Set account name & email

```
C:\>git config --global user.name insungPSG

C:\>git config --global user.email insung.han@materials.ox.ac.uk
```

Create github folder (e.g. C:\github)

> Windows (C:)

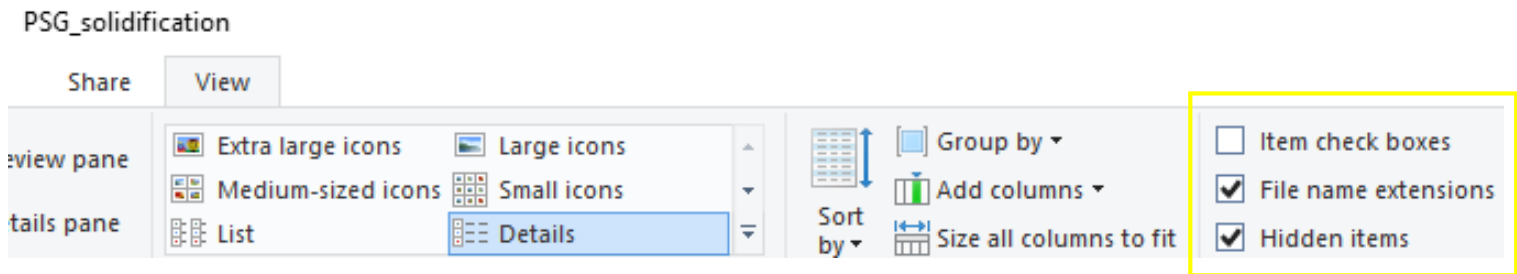| 이름	^	수정한 날짜
Dell		20/10/2020 14:08
Fiji		20/10/2020 14:25
github		21/10/2021 10:43
Intel		20/10/2020 12:35
Logs		12/11/2020 20:16
PerfLogs		07/12/2019 09:14
Program Files		21/10/2021 11:18

Clone repository

```
C:\>cd C:\github                              address of repository

C:\github>git clone https://github.com/insungPSG/PSG_solidification.git
Cloning into 'PSG_solidification'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
```

