

# GIT Workshop


# Workshop Agenda

- Setup and configure GIT
- GIT basics
- Collaboration on GITHUB

# Setup and Configuration

Part 1




# Download GIT and Install [Git - Downloads \(git-scm.com\)](https://git-scm.com/downloads)

 **git** --distributed-even-if-your-workflow-isnt

Search entire site...

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GUI Clients  
Logos  
**Community**

## Downloads

 **macOS** **Windows**  
 **Linux/Unix**

Older releases are available and the Git source repository is on GitHub.

### GUI Clients

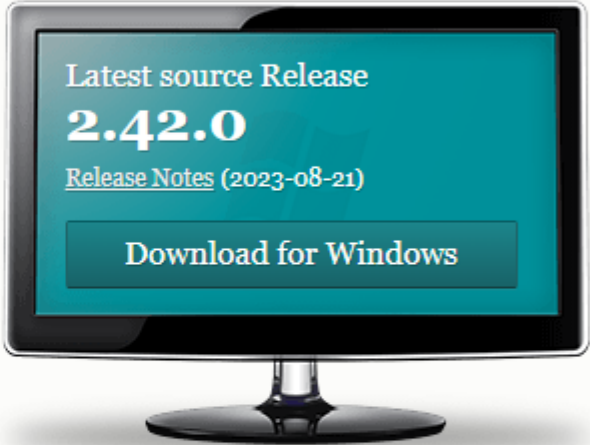
Git comes with built-in GUI tools (**git-gui**, **gitk**), but there are several third-party tools for users looking for a platform-specific experience.

[View GUI Clients →](#)

### Logos

Various Git logos in PNG (bitmap) and EPS (vector) formats are available for use in online and print projects.

[View Logos →](#)



Latest source Release  
**2.42.0**  
[Release Notes](#) (2023-08-21)  
[Download for Windows](#)

The entire **Pro Git book** written by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).

# Command Prompt Interface

Here is a list of **common Git commands**

- git config
- git init
- git clone
- git add
- git commit
- git diff
- git reset
- git branch
- git checkout
- git status
- git push
- git pull
- git merge
- git commit --amend



Check if everything is working: `git --version`

# Set User Configuration

- `git config --global user.name yourusername`
- `git config --global user.email youremail@plymouth.ac.uk`
- Location of this configuration is in your user directory in Windows.

Review configuration

- `git config --list`

Need help?

