Pycat Guides

Welcome! Please click or scroll to the section you need.

Pycat Installation Guide

Make sure you perform these steps in order!

You only have to perform these steps one time! Next time you want to code, scroll down to the Pycat Usage Guide

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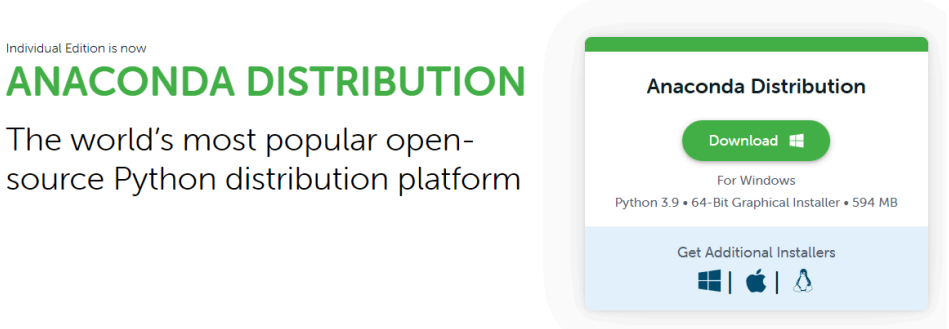
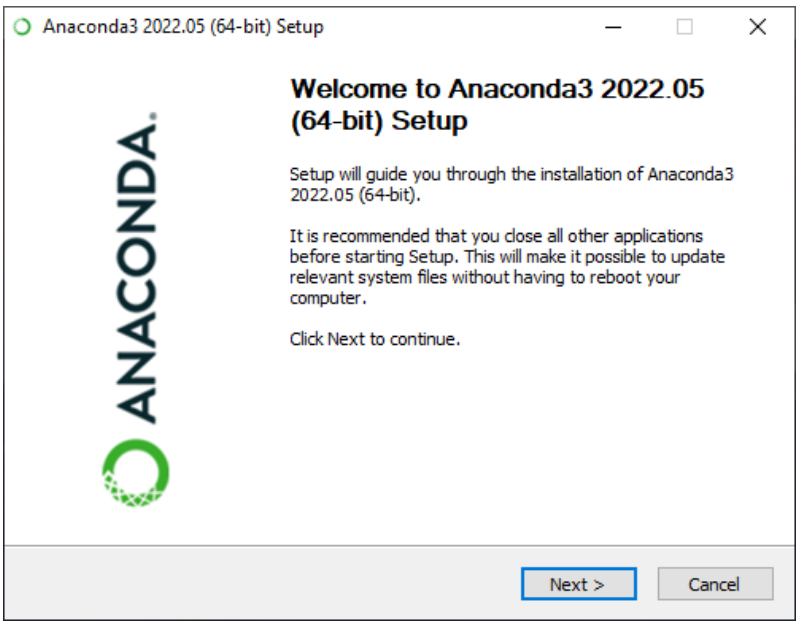
1. Install Anaconda

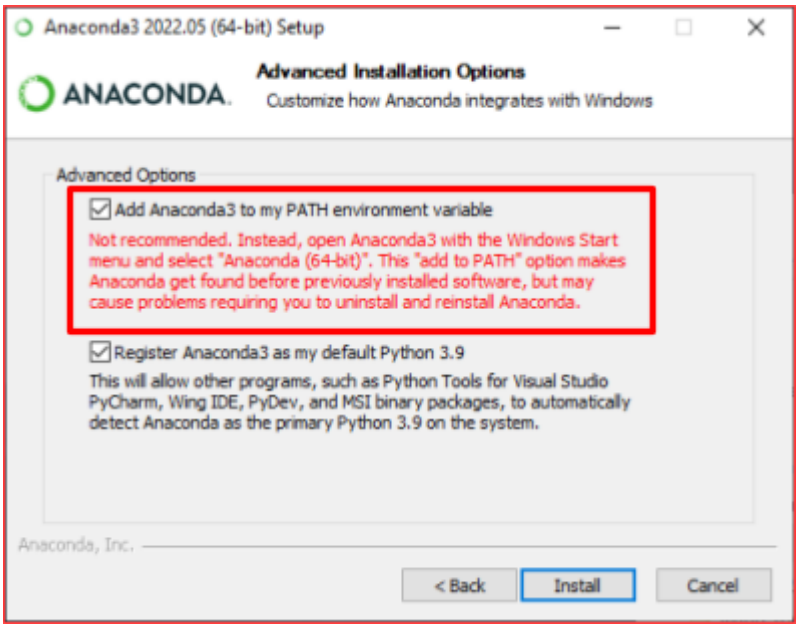
- Download: https://www.anaconda.com/products/distribution



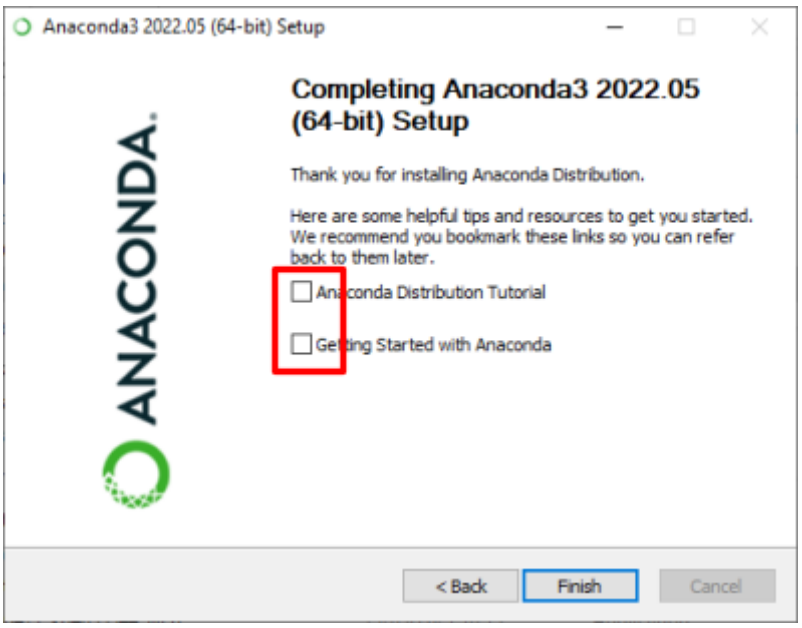
- Run the installer.



- Make sure you tick this box! You do not need to change any other options.



- Installation can take a long time, please wait!
- At the end, untick these boxes.



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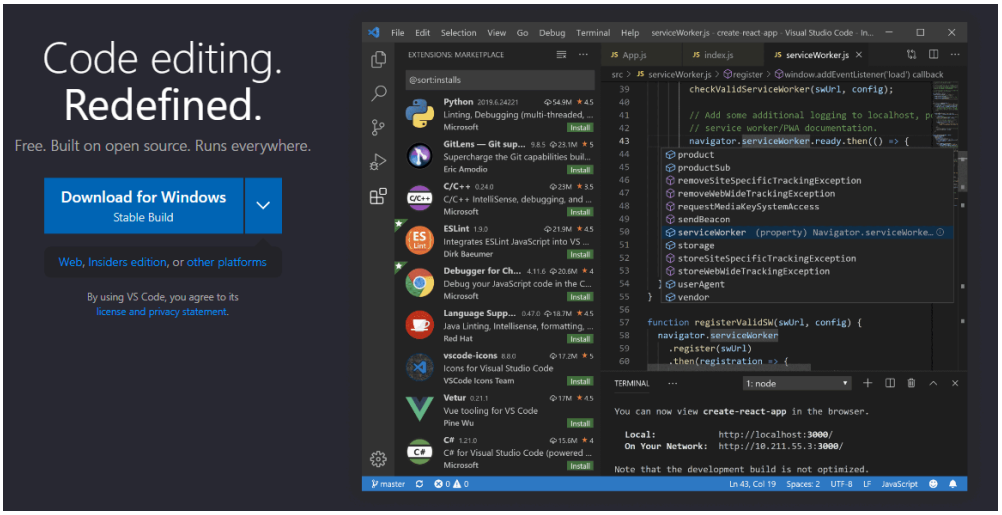
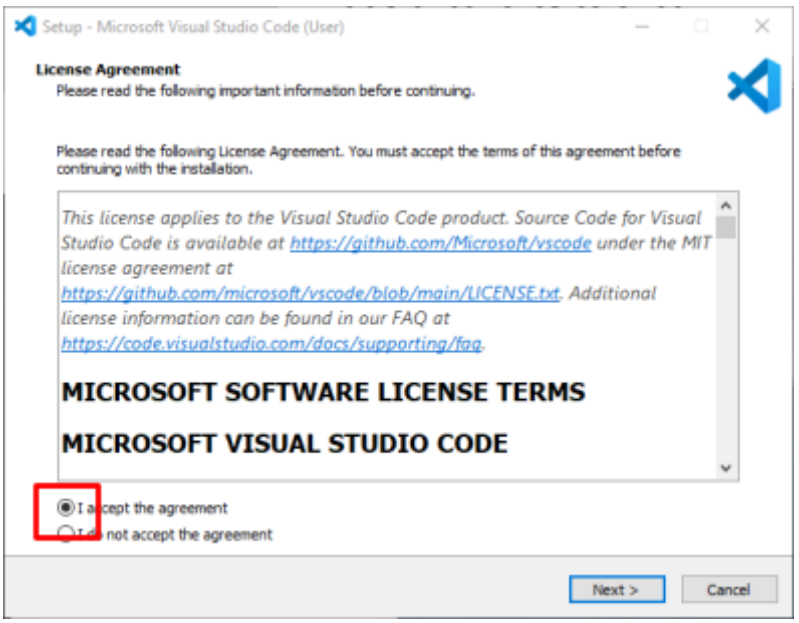
2. Install VS Code

