# 1.Build Python environment

# 1. Install nano editor and Git

```
sudo apt-get install nano
sudo apt-get install git
```

# 2. Install wiringPi

1. Create a new folder to store the wiringPi source code, here we name it work

```
mkdir work
```

2. Enter the work folder

```
cd work/
```

3. Get wiringPi source code

```
git clone --recursive https://github.com/WiringPi/WiringPi-Python.git
```

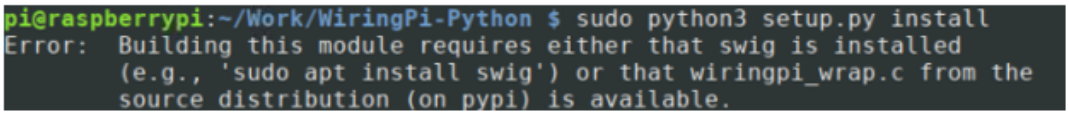
4. Enter the wiringPi folder

```
cd WiringPi-Python/
```

5. Run the installation instructions

```
sudo python3 setup.py install
```

If an error occurs as shown below, it means that swig is missing.




6. Run swig installation instructions

```
sudo apt-get install swig
```

7. Run the installation instructions again

```
sudo python3 setup.py install
```

# 3. Verification

1. Find the exemples file in the wiringPi-Python file and enter

```
cd examples/
```

```
pi@raspberrypi:~/work/WiringPi-Python $ cd examples/
pi@raspberrypi:~/work/WiringPi-Python/examples $ ls
callback.py       n5510-mcp23017.py    softpwm.py
delay.py          quick2wire-io.py     softtone.py
ladder-board.py   RUN_THESE_WITH_SUDO  two-mcp23017.py
```

2. Run the delay sample program given

```
python delay.py    #python2运行延迟程序 python3 delay.py #python3运行延时程序
```

If an error occurs in the program: parentheses are missing when calling "print", we can slightly modify the code.

```
pi@raspberrypi:~/work/WiringPi-Python/examples $ python3 delay.py
  File "delay.py", line 3
    print 'Hello World'
                ^
SyntaxError: Missing parentheses in call to 'print'. Did you mean print('Hello World')?
```

Enter delay.py file.

```
nano delay.py
# Demonstrates use of Arduino-like delay function import wiringpi print 'Hello
World' wiringpi.delay(1500) # Delay for 1.5 seconds print 'Hi again!'
```

We add parentheses after print.

```
# Demonstrates use of Arduino-like delay function import wiringpi print ('Hello
World') wiringpi.delay(1500) # Delay for 1.5 seconds print ('Hi again!')
```

After writing is completed, press the shortcut key to exit

"Ctrl+X"

The system will prompt you whether you need to save, press Y and press Enter to save and exit.

"Y"

Run the terminal command again, first print out Hello World and about 1.5 seconds later print out Hi again!

```
pi@raspberrypi:~/work/WiringPi-Python/examples $ python3 delay.py
Hello World
Hi again!
```

3. Check the Raspberry Pi pin information

```
gpio readall
```

```
pi@raspberrypi:~/work/WiringPi-Python/examples $ gpio readall
 +-----+-----+---------+------+---+---Pi 4B--+---+------+---------+-----+-----+
 | BCM | wPi |   Name  | Mode | V | Physical | V | Mode | Name    | wPi | BCM |
 +-----+-----+---------+------+---+----++----+---+------+---------+-----+-----+
 |     |     |    3.3v |      |   |  1 || 2  |   |      | 5v      |     |     |
 |   2 |   8 |   SDA.1 |   IN | 1 |  3 || 4  |   |      | 5v      |     |     |
 |   3 |   9 |   SCL.1 |   IN | 1 |  5 || 6  |   |      | 0v      |     |     |
 |   4 |   7 | GPIO. 7 |   IN | 1 |  7 || 8  | 1 | IN   | TxD     | 15  | 14  |
 |     |     |      0v |      |   |  9 || 10 | 1 | IN   | RxD     | 16  | 15  |
 |  17 |   0 | GPIO. 0 |   IN | 0 | 11 || 12 | 0 | IN   | GPIO. 1 | 1   | 18  |
 |  27 |   2 | GPIO. 2 |   IN | 0 | 13 || 14 |   |      | 0v      |     |     |
 |  22 |   3 | GPIO. 3 |   IN | 0 | 15 || 16 | 0 | IN   | GPIO. 4 | 4   | 23  |
 |     |     |    3.3v |      |   | 17 || 18 | 0 | IN   | GPIO. 5 | 5   | 24  |
 |  10 |  12 |    MOSI |   IN | 0 | 19 || 20 |   |      | 0v      |     |     |
 |   9 |  13 |    MISO |   IN | 0 | 21 || 22 | 0 | IN   | GPIO. 6 | 6   | 25  |
 |  11 |  14 |    SCLK |   IN | 0 | 23 || 24 | 1 | IN   | CE0     | 10  | 8   |
 |     |     |      0v |      |   | 25 || 26 | 1 | IN   | CE1     | 11  | 7   |
 |   0 |  30 |   SDA.0 |   IN | 1 | 27 || 28 | 1 | IN   | SCL.0   | 31  | 1   |
 |   5 |  21 | GPIO.21 |   IN | 1 | 29 || 30 |   |      | 0v      |     |     |
 |   6 |  22 | GPIO.22 |   IN | 1 | 31 || 32 | 0 | IN   | GPIO.26 | 26  | 12  |
 |  13 |  23 | GPIO.23 |   IN | 0 | 33 || 34 |   |      | 0v      |     |     |
 |  19 |  24 | GPIO.24 |   IN | 0 | 35 || 36 | 0 | IN   | GPIO.27 | 27  | 16  |
 |  26 |  25 | GPIO.25 |   IN | 0 | 37 || 38 | 0 | IN   | GPIO.28 | 28  | 20  |
 |     |     |      0v |      |   | 39 || 40 | 0 | IN   | GPIO.29 | 29  | 21  |
 +-----+-----+---------+------+---+----++----+---+------+---------+-----+-----+
 | BCM | wPi |   Name  | Mode | V | Physical | V | Mode | Name    | wPi | BCM |
 +-----+-----+---------+------+---+---Pi 4B--+---+------+---------+-----+-----+
```