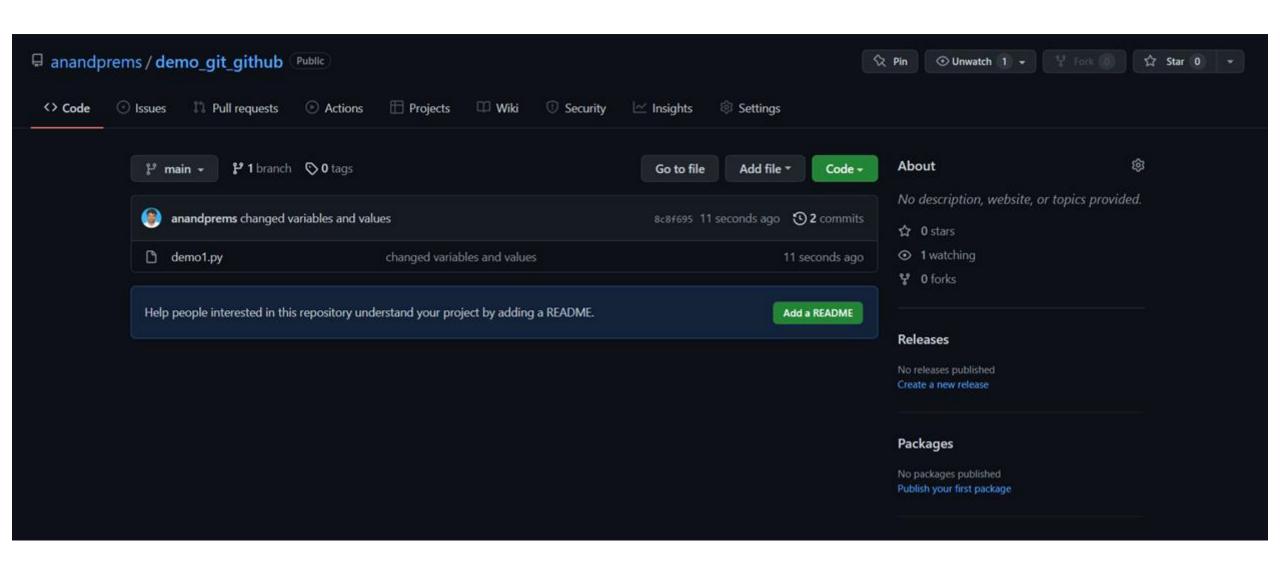
```
PS C:\Users\S.A.N\demo_git_github> git status
On branch main
Your branch is based on 'origin/main', but the upstream is gone.
(use "git branch --unset-upstream" to fixup)
nothing to commit, working tree clean
PS C:\Users\S.A.N\demo_git_github>
```



```
PS C:\Users\S.A.N\demo_git_github> git push
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 276 bytes | 276.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/anandprems/demo_git_github.git
* [new branch] main -> main
PS C:\Users\S.A.N\demo_git_github> _
```



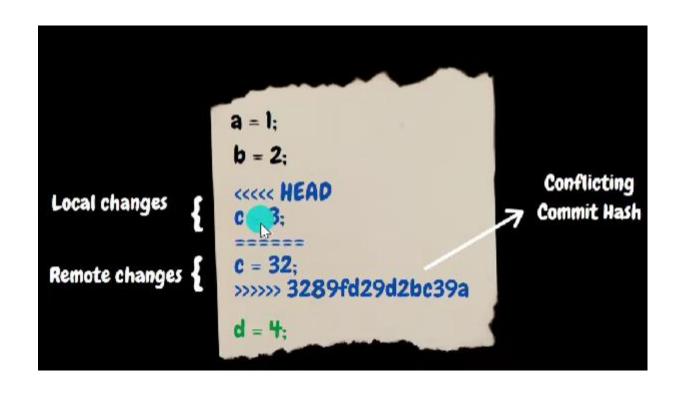
```
demo1 - Notepad
                                                                          \times
File Edit Format View Help
a = 10
b = 15
c = 25
d = 35
d = a + b + c
print('Addition of three numbers',d)
```