- `git action -help`

# GIT Basics

Part 2

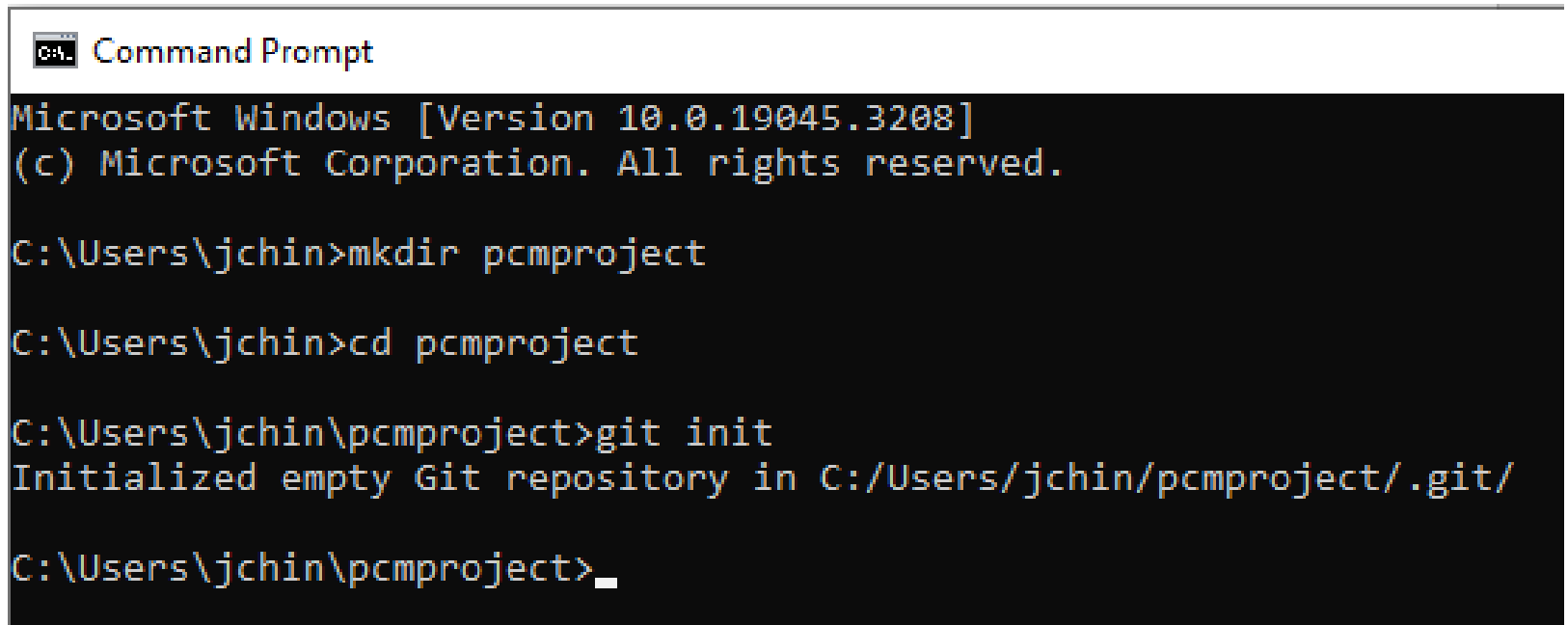
# Topics

- Create and initialize directory
- Staging
- Commit
- Branch/Merge



# Create and Initialize Folder

- mkdir pcmproject
- cd pcmproject
- git init



```
Command Prompt
Microsoft Windows [Version 10.0.19045.3208]
(c) Microsoft Corporation. All rights reserved.

C:\Users\jchin>mkdir pcmproject

C:\Users\jchin>cd pcmproject

C:\Users\jchin\pcmproject>git init
Initialized empty Git repository in C:/Users/jchin/pcmproject/.git/

C:\Users\jchin\pcmproject>_
```

# Add Files to Staging

- Pre-save
- Can add one file, or many files
- Create a file first –  
hellopcm.html
- Git add hellopcm.html
- Check on status with git status

NOT YET COMMITTED

```
C:\Users\jchin\pcmproject>git add hellopcm.html

C:\Users\jchin\pcmproject>git status
On branch master

No commits yet

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

```
<!DOCTYPE HTML>
<html>
<head>
<title>PCM GIT Project</title>
<body>
<h1>PCM GIT PROJECT Version 1</h1>
</body>
</html>
```

hellopcm.html

# Commit

- Save file
- Git commit opens an editor for custom message
- -m parameter just appends the message behind
- Git log shows the commit

```
C:\Users\jchin\pcmproject>git commit
Aborting commit due to empty commit message.

C:\Users\jchin\pcmproject>git commit -m "Version 1"
[master (root-commit) 9c89f2a] Version 1
1 file changed, 8 insertions(+)
create mode 100644 hellopcm.html

C:\Users\jchin\pcmproject>
```

```
C:\Users\jchin\pcmproject>git log
commit 9c89f2a83562a0771e696854ac501738f2767bab (HEAD -> master)
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:31:38 2023 +0100

    Version 1
```

# Commit --short

- Let's try for version 2: change the HTML file to Version 2.
- Commit without staging – git commit -a -m "Updated Version 2"
- Try log again

```
C:\Users\jchin\pcmproject>git status --short
M hellopcm.html

C:\Users\jchin\pcmproject>git commit -a -m "Updated Version 2"
[master fb5a35f] Updated Version 2
1 file changed, 1 insertion(+), 1 deletion(-)

C:\Users\jchin\pcmproject>git log
commit fb5a35f7ea3afcbf39918a850f02a9b79178d4c8 (HEAD -> master)
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:47:47 2023 +0100

    Updated Version 2

commit 9c89f2a83562a0771e696854ac501738f2767bab
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:31:38 2023 +0100

    Version 1
```

# Commit a folder

- Lets try adding css and images to the project
- Within pcmproject, mkdir img
- Download peninsula college logo and copy it there. Rename it as pcmlogo.png
- Create a style.css
- Update hellopcm.html as follows
- Add whole folder: git add \*
- Git status will show all the files
- Commit it and show the log.