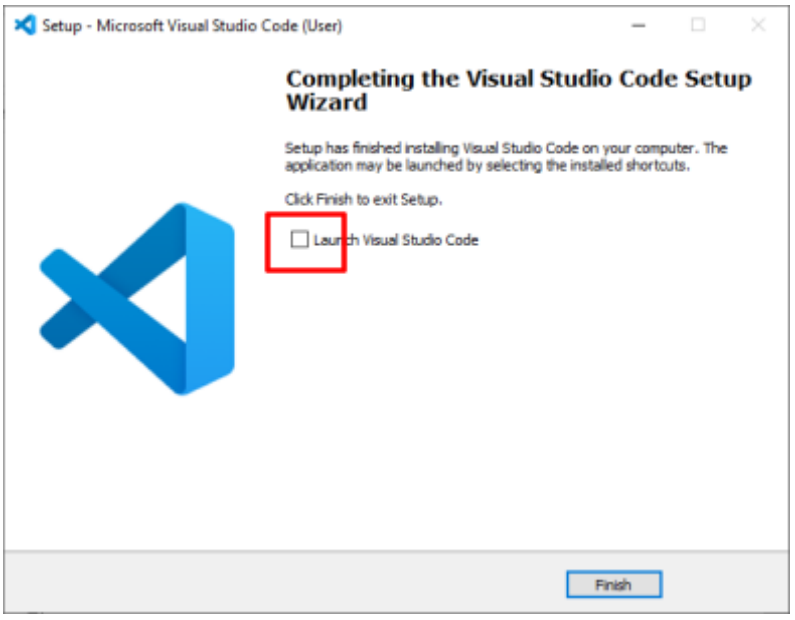
- Download: https://code.visualstudio.com/download



- Run the installer, you do not have to change any other options.



- At the end, untick this box



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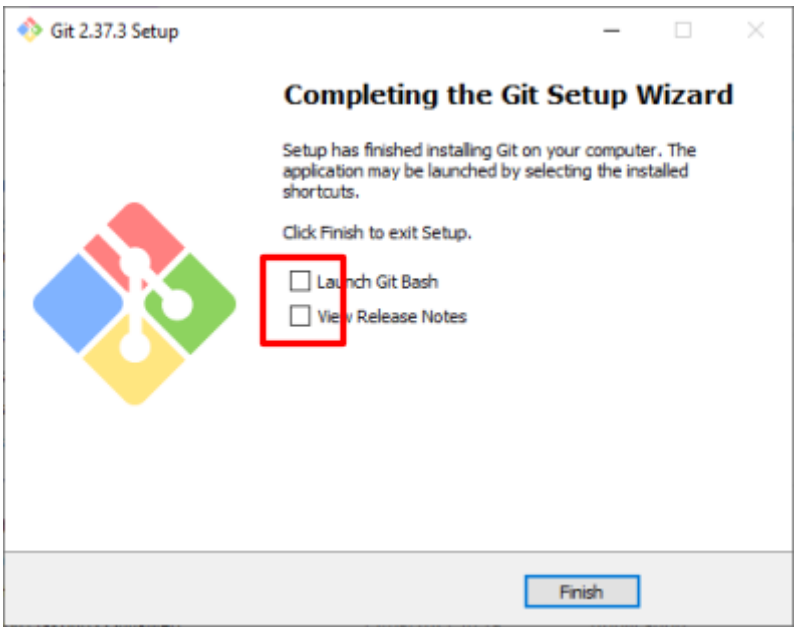
3. Install GIT

- Download: https://git-scm.com/downloads

- Run the installer, you do not have to change any options.

- At the end, untick these boxes.



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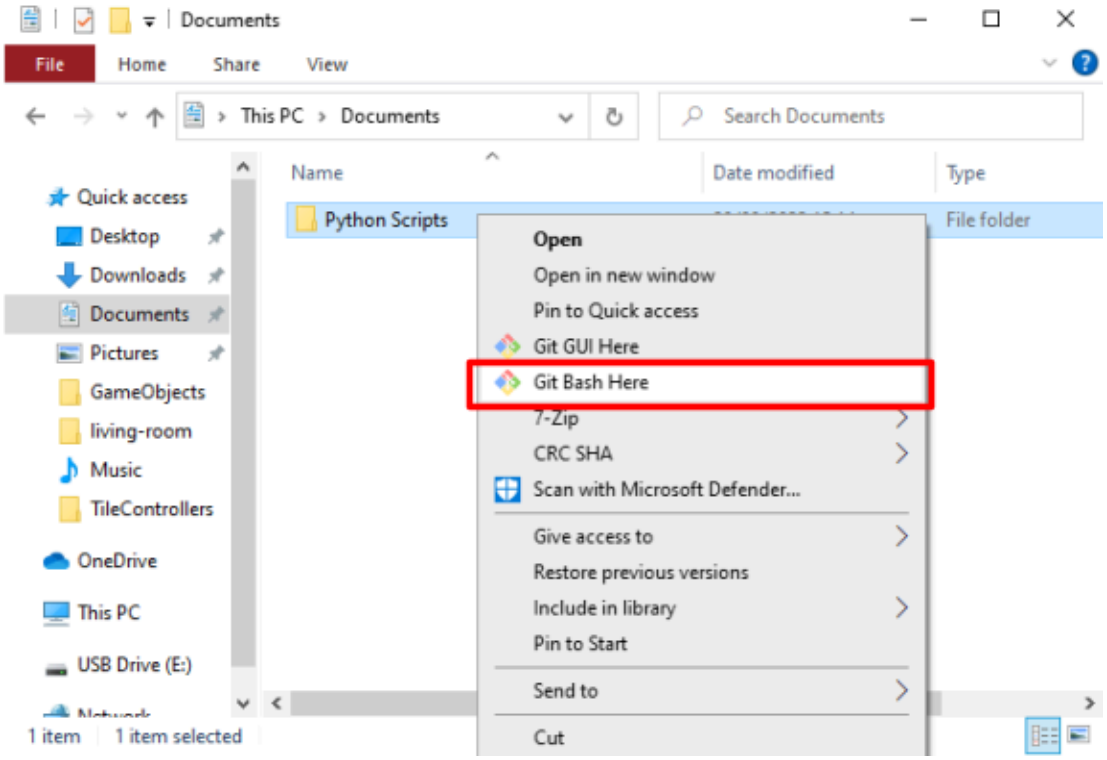
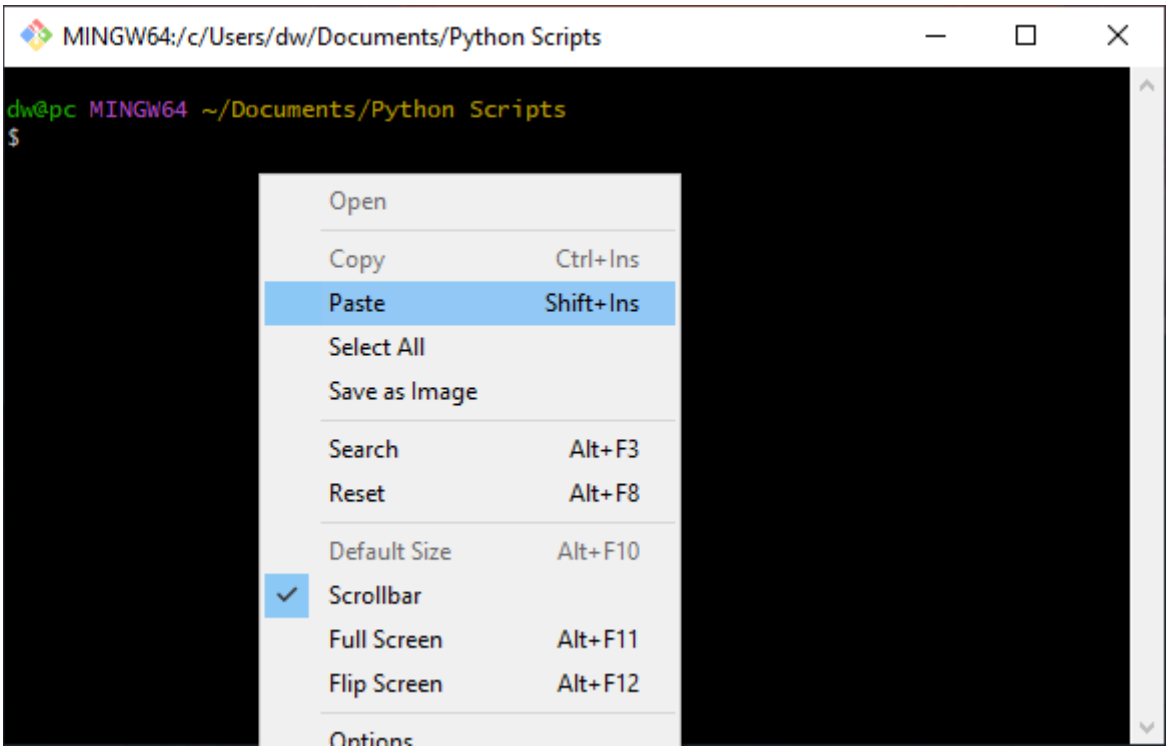
4. Install pycat