Windows (C:) > github >

이름   ^

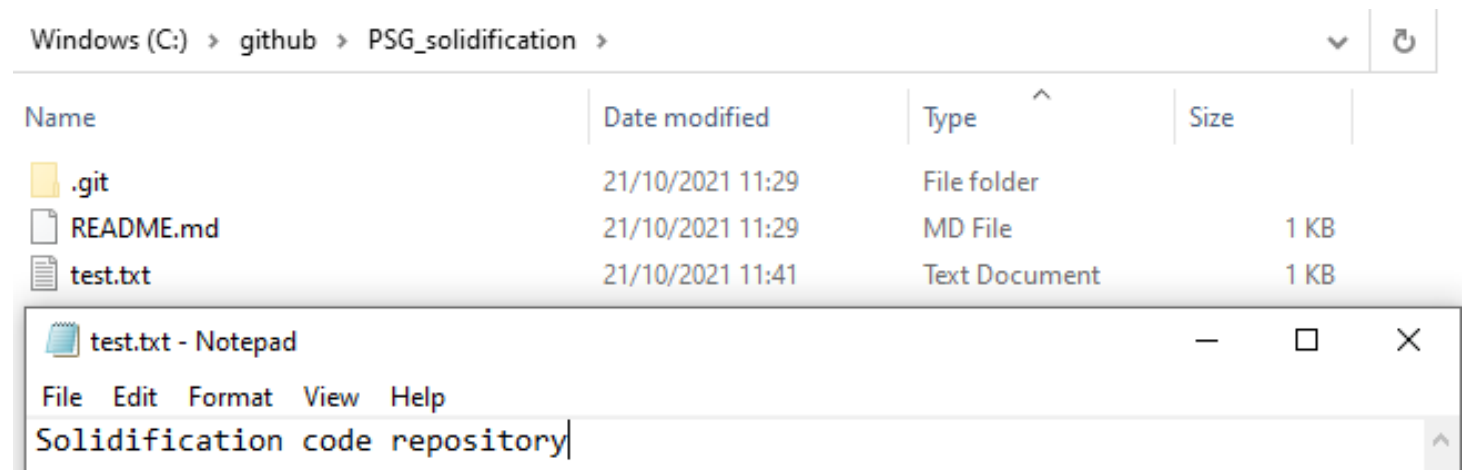PSG_solidification

PSG_solidification

Share   View

Extra large icons   Large icons
eview pane   Medium-sized icons   Small icons   Group by ▾   ☐ Item check boxes
                                                                  Sort   ☑ File name extensions
tails pane   List   Details   Add columns ▾   ☑ Hidden items
                                   Size all columns to fit

Tick the boxes

.git folder appears

Name	Date modified	Type ^	Size
📁 .git	21/10/2021 11:29	File folder	

Upload a file to the repository

Windows (C:) › github › PSG_solidification ›

Name	Date modified	Type ^	Size
📁 .git	21/10/2021 11:29	File folder	
📄 README.md	21/10/2021 11:29	MD File	1 KB
📄 test.txt	21/10/2021 11:41	Text Document	1 KB

test.txt - Notepad   —   ☐   ✕

File   Edit   Format   View   Help
Solidification code repository|

Create test.txt file in PSG_solidification

```
C:\github>cd PSG_solidification
                Repository name
C:\github\PSG_solidification>_
```

Add file to the staging area using git add

```
C:\github\PSG_solidification>git add test.txt
```

Save file to the local repository from the staging area using <mark>git commit</mark>

```
C:\github\PSG_solidification>git commit -m "Add test file [test.txt]"
[main 133a8fa] Add test file [test.txt]
 Committer: Insung Han <oums1254@materials.ox.ac.uk>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 1 insertion(+)
 create mode 100644 test.txt
```

Save file to the remote repository using <mark>git push</mark>

```
C:\github\PSG_solidification>git push
info: please complete authentication in your browser...
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 328 bytes | 164.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
   77e4fb8..133a8fa  main -> main
```

File uploaded on github

Check constituent files using dir

Check the status of files using git status

```
C:\github\PSG_solidification>git status
On branch main
Your branch is up to date with 'origin/main'.

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

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

Add file to the staging area using git add

```
C:\github\PSG_solidification>git add MATLABtest.m
```
```
C:\github\PSG_solidification>git add .
```
Or we can add all modified files using "."

```
C:\github\PSG_solidification>git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   MATLABtest.m
```

Delete file from the staging area using <mark>git reset</mark>

```
C:\github\PSG_solidification>git reset MATLABtest.m

C:\github\PSG_solidification>git status
On branch main
Your branch is up to date with 'origin/main'.

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

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

```
C:\github\PSG_solidification>git add .
```

```
C:\github\PSG_solidification>git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   MATLABtest.m
```

```
C:\github\PSG_solidification>git commit -m "Add MATLAB file [MATLABtest.m]"
[main 6c6f576] Add MATLAB file [MATLABtest.m]
 Committer: Insung Han <oums1254@materials.ox.ac.uk>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 2 insertions(+)
 create mode 100644 MATLABtest.m
```

```
C:\github\PSG_solidification>git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 365 bytes | 121.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
   133a8fa..6c6f576  main -> main
```

insungPSG / **PSG_solidification** Public   Unwatch ▾   1

<> Code   ⊙ Issues   ⑂ Pull requests   ▷ Actions   ▥ Projects   ▢ Wiki   ⊘ Securi

⅋ main ▾   Go to file   Add file ▾   Code ▾

Insung Han Add MATLAB file [MATLABtest.m] ...		1 minute ago	⟳ 3
▢ MATLABtest.m	Add MATLAB file [MATLABtest.m]		1 minute ago
▢ README.md	Initial commit		12 hours ago
▢ test.txt	Add test file [test.txt]		31 minutes ago