```
body {  
    background-color: lightblue;  
}  
  
h1 {  
    color: blue;  
    text-align: center;  
}
```

style.css

```
C:\Users\jchin\pcmproject>git add *  
  
C:\Users\jchin\pcmproject>git status  
On branch master  
Changes to be committed:  
  (use "git restore --staged <file>..." to unstage)  
    modified:   hellopcm.html  
    new file:   img/pcmlogo.png  
    new file:   img/style.css
```

```
<!DOCTYPE HTML>  
<html>  
  <link rel="stylesheet" href="img/style.css">  
  <head>  
    <title>PCM GIT Project</title>  
  </head>  
  <body>  
    <h1>PCM GIT PROJECT Version 3</h1>  
      
  </body>  
</html>
```

```
C:\Users\jchin\pcmproject>git commit -a -m "Version 3: Added logo and css"  
[detached HEAD 0a324f2] Version 3: Added logo and css  
 2 files changed, 10 insertions(+)  
 create mode 100644 img/style.css
```

```
C:\Users\jchin\pcmproject>git log  
commit 0a324f269f14f3a76819be068546def322ba4965 (HEAD)  
Author: kenobicjj <jjchin@mmu.edu.my>  
Date:   Sun Aug 27 09:14:20 2023 +0100
```

Version 3: Added logo and css

```
commit fb5a35f7ea3afcbf39918a850f02a9b79178d4c8  
Author: kenobicjj <jjchin@mmu.edu.my>  
Date:   Fri Aug 25 17:47:47 2023 +0100
```

Updated Version 2

```
commit 9c89f2a83562a0771e696854ac501738f2767bab  
Author: kenobicjj <jjchin@mmu.edu.my>  
Date:   Fri Aug 25 17:31:38 2023 +0100
```

Version 1

```
C:\Users\jchin\pcmproject>
```

# Rolling Back

- Let's update to Version 4.
- Change style.css h1 to pink then commit with update message "Version 4: Barbie Style"
- Open the site. Ok that doesn't look too readable...
- How to revert to Version 3?

```
C:\Users\jchin\pcmproject>git commit -a -m "Version 4: Barbie style"
[detached HEAD a5b0aca] Version 4: Barbie style
1 file changed, 1 insertion(+), 1 deletion(-)
```

```
C:\Users\jchin\pcmproject>git log
commit a5b0aca84e8edfd17d1209aff5737ff5abfec821 (HEAD)
Author: kenobicjj <jjchin@mmu.edu.my>
Date: Sun Aug 27 09:15:40 2023 +0100
```

Version 4: Barbie style

```
commit 0a324f269f14f3a76819be068546def322ba4965
Author: kenobicjj <jjchin@mmu.edu.my>
Date: Sun Aug 27 09:14:20 2023 +0100
```

Version 3: Added logo and css

```
commit fb5a35f7ea3afcbf39918a850f02a9b79178d4c8
Author: kenobicjj <jjchin@mmu.edu.my>
Date: Fri Aug 25 17:47:47 2023 +0100
```

Updated Version 2

```
commit 9c89f2a83562a0771e696854ac501738f2767bab
Author: kenobicjj <jjchin@mmu.edu.my>
Date: Fri Aug 25 17:31:38 2023 +0100
```

Version 1

```
C:\Users\jchin\pcmproject>
```

PCM GIT PROJECT Version 3



# Rolling back

- Git revert or git reset: <https://www.freecodecamp.org/news/git-revert-commit-how-to-undo-the-last-commit/>
- Git revert: creates a new commit although it rolls back.
- Git reset: soft doesn't remove changes on current files, hard removes it
- Use only on local git, do not use for online repositories.
- For our example we will use reset (for clean reset): git reset -hard HASH
- Use git log to find your hash.