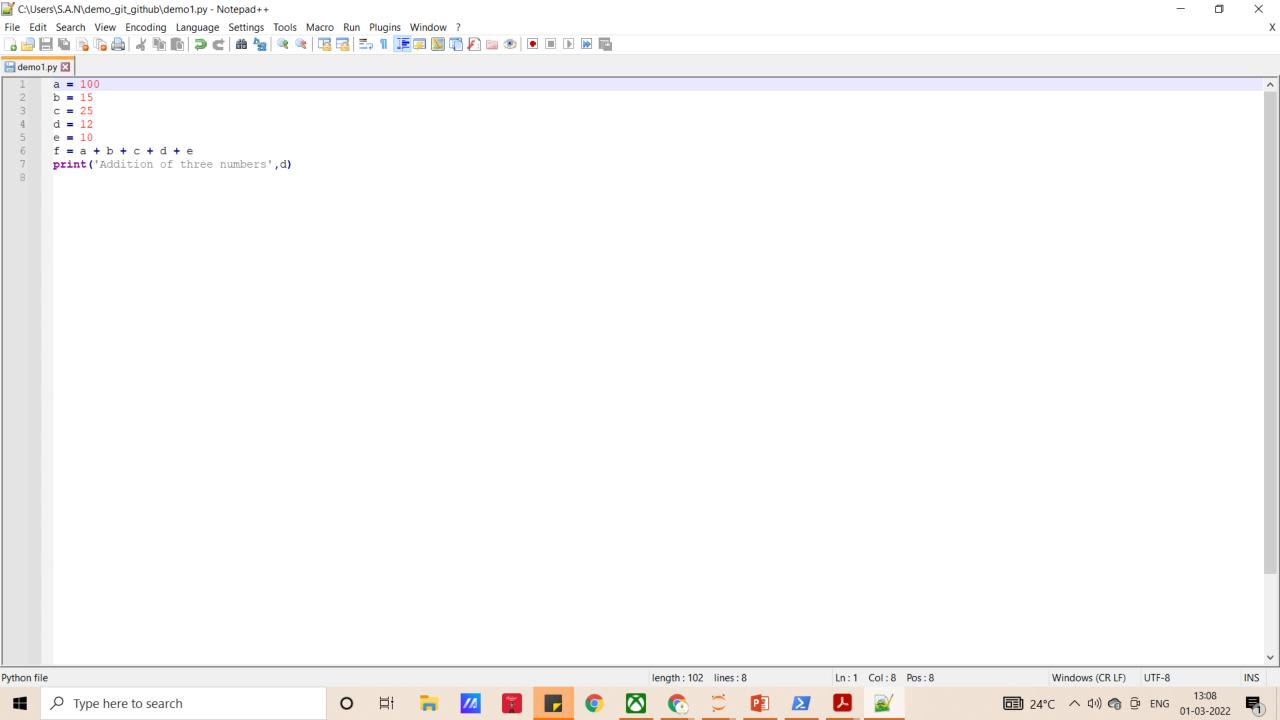


Git pull

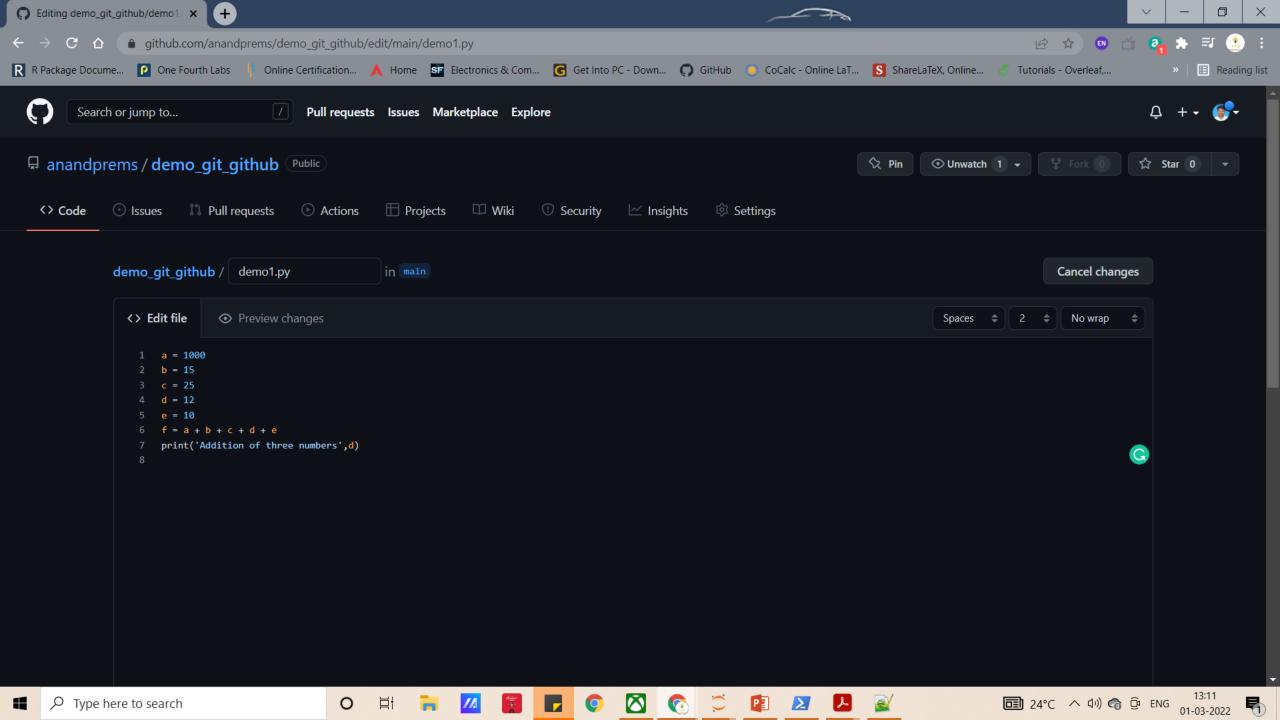


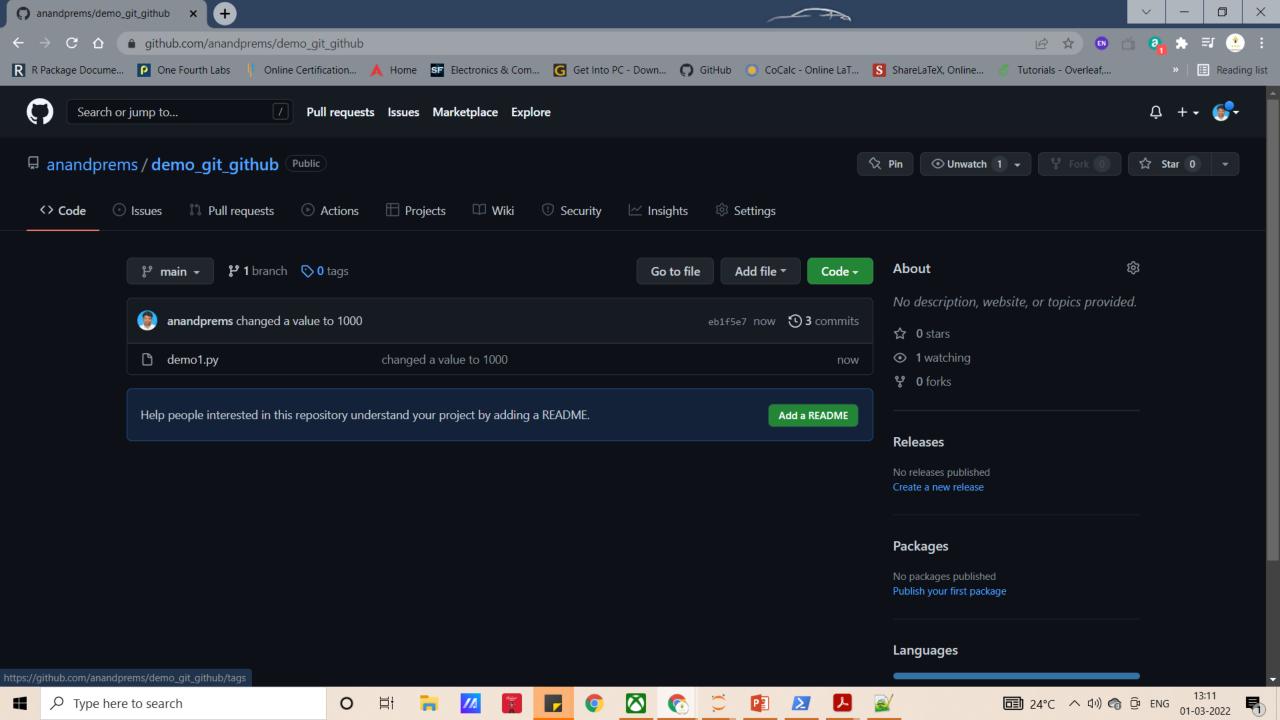
Sometimes we have conflict with some codings in same file like variables