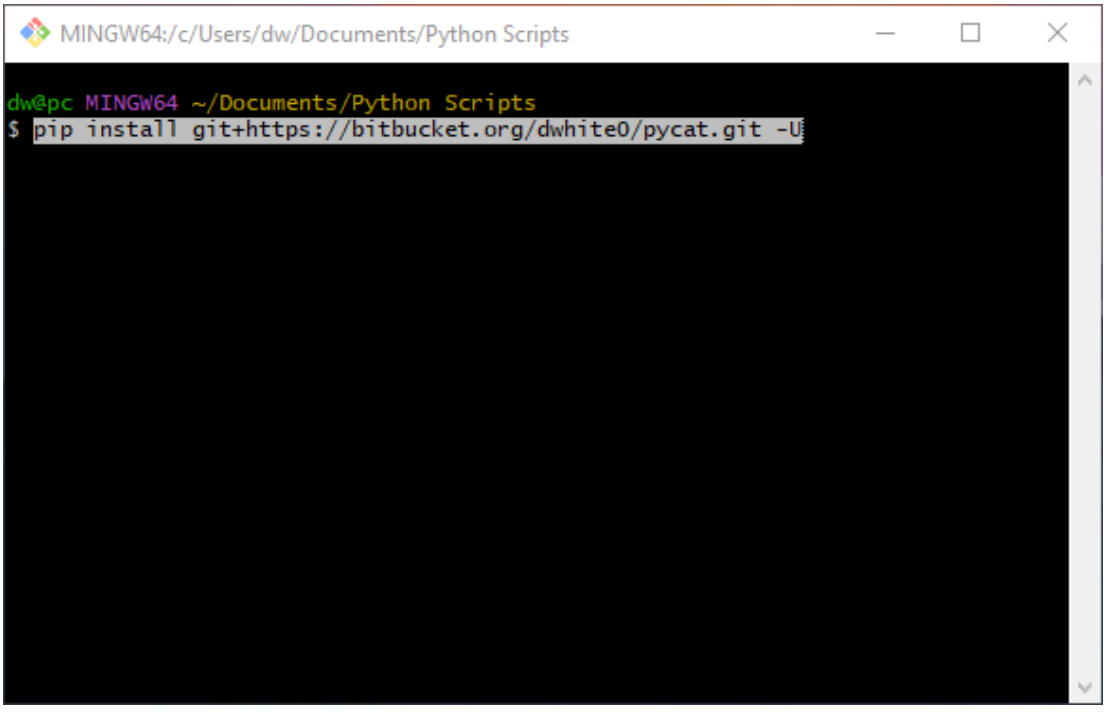
- Open your Documents folder and right-click on “Python Scripts”. Select “Git Bash Here”.

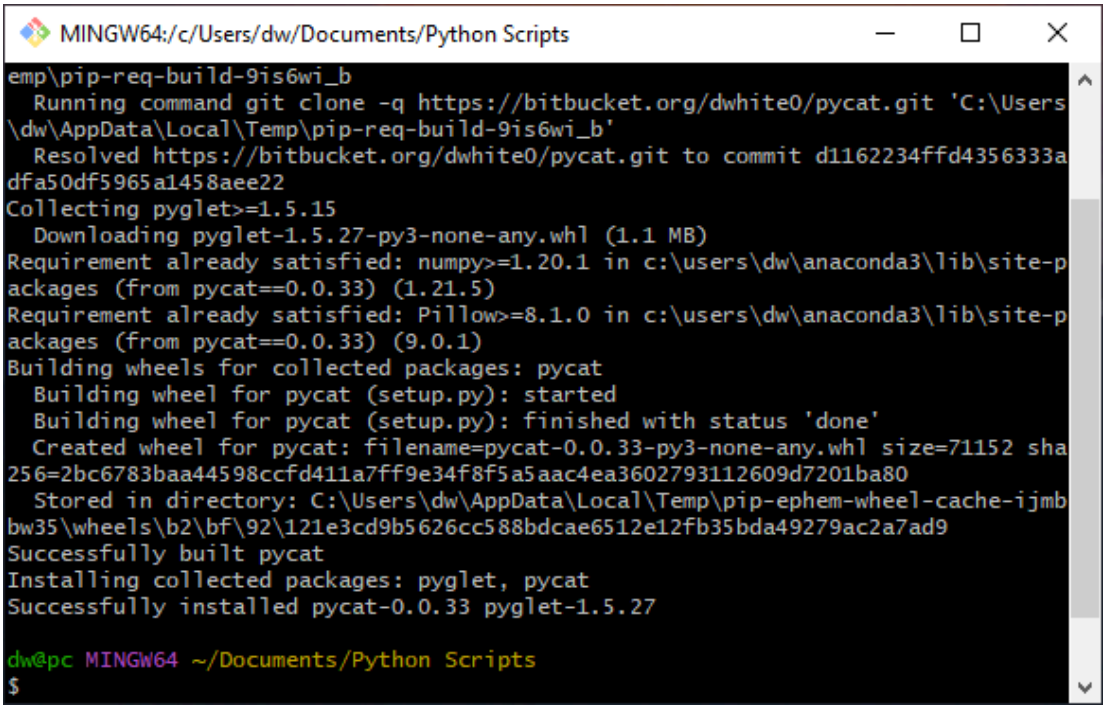


- Copy the green text below. Right-click in the window and choose paste. Press enter on the keyboard.

```
pip install git+https://bitbucket.org/dwhite0/pycat.git -U
```


MINGW64:/c/Users/dw/Documents/Python Scripts
dw@pc MINGW64 ~/Documents/Python Scripts
$
Open
Copy Ctrl+Ins
Paste Shift+Ins
Select All
Save as Image
Search Alt+F3
Reset Alt+F8
Default Size Alt+F10
Scrollbar
Full Screen Alt+F11
Flip Screen Alt+F12
Options


MINGW64:/c/Users/dw/Documents/Python Scripts
dw@pc MINGW64 ~/Documents/Python Scripts
$ pip install git+https://bitbucket.org/dwhite0/pycat.git -U