```
C:\Users\jjchin\pcmproject>git reset --hard 5cf1007b0a094ec2fa72f39d56b629b21db34d9f
HEAD is now at 5cf1007 Version 3: Added css and logo

C:\Users\jjchin\pcmproject>git log
commit 5cf1007b0a094ec2fa72f39d56b629b21db34d9f (HEAD)
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Sun Aug 27 09:26:30 2023 +0100

    Version 3: Added css and logo

commit fb5a35f7ea3afcbf39918a850f02a9b79178d4c8
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:47:47 2023 +0100

    Updated Version 2

commit 9c89f2a83562a0771e696854ac501738f2767bab
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:31:38 2023 +0100

    Version 1

C:\Users\jjchin\pcmproject>
```

# Branch

- Creates a separate timeline apart from main.
- Can update safely without disturbing main branch.
- Merge later once updates are complete.
- Create a new branch with git branch: git branch pcmdev
- Switch to new branch with git checkout: git checkout pcmdev
- Make the following changes: move the logo above the title and add a new image of the ship campus (shipcampus.png).
- Add the updated files to staging and commit.



```
C:\Users\jchin\pcmproject>git status
On branch pcmdev
Last command done (1 command done):
  pick dc4a5ee Version 3: Added CSS and Logo
No commands remaining.
You are currently editing a commit while rebasing branch 'master' on 'fb5a35f'.
(use "git commit --amend" to amend the current commit)
(use "git rebase --continue" once you are satisfied with your changes)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hellopcm.html
        new file:   img/shipcampus.png
```



# Switching between Branches

- List your directories. Notice shipcampus.png in your img folder. This is in your pcmdev branch.
- Now switch back to main branch by git checkout master. Check your img folder. Is shipcampus.png there?

```
C:\Users\jchin\pcmproject>git checkout master
Switched to branch 'master'

C:\Users\jchin\pcmproject>cd img

C:\Users\jchin\pcmproject\img>dir/w
Volume in drive C is Windows
Volume Serial Number is C859-23FA

Directory of C:\Users\jchin\pcmproject\img

[.]                [..]                pcmlogo.png    style.css
                   2 File(s)            87,911 bytes
                   2 Dir(s)  44,666,281,984 bytes free
```

# Merging Branches

- Now merge pcmdev with master
- Git rebase --continue updates the files and switches you back to master.
- You can switch back to pcmdev branch and continue updating safely, or we can stop using pcmdev and remove the branch with: git branch -d pcmdev

```
C:\Users\jchin\pcmproject\img>git status
On branch pcmdev
Last command done (1 command done):
  pick dc4a5ee Version 3: Added CSS and Logo
No commands remaining.
You are currently editing a commit while rebasing branch 'master' on 'fb5a35f'.
  (use "git commit --amend" to amend the current commit)
  (use "git rebase --continue" once you are satisfied with your changes)

nothing to commit, working tree clean

C:\Users\jchin\pcmproject\img>git rebase --continue
Successfully rebased and updated refs/heads/master.
```

```
C:\Users\jchin\pcmproject\img>git log
commit 6fe2d966d9f09149dbe47ea90424681ac494bc55 (HEAD -> master, pcmdev)
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Sun Aug 27 09:45:00 2023 +0100

    Version 4: Added ship campus image

commit 5cf1007b0a094ec2fa72f39d56b629b21db34d9f
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Sun Aug 27 09:26:30 2023 +0100

    Version 3: Added css and logo

commit fb5a35f7ea3afcbf39918a850f02a9b79178d4c8
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:47:47 2023 +0100

    Updated Version 2

commit 9c89f2a83562a0771e696854ac501738f2767bab
Author: kenobicjj <jjchin@mmu.edu.my>
Date:   Fri Aug 25 17:31:38 2023 +0100

    Version 1

C:\Users\jchin\pcmproject\img>
```

```
C:\Users\jchin\pcmproject\img>git branch -d pcmdev
Deleted branch pcmdev (was 6fe2d96).