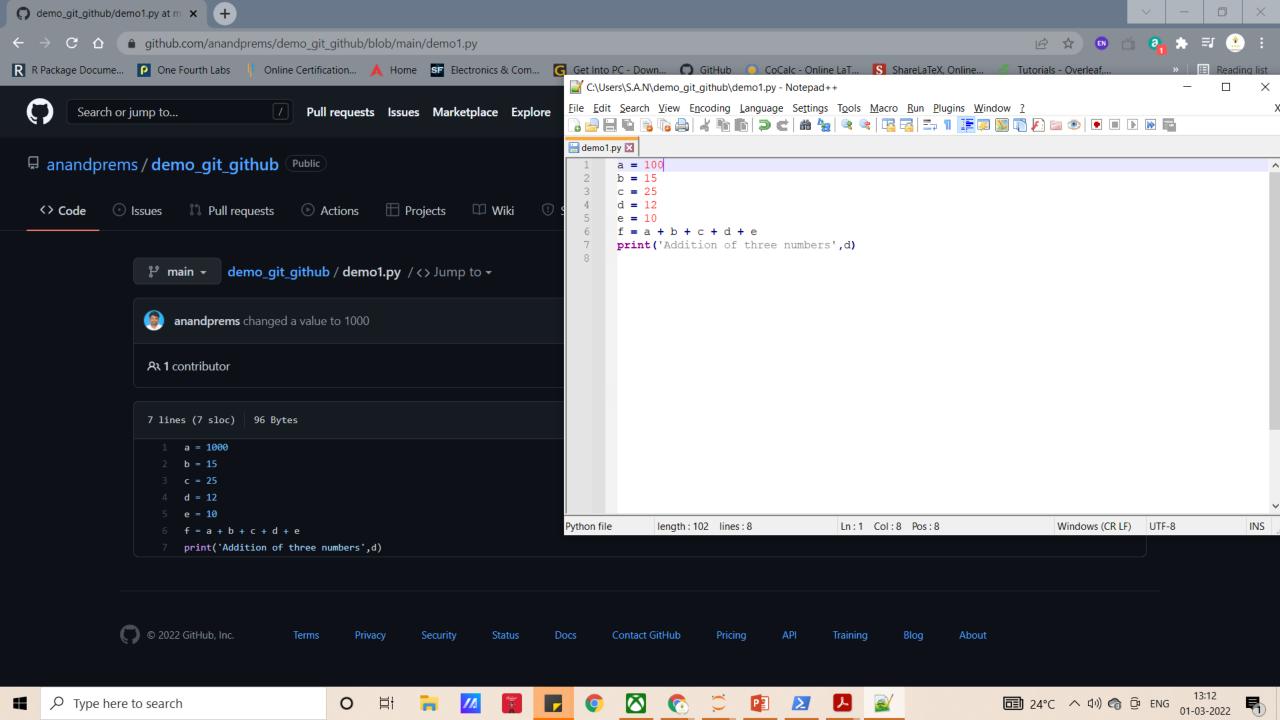




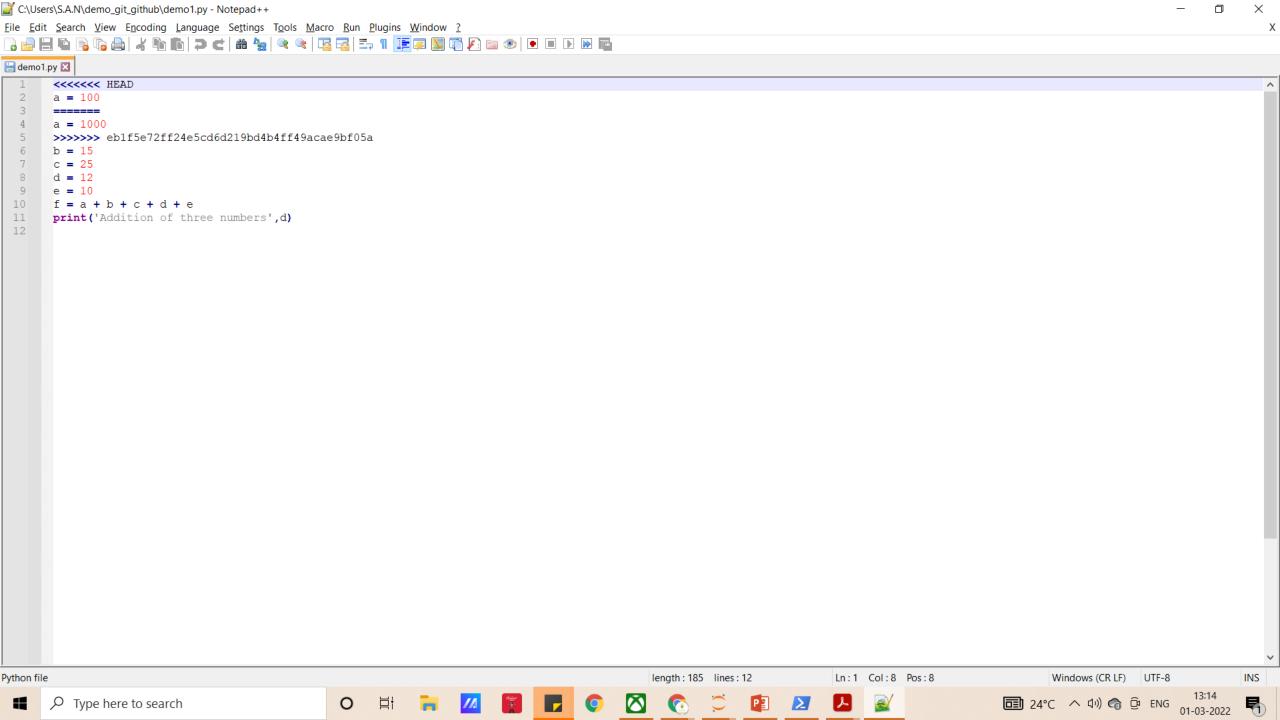
```
PS C:\Users\S.A.N\demo_git_github> git commit -am "a vlue changed to 100"
[main aea5f4f] a vlue changed to 100
1 file changed, 1 insertion(+), 1 deletion(-)
```