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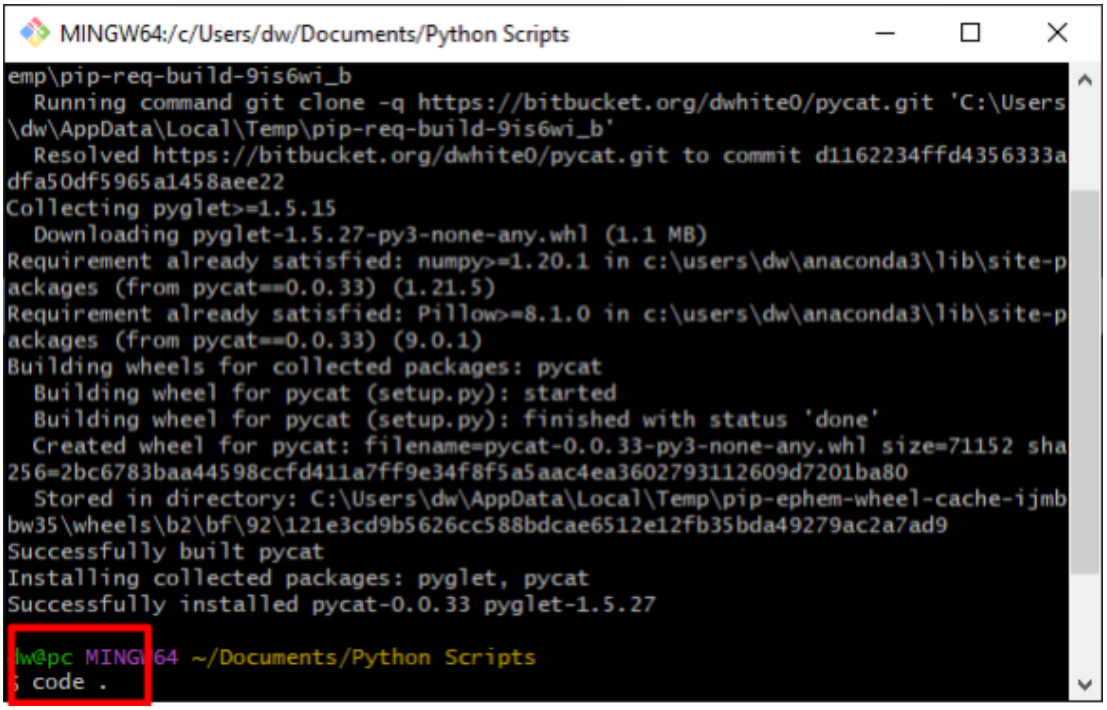
5. Setup VS Code

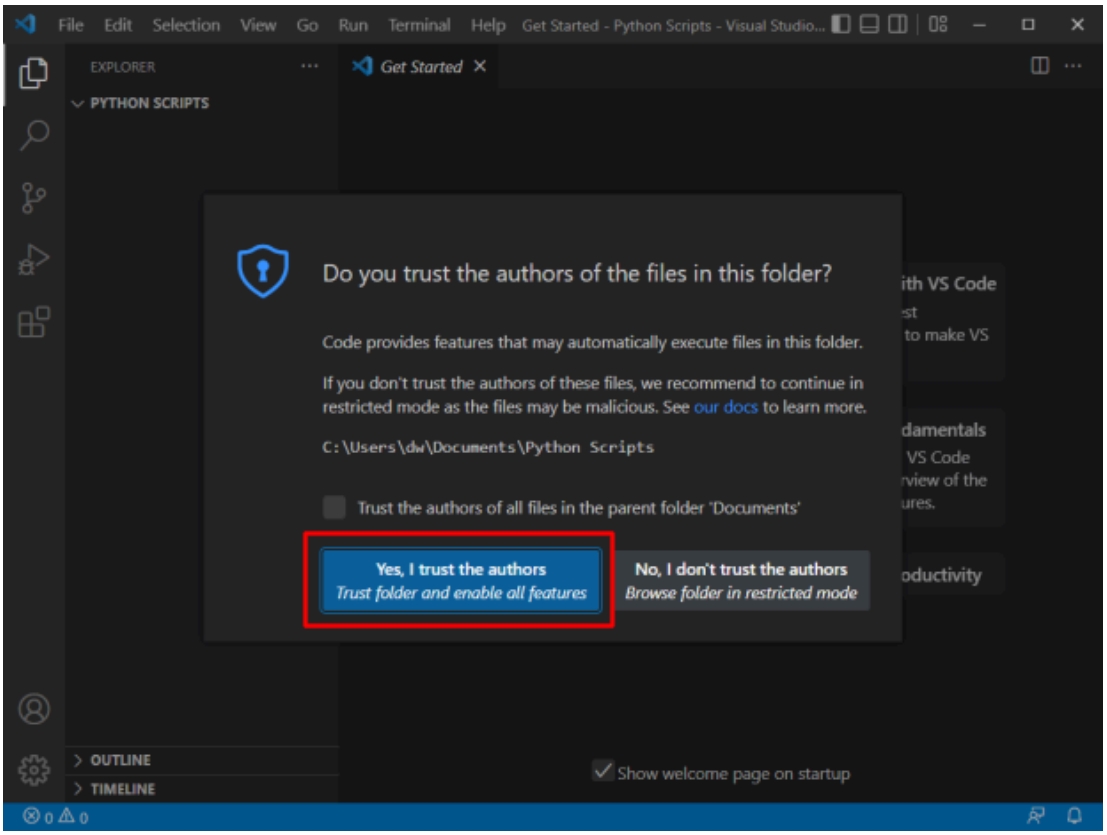
- In the window from the last step, type the green text below:

  `code .`

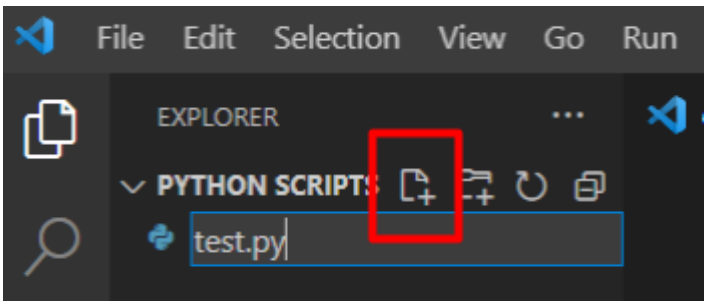
  and then press enter on the keyboard.



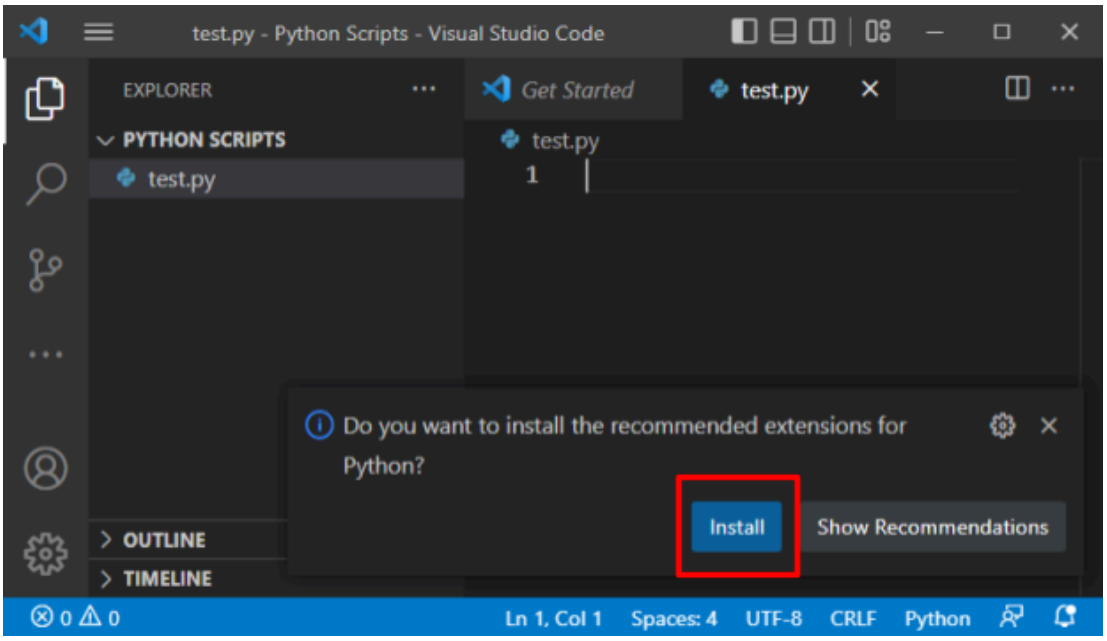
- VS code will open. Click “Yes, I trust the authors”.