C:\Users\jchin\pcmproject\img>git branch
* master

C:\Users\jchin\pcmproject\img>
```

# Collaboration on Github

# Topics

- Registering on github
- Push/Pull
- Branches
- Push/Pull Branches

# Create an Account on Github

- Register using your personal email – you may lose access if you use your school email.
- You may use school email as secondary email to access school repositories.
- Once you have registered, create a new repository

## Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)


*Required fields are marked with an asterisk (\*).*

### Repository template

No template ▾

Start your repository with a template repository's contents.

Owner \*

 kenobicj ▾

Repository name \*

/ pcmproject

✓ pcmproject is available.

Great repository names are short and memorable. Need inspiration? How about [fantastic-guide](#) ?

### Description (optional)

PCM Git project

# Linking Git to Github

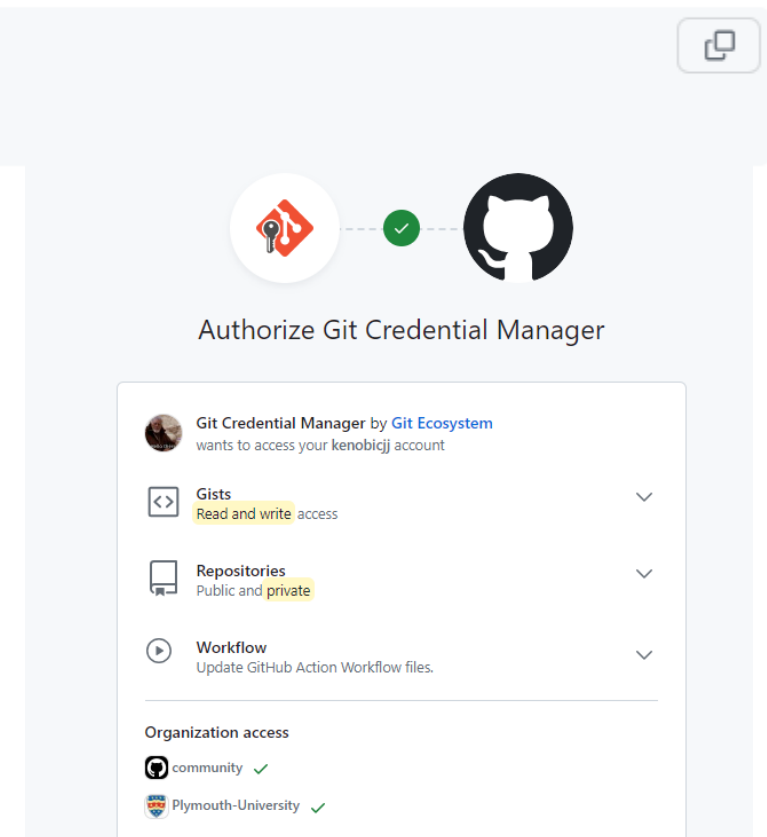
- To link our current project with github, copy the lines from here and run them on cmd

...or push an existing repository from the command line

```
git remote add origin https://github.com/kenobicjj/pcmproject.git
git branch -M main
git push -u origin main
```

- You may be required to provide authorization

```
C:\Users\jchin\pcmproject\img>git remote add origin https://github.com/kenobicjj/pcmproject.git
C:\Users\jchin\pcmproject\img>git branch -M main
C:\Users\jchin\pcmproject\img>git push -u origin main
info: please complete authentication in your browser...
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads
Compressing objects: 100% (15/15), done.
Writing objects: 100% (17/17), 587.96 KiB | 20.27 MiB/s, done.
Total 17 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (4/4), done.
To https://github.com/kenobicjj/pcmproject.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
C:\Users\jchin\pcmproject\img>_
```



# Linking Git to Github

- Now you will see your code there in the Github repository
- Let's try editing to Version 5 on Github

pcmproject Public Pin Unwatch 1

main 1 branch 0 tags <> Code

kenobicjj Version 4: Added ship campus image		6fe2d96 21 minutes ago 4 commits
img	Version 4: Added ship campus image	21 minutes ago
hellopcm.html	Version 4: Added ship campus image	21 minutes ago

Help people interested in this repository understand your project by adding a README. Add a README

Commit changes

Commit message

Update hellopcm.html

Extended description

Changed to Version 5

☒ Commit directly to the main branch

☐ Create a new branch for this commit and start a pull request

[Learn more about pull requests](#)


Cancel Commit changes

```
1 <!DOCTYPE HTML>
2 <html>
3 <head>
4 <link rel="stylesheet" href="img/style.css">
5 <title>PCM GIT Project Version 5</title>
6 <body>
7 
8 <h1>PCM GIT PROJECT Version 2</h1>
9 
10 </body>
11 </html>
```


# View Commits Online

- Click on commits (should be 5 now)
- If we want to continue working on the local git folder, we need to pull this new update.

## Commits

 main ▾

 Commits on Aug 27, 2023


 **Update hellopcm.html** ...

kenobicjj committed now

Verified  bc5f076 <>


**Version 4: Added ship campus image**


kenobicjj committed 24 minutes ago

 6fe2d96 <>

**Version 3: Added css and logo**


kenobicjj committed 42 minutes ago

 5cf1007 <>

 Commits on Aug 25, 2023


**Updated Version 2**

kenobicjj committed 2 days ago

 fb5a35f <>

**Version 1**

kenobicjj committed 2 days ago

 9c89f2a <>



# Pull to local

- First run a fetch: `git fetch origin`
- If you look at `git status`, it is missing one new commit.
- You can view details using `git diff origin/main`
- Lastly we can merge using `git merge origin/main`
- Verify the log with the new commit.