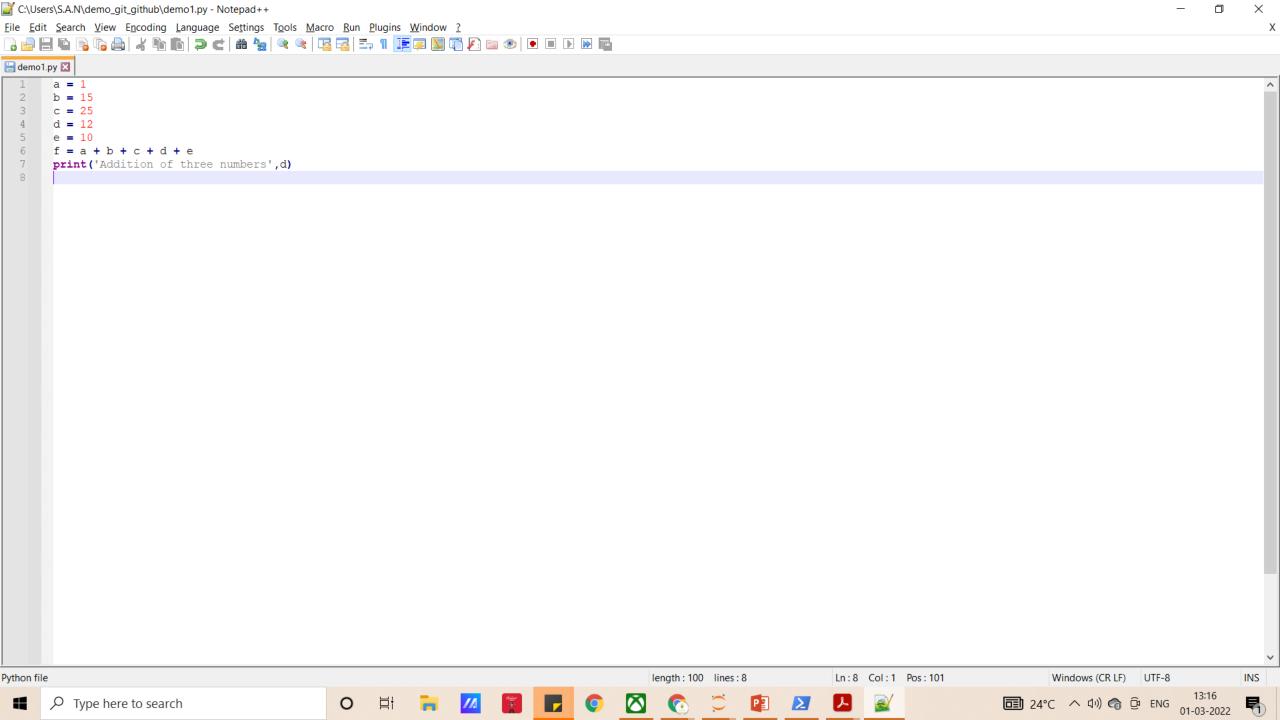




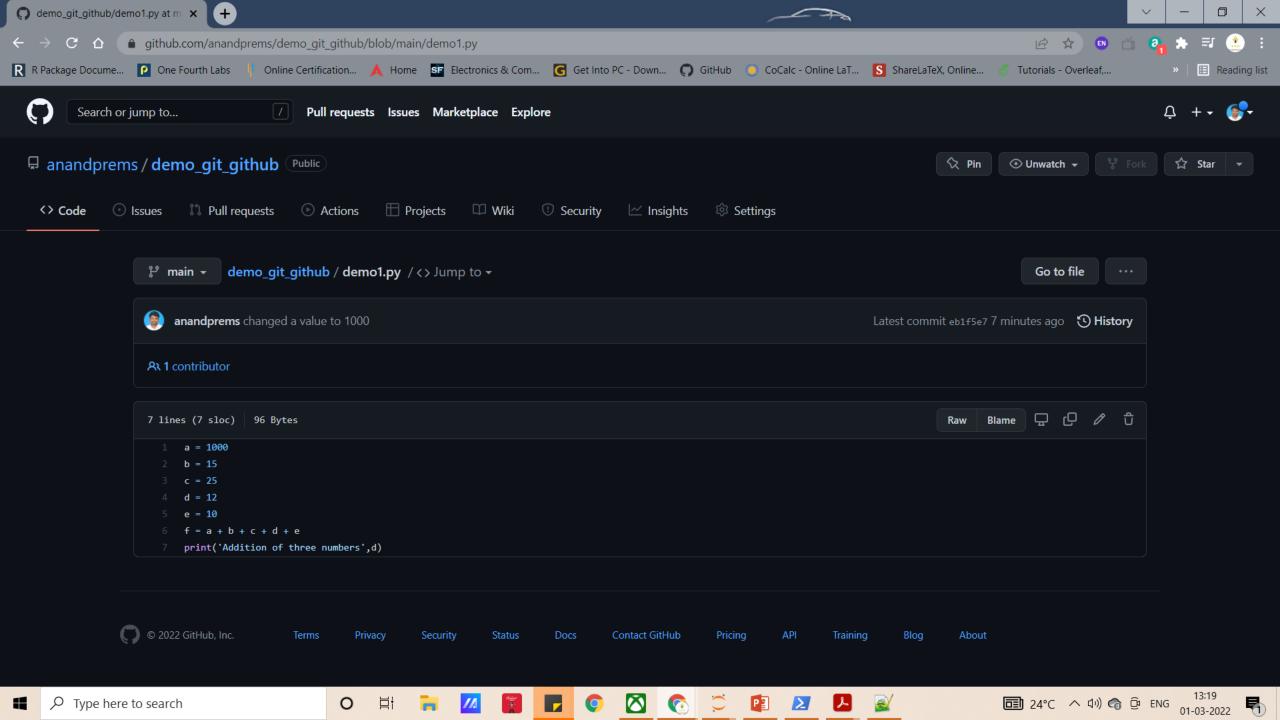


```
PS C:\Users\S.A.N\demo_git_github> git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Jnpacking objects: 100% (3/3), 708 bytes | 88.00 KiB/s, done.
From https://github.com/anandprems/demo_git_github
    8c8f695..eb1f5e7 main -> origin/main
Auto-merging demo1.py
CONFLICT (content): Merge conflict in demo1.py
Automatic merge failed; fix conflicts and then commit the result.
PS C:\Users\S.A.N\demo_git_github> ___
```