Check the status of files using git status before and after editing
MATLABtest.m

```
C:\github\PSG_solidification>git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
```

```
C:\github\PSG_solidification>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:   MATLABtest.m

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

```
C:\github\PSG_solidification>git add MATLABtest.m

C:\github\PSG_solidification>git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   MATLABtest.m
```

Save the updated file to the local repository
from the staging area using <mark>git commit</mark>

```
C:\github\PSG_solidification>git commit -m "Update [MATLABtest.m]"
[main 2490922] Update [MATLABtest.m]
 Committer: Insung Han <oums1254@materials.ox.ac.uk>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 1 insertion(+), 1 deletion(-)
```

```
C:\github\PSG_solidification>git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 358 bytes | 119.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
   6c6f576..2490922  main -> main
```

insungPSG Update MATLAB file [MATLABtest.m] ...   31 seconds ago   �🕒 5

🗋 MATLABtest.m	Update MATLAB file [MATLABtest.m]	31 seconds ago
🗋 README.md	Initial commit	13 hours ago
🗋 test.txt	Add test file [test.txt]	1 hour ago

insungPSG / PSG_solidification   Public

⊙ Unwatch ▾ 1   ☆ Star 0   ⑂ Fork 0

<> Code   ⊙ Issues   ⑈ Pull requests   ▶ Actions   ▦ Projects   📖 Wiki   ⓘ Security   ⬚ Insights   ...

Update MATLAB file [MATLABtest.m]

Browse files

⑂ main

insungPSG committed 5 minutes ago   1 parent 2490922   commit 1f0280440a8f37d9a6b2a4f6f636afc0eb4f9692

⊡ Showing 1 changed file with 1 addition and 1 deletion.   Split | Unified

∨ 2 ■■☐☐☐ MATLABtest.m 🗗   [No Title]   ...

```
...    ...    @@ -1,2 +1,2 @@
1          - i=100;
      1    + i=1000;
2     2      sprintf("dfdsf%d",i) ⊖
```

Commit history in git

⑂ main ▾   PSG_solidification / MATLABtest.m   Go to file   ...

insungPSG updated   Latest commit c470d78 3 minutes ago   🕒 History

⚇ 1 contributor

```
2 lines (2 sloc) | 31 Bytes                    Raw | Blame   ⊡ 🗗 ✎ 🗑
1    i=1000000;
2    sprintf("dfdsf%d",i)
```

History for PSG_solidification / MATLABtest.m

⊶ Commits on Oct 21, 2021

updated insungPSG committed 4 minutes ago	🗗 c470d78	🔄	<>
Update MATLAB file123 [MATLABtest.m] insungPSG committed 5 minutes ago	🗗 d3964d6	🔄	<>
update insungPSG committed 6 minutes ago	🗗 c874e05	🔄	<>
Update MATLAB file [MATLABtest.m] insungPSG committed 20 minutes ago	🗗 1f02804	🔄	<>
Update [MATLABtest.m] insungPSG committed 28 minutes ago	🗗 2490922	🔄	<>
Add MATLAB file [MATLABtest.m] insungPSG committed 40 minutes ago	🗗 6c6f576	🔄	<>

Commit history in cmd using <mark>git log</mark>

```
C:\github\PSG_solidification>git log
commit c470d783095ca022f7fbc9cd703990b70d031f62 (HEAD -> main, origin/main, origin/HEAD)
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 13:00:18 2021 +0100

    updated

commit d3964d6c8be283485ccde230e4c7104e1ffc9439
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 12:58:58 2021 +0100

    Update MATLAB file123 [MATLABtest.m]

commit c874e055d2e3b8aeb060bd1aa76ccb948cfe220c
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 12:57:37 2021 +0100

    update
```

Press "q" to exit

Return to the specific time of "commit" using <mark>git reset</mark>