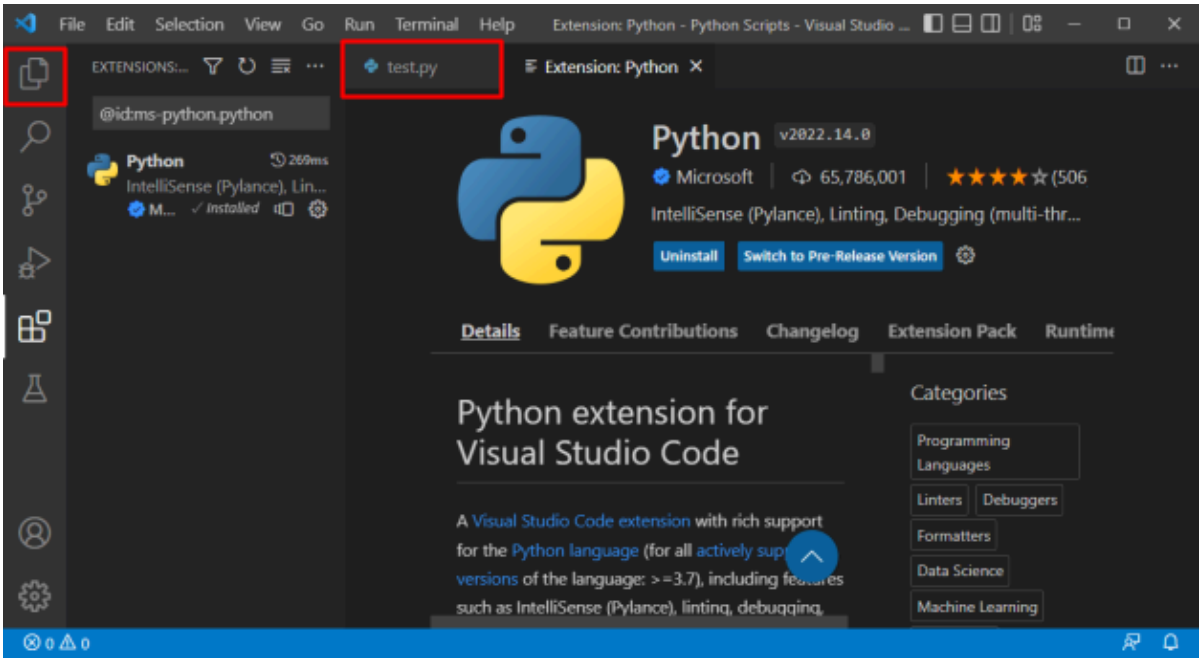
- Press the “New file button” and name the file `test.py`



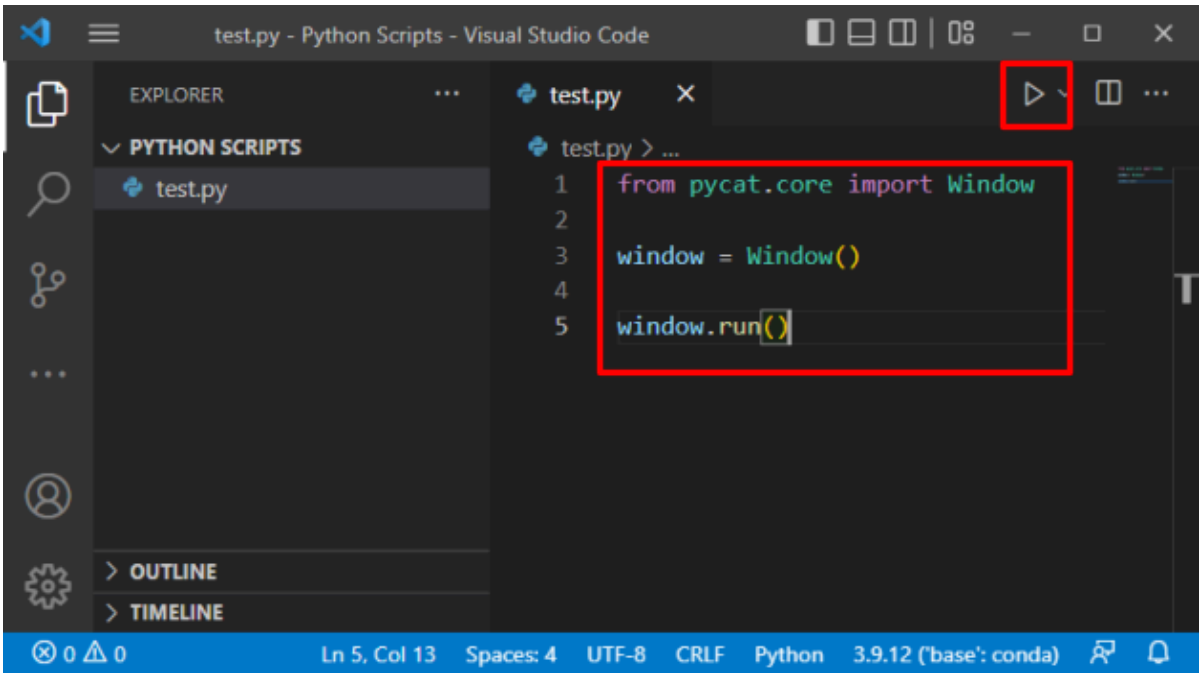
- After the new file opens, click “Install” on the Python extension popup.



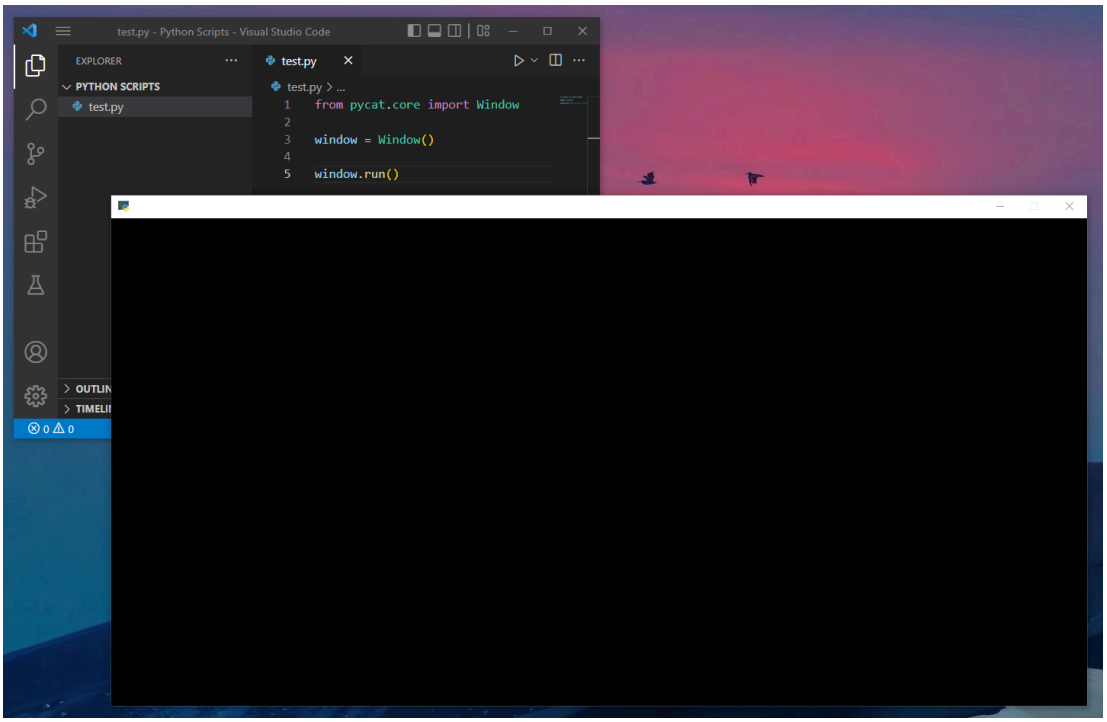
- After it has finished installing, click the files button to get back to your code.



- Type in the test program, then save by pressing “Ctrl + S” together. Finally, run the program by clicking the “play” button.