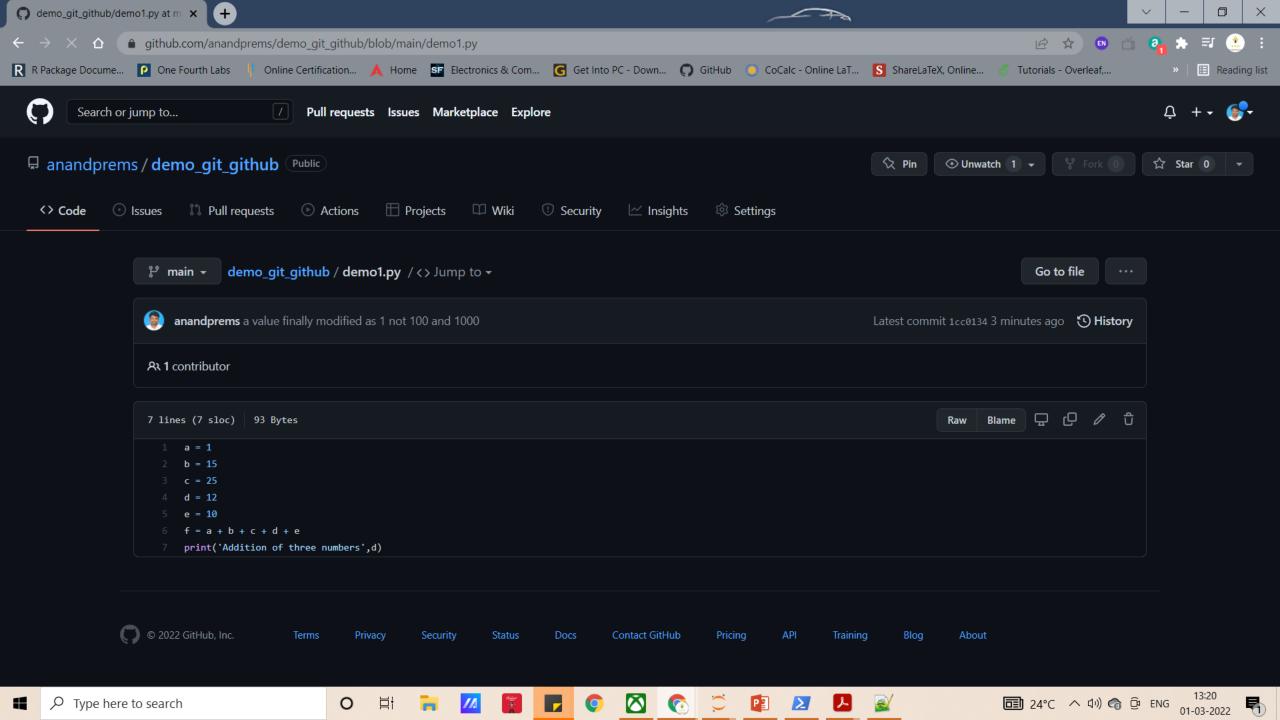


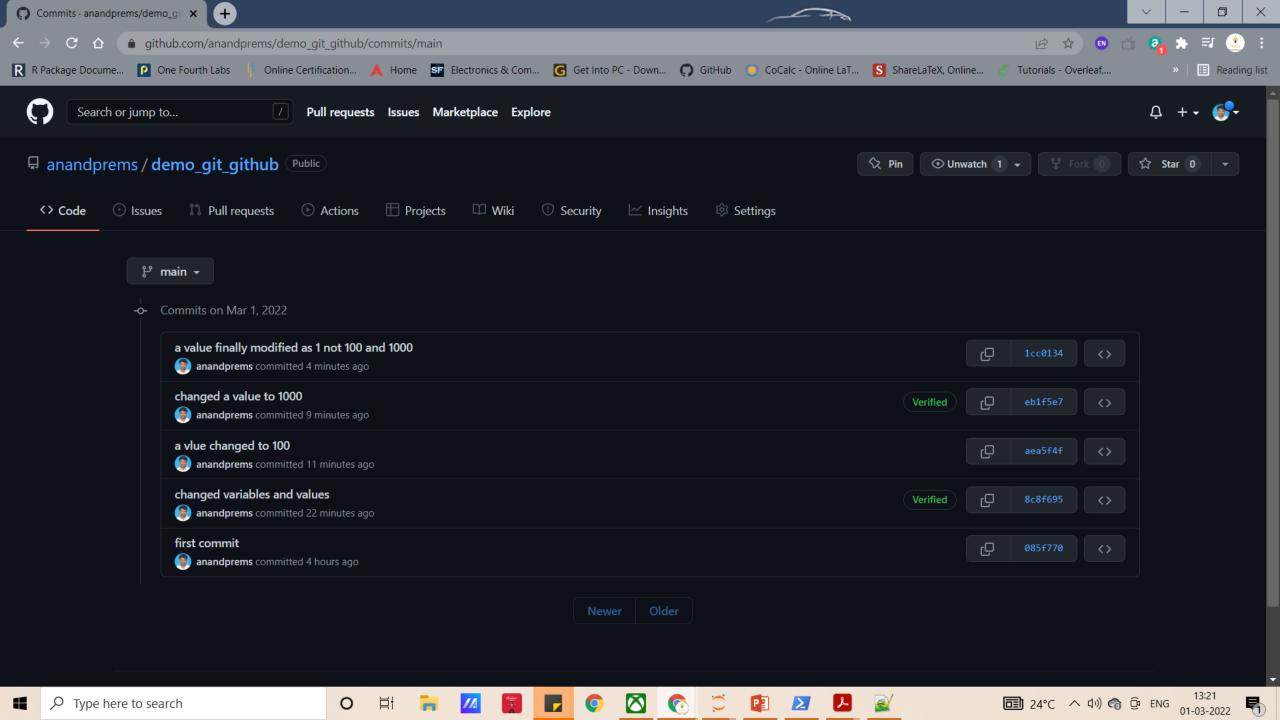


PS C:\Users\S.A.N\demo_git_github> git commit -am "a value finally modified as 1 not 100 and 1000" [main 1cc0134] a value finally modified as 1 not 100 and 1000



```
PS C:\Users\S.A.N\demo_git_github> git push
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 16 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 660 bytes | 660.00 KiB/s, done.