```
C:\github\PSG_solidification>git reset --hard d3964d6c8be283485ccde230e4c7104e1ffc9439
HEAD is now at d3964d6 Update MATLAB file123 [MATLABtest.m]

C:\github\PSG_solidification>
```

Hard → delete everything after the point of specific "commit"
Soft → no "commit" history deleted
(no option) → Initialize the staging area, no "commit" history deleted

```
C:\github\PSG_solidification>git log
commit d3964d6c8be283485ccde230e4c7104e1ffc9439 (HEAD -> main)
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 12:58:58 2021 +0100

    Update MATLAB file123 [MATLABtest.m]

commit c874e055d2e3b8aeb060bd1aa76ccb948cfe220c
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 12:57:37 2021 +0100

    update
```

```
C:\github\PSG_solidification>git push
To https://github.com/insungPSG/PSG_solidification.git
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/insungPSG/PSG_solidification.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. Integrate the remote changes (e.g.
hint: 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

The structures of local repository and remote repository are now different because we changed the "commit history"

force push with -f

```
C:\github\PSG_solidification>git push -f
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
 + c470d78...d3964d6 main -> main (forced update)
```

Compare the updated history with the previous history

insungPSG / PSG_solidification Public

<> Code   ⊙ Issues   ⑂ Pull requests   ⊙ Actions   Projects   Wiki   ⊙ Security   Insights   ⚙ Settings

History for PSG_solidification / MATLABtest.m

Commits on Oct 21, 2021

Update MATLAB file123 [MATLABtest.m]		d3964d6		<>
insungPSG committed 26 minutes ago				
update		c874e05		<>
insungPSG committed 28 minutes ago				
Update MATLAB file [MATLABtest.m]		1f02804		<>
insungPSG committed 42 minutes ago				
Update [MATLABtest.m]		2490922		<>
insungPSG committed 1 hour ago				
Add MATLAB file [MATLABtest.m]		6c6f576		<>
insungPSG committed 1 hour ago				

If you made a mistake when you change "commit" or want to sync the local repository with the remote repository you can use git pull

```
C:\github\PSG_solidification>git pull
Updating 133a8fa..1f02804
Fast-forward
 MATLABtest.m | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 MATLABtest.m
```

Modify commit message (UNIX editor)

```
C:\github\PSG_solidification>git commit --amend
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 12:23:26 2021 +0100

    Add MATLAB file [MATLABtest.m]

commit 133a8fa982b6d91ea0c544804e2a884f1114c65e
Author: Insung Han <oums1254@materials.ox.ac.uk>
Date:   Thu Oct 21 11:53:46 2021 +0100

Update MATLAB file [MATLABtest.m]

# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# Date:        Thu Oct 21 12:43:43 2021 +0100
# Committer: Insung Han <oums1254@materials.ox.ac.uk>
#
# On branch main
# Your branch is up to date with 'origin/main'.
#
# Changes to be committed:
#       modified:   MATLABtest.m
#
# Untracked files:
#       df
#
```

Press "a" to edit

```
Updat MATLAB files 1111 qqqq


# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts thesddmit.
#
# Date:        Thu Oct 21 12:43:43 2021 +0100
# Committer: Insung Han <oums1254@materials.ox.ac.uk>
#
# On branch main
#daddad
```

Press "esc" and enter :wq! (back to cmd)

```
C:\github\PSG_solidification>git push -f
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 414 bytes | 207.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
 + 1f02804...d4ed901 main -> main (forced update)
```

Create "branch" and push to virtual repository

```
C:\github\PSG_solidification>git branch developer1
                                    Create developer1 branch
C:\github\PSG_solidification>git branch
  developer1
                                    Branch list
* main
```

```
C:\github\PSG_solidification>git checkout developer1
Switched to branch 'developer1'  Switch to developer1
```

```
C:\github\PSG_solidification>git push origin developer1
```
Push branch to remote repository

Switch branches/tags   ✕

Find or create a branch...