```
C:\Users\jchin\pcmproject\img>git merge origin/main
Updating 6fe2d96..bc5f076
Fast-forward
 hellopcm.html | 4 ++--
 1 file changed, 2 insertions(+), 2 deletions(-)
```

```
C:\Users\jchin\pcmproject\img>git fetch origin
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 716 bytes | 11.00 KiB/s, done.
From https://github.com/kenobicjj/pcmproject
 6fe2d96..bc5f076  main      -> origin/main
```

```
C:\Users\jchin\pcmproject\img>git status
On branch main
Your branch is behind 'origin/main' by 1 commit, and can be fast-forwarded.
  (use "git pull" to update your local branch)

nothing to commit, working tree clean
```

```
C:\Users\jchin\pcmproject\img>git diff origin/main
diff --git a/hellopcm.html b/hellopcm.html
index 518afd4..f9db706 100644
--- a/hellopcm.html
+++ b/hellopcm.html
@@ -2,10 +2,10 @@
 <html>
 <head>
   <link rel="stylesheet" href="img/style.css">
-  <title>PCM GIT Project Version 5</title>
+  <title>PCM GIT Project</title>
 <body>
   
   <h1>PCM GIT PROJECT Version 2</h1>
   
 </body>
- </html>
+ </html>
\ No newline at end of file

C:\Users\jchin\pcmproject\img>
```

# Push

- Lets update to version 6 by adding some text as a paragraph.
- Copy this statement in a paragraph tag: Located inside the One Auto Hub at Batu Kawan Industrial Park, Penang, The Ship Campus will be Peninsula College's national headquarters.
- Now commit and let's push this to Github with: git push origin
- Refresh github to see your changes

Located inside the One Auto Hub at Batu Kawan Industrial Park, Penang, The Ship Campus will be Peninsula College's national headquarters.



```
C:\Users\jchin\pcmproject>git add *

C:\Users\jchin\pcmproject>git status
On branch main
Your branch is up to date with 'origin/main'.

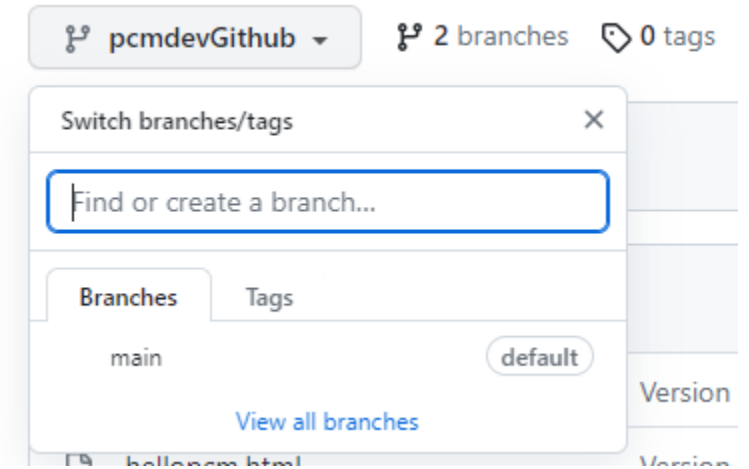
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hellopcm.html

C:\Users\jchin\pcmproject>git commit -m "Version 6:Added paragraph"
[main e6d5e94] Version 6:Added paragraph
 1 file changed, 4 insertions(+), 2 deletions(-)

C:\Users\jchin\pcmproject>git push origin
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 562 bytes | 70.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/kenobicjj/pcmproject.git
   bc5f076..e6d5e94  main -> main
```

# Branching on Github

- Create new branch called pcmdevGithub here:



- Similarly you can make changes and commit to the branch on github directly. Lets update to Version 7 on the branch pcmdevGithub

Thank you!