Fotal 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/anandprems/demo_git_github.git
    eb1f5e7..1cc0134 main -> main
PS C:\Users\S.A.N\demo_git_github>
```



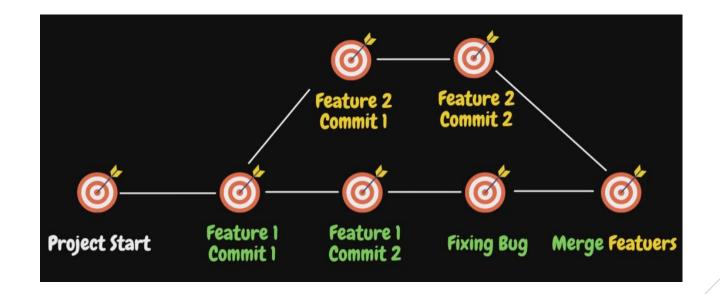




- Git reset –hard <commit hash>
- Git reset hard orgin/master





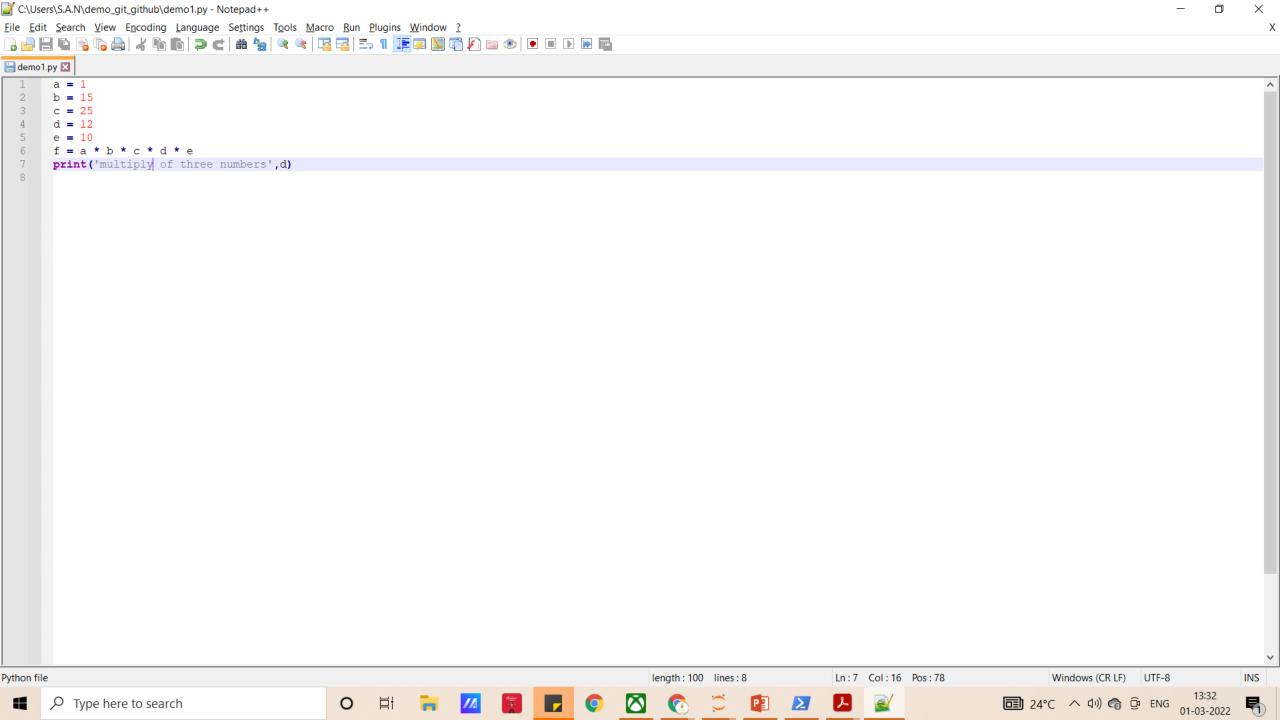


PS C:\Users\S.A.N\demo_git_github> git branch

PS C:\Users\S.A.N\demo_git_github> git checkout -b "spnk"
Switched to a new branch 'spnk'
PS C:\Users\S.A.N\demo_git_github> _