Branches   Tags

✓ main   default
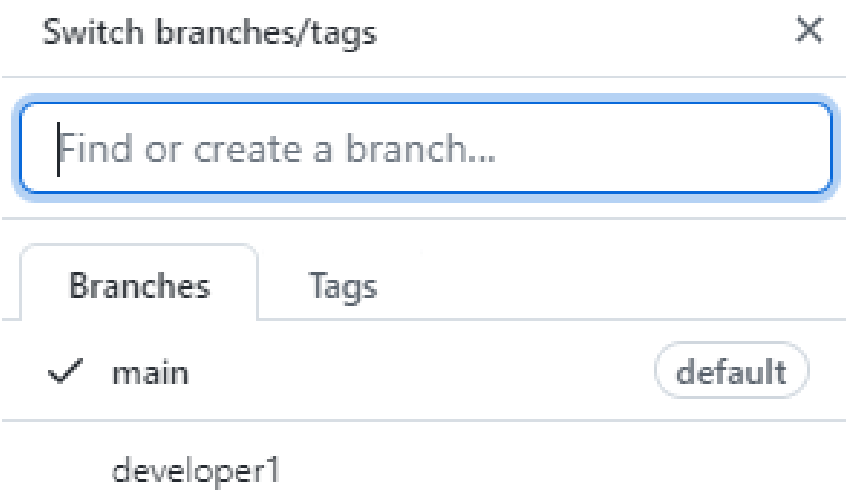
    developer1

Push developer2 branch to remote repository with the same manner

Switch branches/tags   ✕

Find or create a branch...

Branches   Tags

✓ master   default

    developer1

    developer2

        View all branches
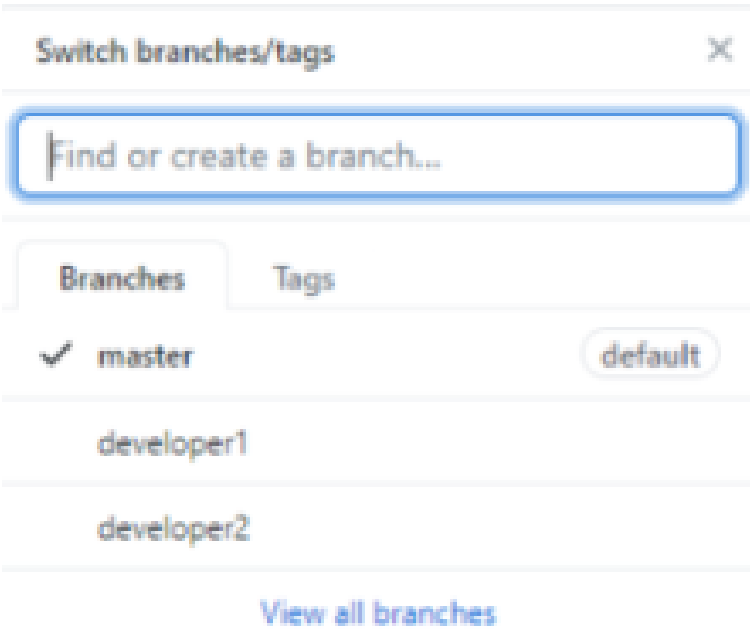
Switch to main and delete developer2 branch (in local repository)

```
C:\github\PSG_solidification>git checkout main
Switched to branch 'main'
D        MATLABtest.m
A        PSG_solidification
A        df
Your branch is up to date with 'origin/main'.

C:\github\PSG_solidification>git branch -d developer2
Deleted branch developer2 (was 3e4ebf6).
```

```
C:\github\PSG_solidification>git branch
   developer1
*  main
```

See the branch list in the remote repository

```
C:\github\PSG_solidification>git branch -a
   developer1
*  main
   remotes/origin/HEAD -> origin/main
   remotes/origin/developer1
   remotes/origin/developer2
   remotes/origin/main
```