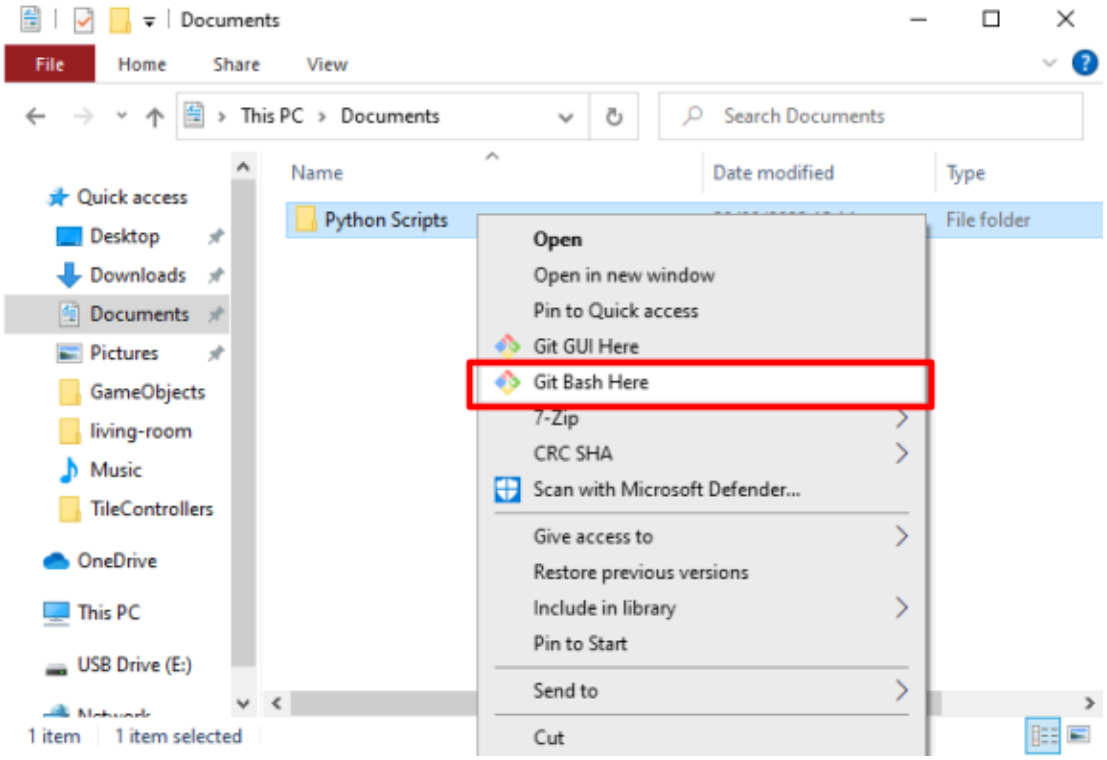
- You should see an empty black window appear. Congratulations! You have finished the installation.



Pycat Usage Guide

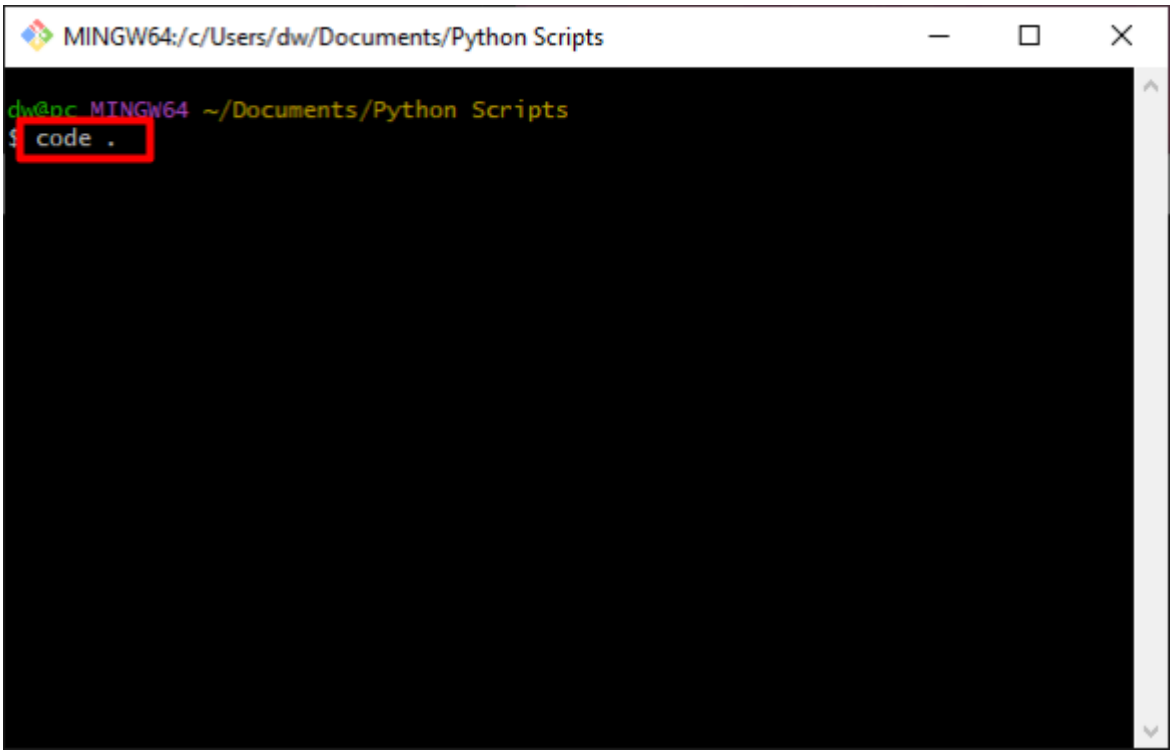
After you have completed the installation, you can start coding next time by following these steps.

- Open your Documents folder and right-click on “Python Scripts”. Select “Git Bash Here”.



- Type the green text below and then press enter on the keyboard.

```
code .
```

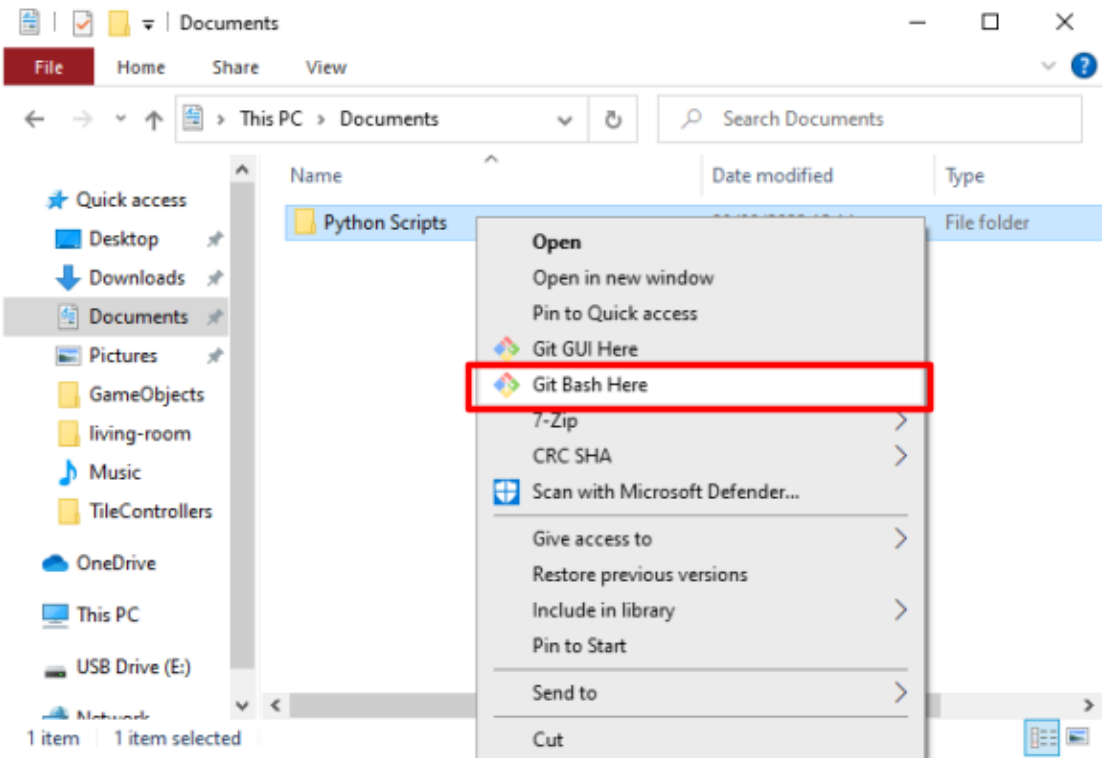


- VS Code will now open.