PS C:\Users\S.A.N\demo_git_github> git branch main

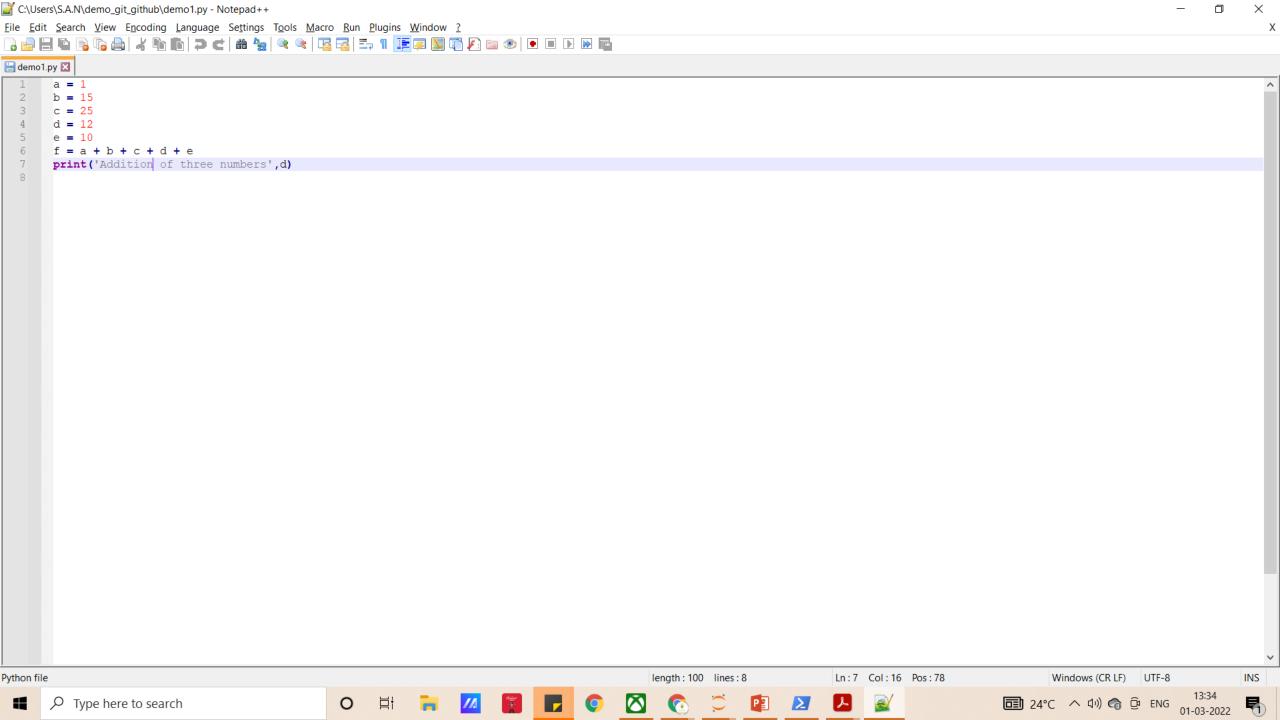
* spnk

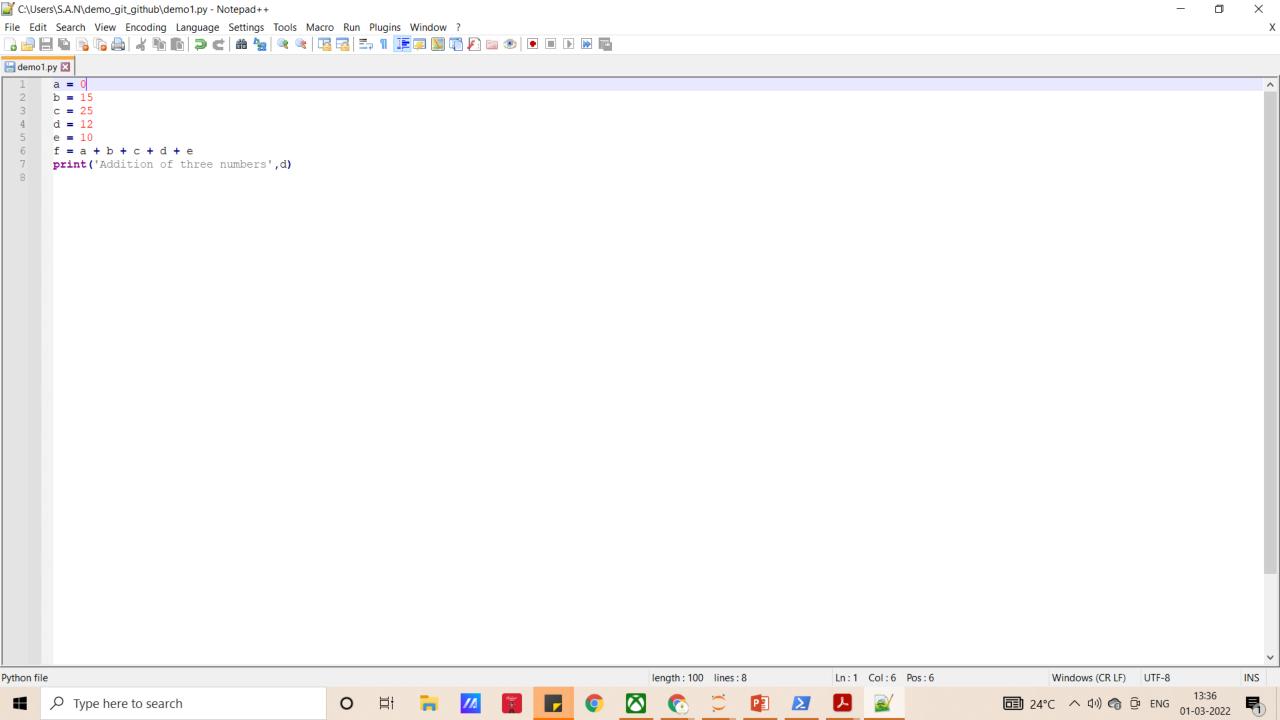


```
PS C:\Users\S.A.N\demo_git_github> git commit -am "for multiplication"
[spnk eb59b6a] for multiplication
1 file changed, 2 insertions(+), 2 deletions(-)
PS C:\Users\S.A.N\demo_git_github> 

PS C:\Users\S.A.N\demo_git_github>
```