Bring the developer2 branch from the remote repository

```
C:\github\PSG_solidification>git checkout -t origin/developer2
Switched to a new branch 'developer2'
D        MATLABtest.m
A        PSG_solidification
A        df
Branch 'developer2' set up to track remote branch 'developer2' from 'origin'.

C:\github\PSG_solidification>git branch
   developer1
*  developer2
```

Create abc.m in PSG_solidification folder and add-commit-push

This PC > Windows (C:) > github > PSG_solidification

Name	Date modified	Type	Size
.git	25/10/2021 16:57	File folder	
PSG_solidification	25/10/2021 15:56	File folder	
git_practice.pdf	21/10/2021 14:04	Adobe Acrobat D...	473 KB
df	21/10/2021 13:11	File	2 KB
abc.m	25/10/2021 16:56	MATLAB Code	1 KB
README.md	21/10/2021 11:29	MD File	1 KB
test.txt	21/10/2021 11:41	Text Document	1 KB

```
C:\github\PSG_solidification>git add .

C:\github\PSG_solidification>git commit -m "developer2 update"
[developer2 dd47ea7] developer2 update
 Committer: Insung Han <oums1254@materials.ox.ac.uk>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 4 files changed, 49 insertions(+), 2 deletions(-)
 delete mode 100644 MATLABtest.m
 create mode 160000 PSG_solidification
 create mode 100644 abc.m
 create mode 100644 df

C:\github\PSG_solidification>git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 972 bytes | 243.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
   3e4ebf6..dd47ea7  developer2 -> developer2
```

	insungPSG developer2 update		dd47ea7 2 minutes ago	7 commits
	PSG_solidification	developer2 update		2 minutes ago
	README.md	Initial commit		5 days ago
	abc.m	developer2 update		2 minutes ago

Bring developer2 branch from the remote repository

```
C:\github\PSG_solidification>git checkout -t origin/developer2
```

```
C:\github\PSG_solidification>git checkout main
warning: unable to rmdir 'PSG_solidification': Directory not empty
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

C:\github\PSG_solidification>git merge developer2
Updating 3e4ebf6..dd47ea7        Merge at the master branch
Fast-forward
 MATLABtest.m           |  2 --
 PSG_solidification     |  1 +
 abc.m                  |  1 +
 df                     | 47 +++++++++++++++++++++++++++++++++++++++++++++++
 4 files changed, 49 insertions(+), 2 deletions(-)
 delete mode 100644 MATLABtest.m
 create mode 160000 PSG_solidification
 create mode 100644 abc.m
 create mode 100644 df

C:\github\PSG_solidification>git push
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
   3e4ebf6..dd47ea7  main -> main
```

Main branch pull

```
C:\github\PSG_solidification>git pull origin main
From https://github.com/insungPSG/PSG_solidification
 * branch              main       -> FETCH_HEAD
Already up to date.
```

Edit abc.m at developer1 branch

```
C:\github\PSG_solidification>git add .

C:\github\PSG_solidification>git commit -m "developer1 test"
[developer1 cc92047] developer1 test
 Committer: Insung Han <oums1254@materials.ox.ac.uk>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 2 files changed, 2 insertions(+)
 create mode 160000 PSG_solidification
 create mode 100644 abc.m

C:\github\PSG_solidification>git push origin developer1
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 439 bytes | 146.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/insungPSG/PSG_solidification.git
   3e4ebf6..cc92047  developer1 -> developer1
```

```
C:\github\PSG_solidification>git pull
There is no tracking information for the current branch.
Please specify which branch you want to merge with.
See git-pull(1) for details.

    git pull <remote> <branch>

If you wish to set tracking information for this branch you can do so with:

    git branch --set-upstream-to=origin/<branch> developer1
```

```
C:\github\PSG_solidification>git checkout -t origin/developer1
fatal: A branch named 'developer1' already exists.

C:\github\PSG_solidification>git merge developer1
Already up to date.

C:\github\PSG_solidification>git push
fatal: The current branch developer1 has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin developer1
```