Pycat Upgrade Guide

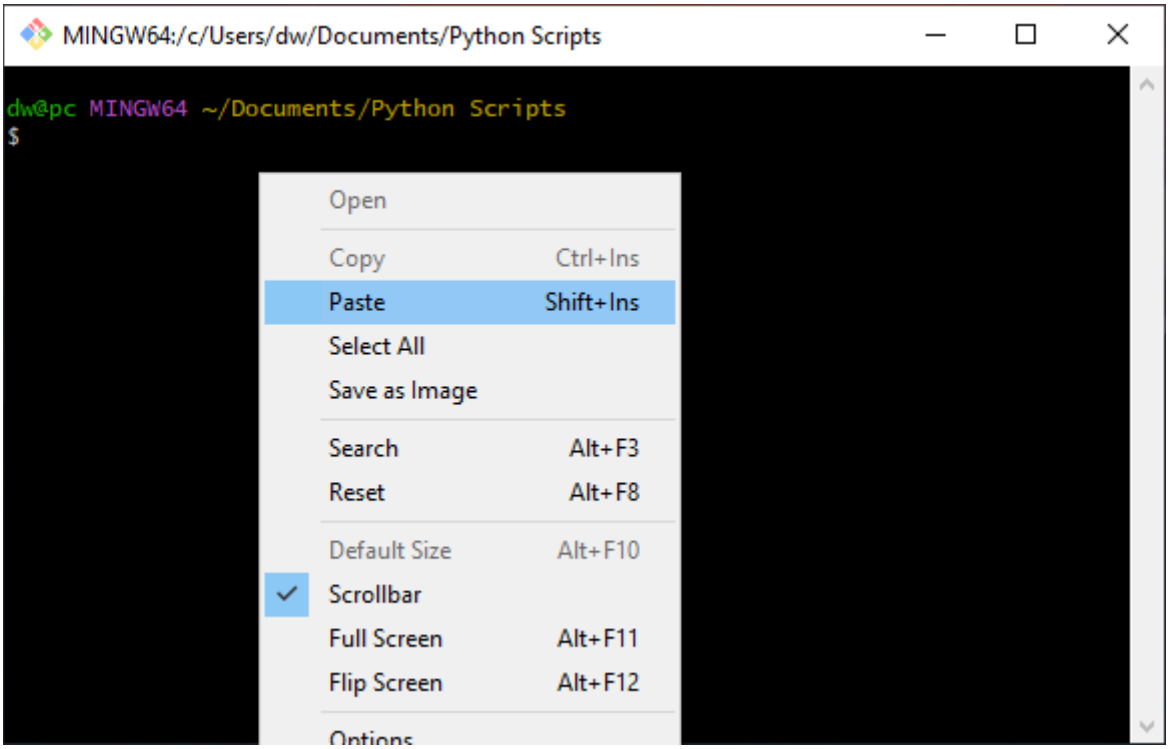
If you need to upgrade pycat to the latest version, please follow these steps.

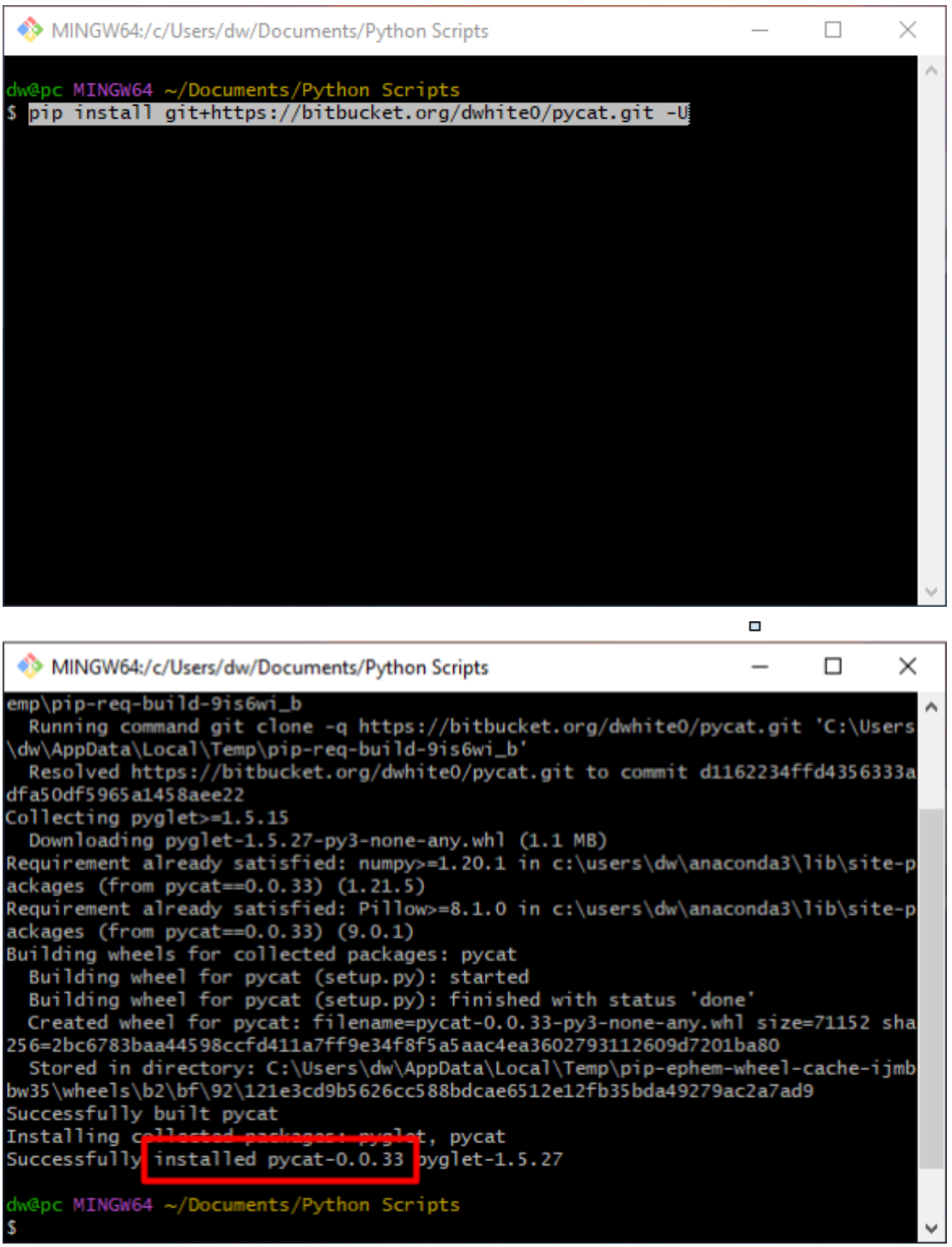
- Open your Documents folder and right-click on “Python Scripts”. Select “Git Bash Here”.



- Copy the green text below. Right-click in the window and choose paste. Press enter on the keyboard.

```
pip install git+https://bitbucket.org/dwhite0/pycat.git -U
```





- Your pycat is now up-to-date. You can check the version you have installed by looking at the red box above. In this case we have installed version 0.0.33.