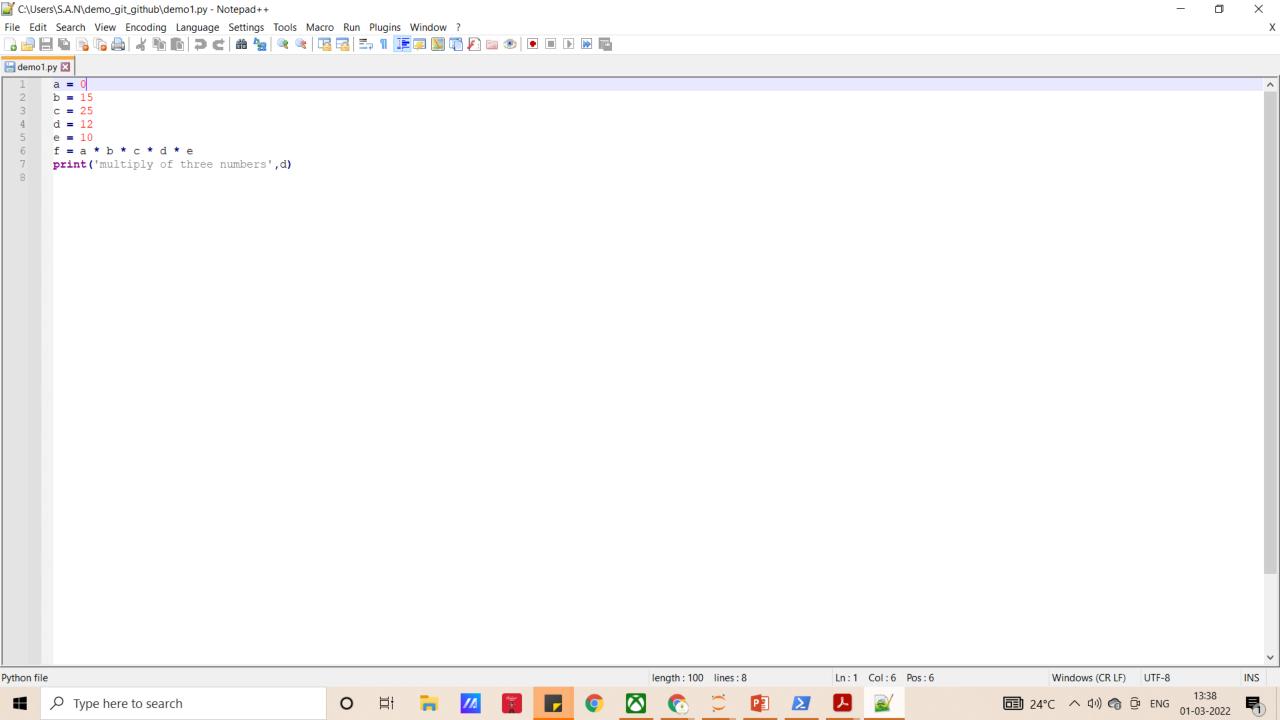
PS C:\Users\S.A.N\demo_git_github> git checkout main Switched to branch 'main'
Your branch is up to date with 'origin/main'.
PS C:\Users\S.A.N\demo_git_github>



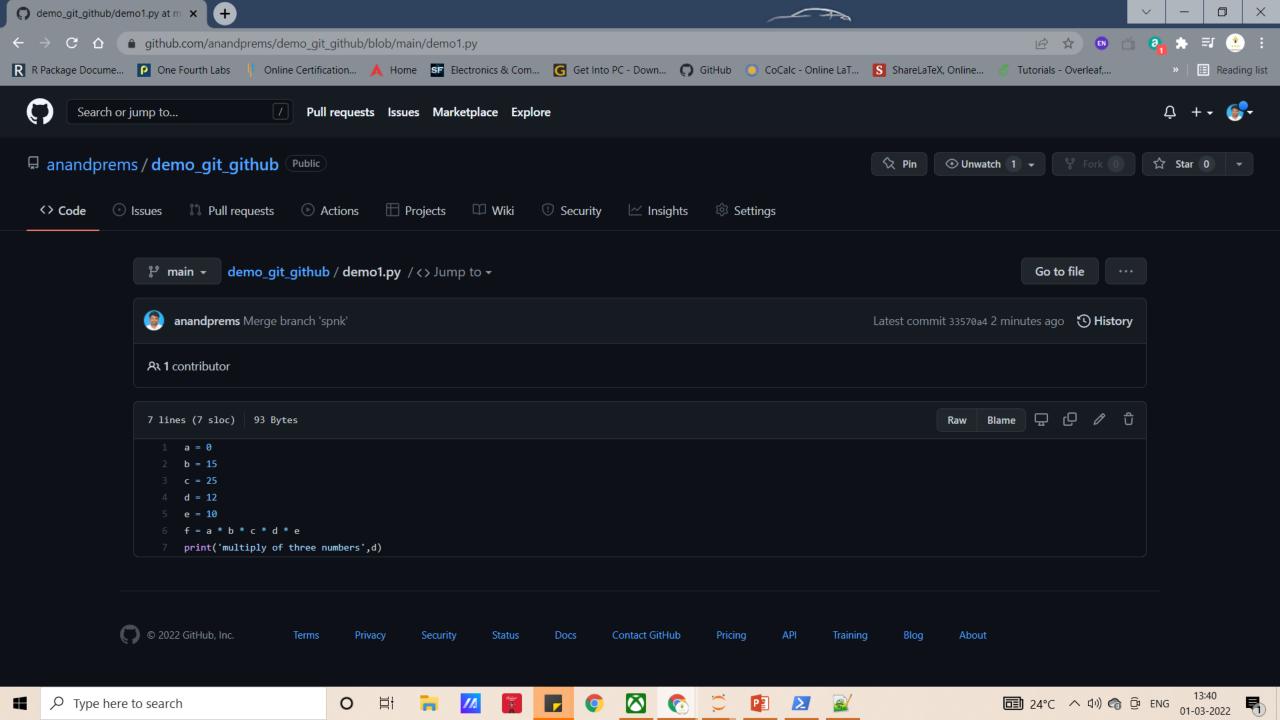


```
PS C:\Users\S.A.N\demo_git_github> git commit -am "a changed to 1"
[main 00c994a] a changed to 1
1 file changed, 1 insertion(+), 1 deletion(-)
PS C:\Users\S.A.N\demo_git_github> _
```

```
PS C:\Users\S.A.N\demo_git_github> git merge spnk
Auto-merging demo1.py
Merge made by the 'ort' strategy.
demo1.py | 4 ++--
1 file changed, 2 insertions(+), 2 deletions(-)
```



```
PS C:\Users\S.A.N\demo_git_github> git push
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 16 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 877 bytes | 438.00 KiB/s, done.
Total 9 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/anandprems/demo_git_github.git
    1cc0134..33570a4 main -> main
PS C:\Users\S.A.N\demo_git_github> _
```



How to change from one folder or directory to another?

```
PS C:\Users\S.A.N\chumma> ls_
PS C:\Users\S.A.N\chumma> Set-location -path "C:\Users"_
PS C:\Users> _
```