Homework 1

Basic program in pycat

```python
from pycat.core import Window, Sprite, Scheduler, Color, RotationMode

window = Window()

class Elephant(Sprite):

    def on_create(self):
        self.scale = 100

    def on_update(self, dt):
        pass

window.create_sprite(Elephant)

window.run()
```

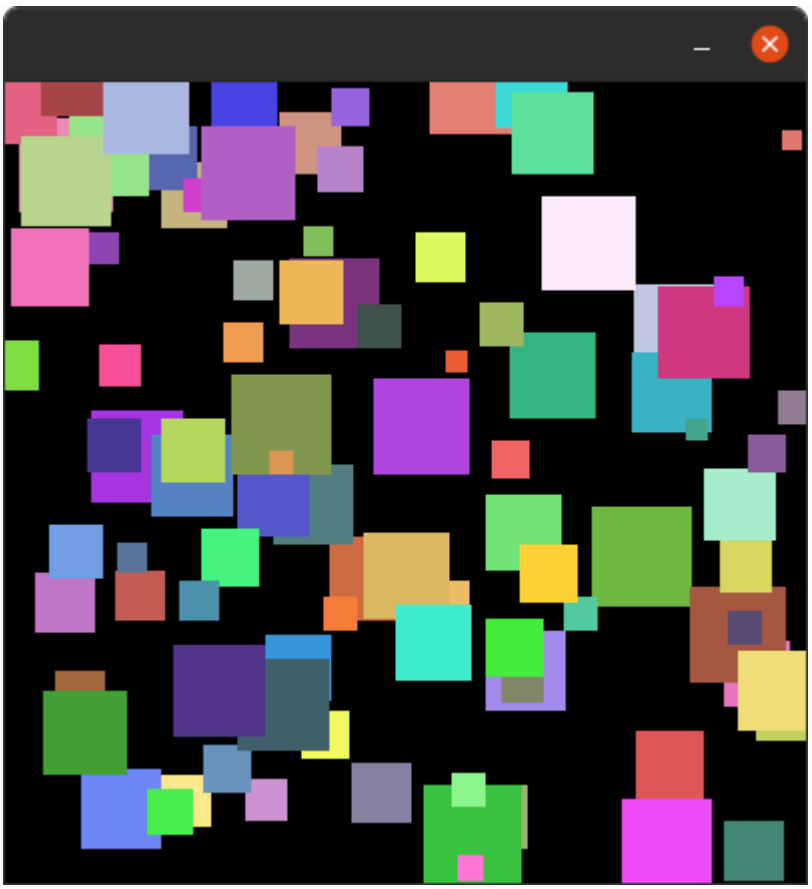
Part 1

Email to: peanuts.homework@gmail.com

Write a python program using **pycat** to create an output like the picture below.

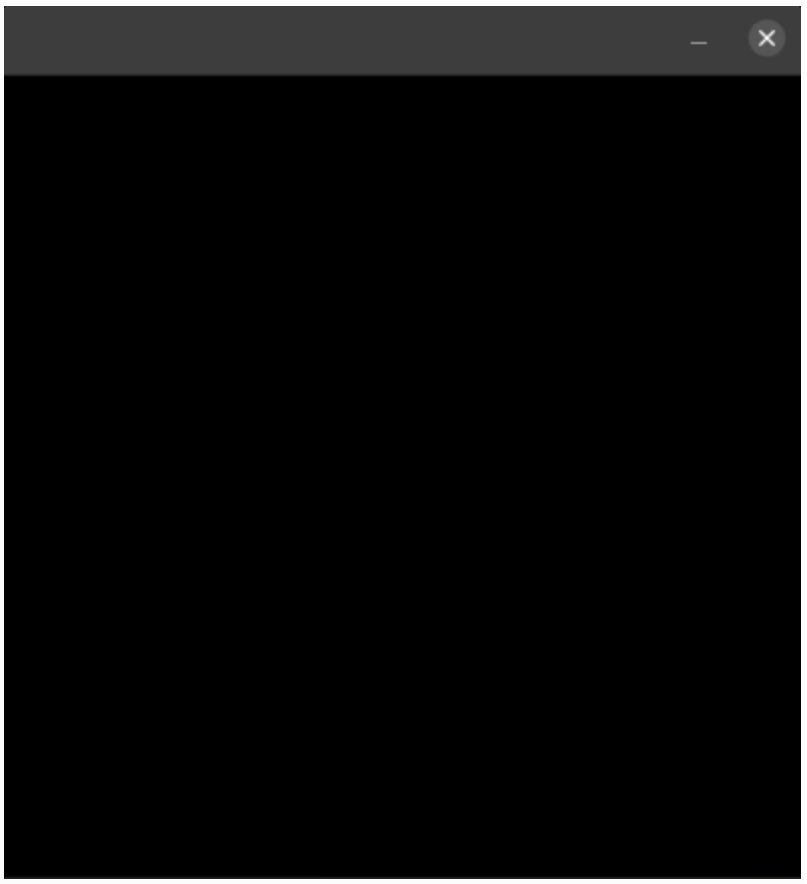
Hints:

- Use a `for` loop to create lots of sprites.
- Each sprite has a random position e.g. `self.go_to_random_position()`.
- Each sprite has a random scale, e.g. `self.scale = randint(a, b)`. Remember to add `from random import randint` to be able to use the `randint` function.
- Each sprite has a random color, e.g. `self.set_random_color()`.



Part 2

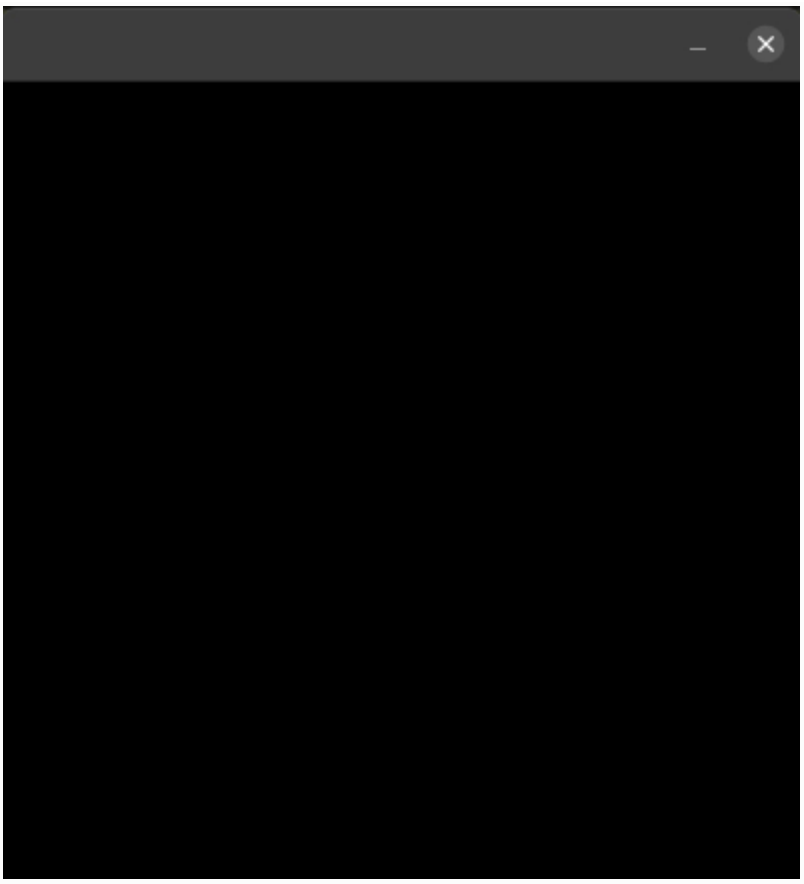
Extend your previous program so that the sprites slowly fall, as shown in the gif below.



Part 3

Extend your previous program, as shown in the gif below, so that:

- some of the sprites fall
- some of the sprites move to the left



Homework 2

Email to: peanuts.homework@gmail.com

Code snippet for Scheduler:

```
def create_particle():
    window.create_sprite(Particle)
Scheduler.update(create_particle, 1)
```

Code snippet to pick a random integer:

```
import random

class Particle(Sprite):
    def on_create(self):
        self.scale = random.randint(5,15)
```

Code snippet to make a random choice:

```
class Particle(Sprite):
    def on_create(self):
        dice = random.randint(1,2)
        if dice == 1:
            self.x = 200
        elif dice == 2:
            self.x = 400
```

Sprites

Rocket: https://www.kenney.nl/assets/space-shooter-extension
Planets: https://www.kenney.nl/assets/planets

Part 1

Write a pycat program to make an animation as in the video below. You should have a Rocket sprite and lots of Particle sprites for the rocket exhaust. You will need to use the scheduler.

https://drive.google.com/file/d/1ZMN96GpGqnVhUcujGWAjMMEBBJEJ8hv-/view?usp=share_link

Part 2

Extend your pycat program with rocket exhaust as in the video below.

https://drive.google.com/file/d/1hETZBCfNgND_5FM9sp_vt_gG-Il3L1JO/view?usp=share_link

Part 3

Extend your pycat program to add planets moving in the background. You will need to use the scheduler.

https://drive.google.com/file/d/1PFNqfTbyezh08ZSZHxJIpARn6XfQ5JH6/view?usp=share_link