

# Python Coding



<https://pellcorp.github.io/coding/docs/python-coding.pdf>

# What is Python



- A programming language which is very popular, especially for beginners.
- We are going to learn by doing, including playing with and changing sample code.
- What are we going to do:
  - Output – printing to the console
  - Variables
  - Conditional Statements
  - Loops

# Python - Variables



- Strings
  - “Hello World”
- Integer Numbers
  - Are whole numbers, numbers without decimal points
- Floating Point Numbers
  - Are numbers with a decimal points.
- Booleans
  - True or False
  - Boolean arithmetic
- Lists
  - A way to group values into a structure, so that python can operate on them together, an example would be:
    - `states = ['VIC', 'NSW', 'TAS', 'SA', 'NT', 'QLD', 'WA']`

# Python If Statements



- We are going to be playing with IF statements today, they look like this:

```
if <condition>:  
    statement
```

```
elif <condition>:  
    statement
```

```
else:  
    statement
```

- Don't worry too much about understanding it all, hopefully once we start hacking on the samples some of it will become a bit clearer.

# Python If Statement Conditions

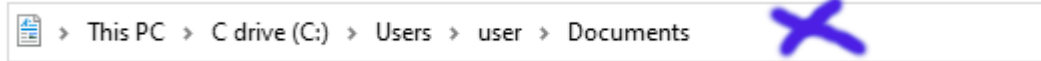


- A condition is something that evaluates to true or false, and example would be.
- A condition is of the format:
  - value or variable **<operator>** value or variable
- Condition **operators** include:
  - **==** equals
  - **!=** not equals
  - **>** greater than
  - **>=** greater than or equal
  - **<** less than
  - **<=** less than or equal
  - **in** value in a list or string.
  - **not in** value not in a list or string

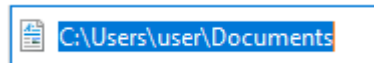
# File Path Tips



- Windows Explorer location bar has a nice feature to make it easy to navigate to the same folder in Windows Terminal
- Click to the right of the last folder in the location bar (X marks the spot)



- You can then copy the File Path using CTRL key + C key



- In windows terminal, you can **cd** to that folder, by typing **cd** and then **CTRL** key + **V** key to paste the path you copied from Windows Explorer.

```
C:\Windows\system32\cmd.exe

Z:\Home>cd C:\Users\user\Documents
Z:\Home>c:
C:\Users\user\Documents>cd C:\Users\user\Documents
C:\Users\user\Documents>
```

- If your current path in Windows Explorer starts with a different letter to the path you copied from Windows Explorer, remember to switch to the same drive
- For this example, notice I had to change to the C: drive from the Z: drive in order to cd to C:\Users\user\Documents!

# Windows Terminal Tips



- In windows Terminal you can use the arrow keys

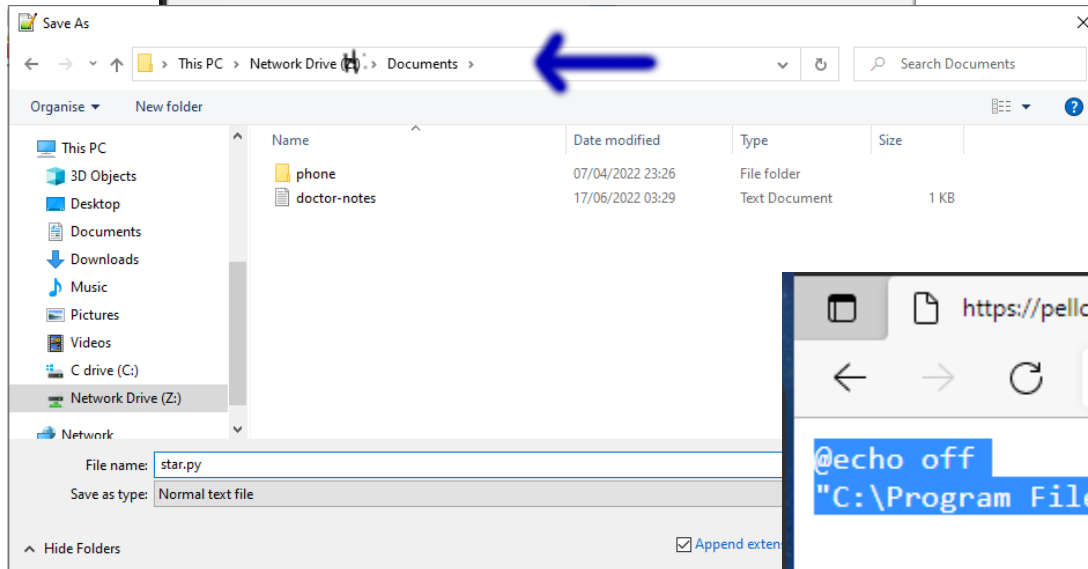
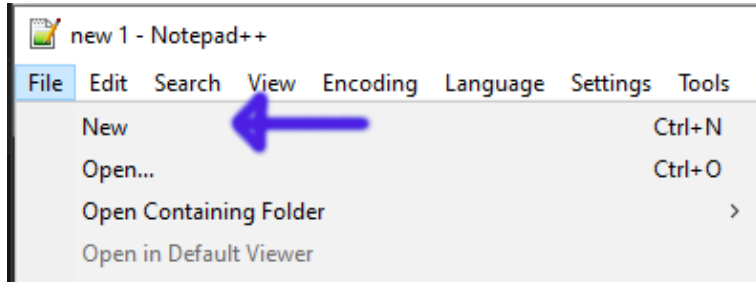


- The up and down arrows can be used to use previous commands
- The left and right arrows can be used to edit a command in place.
- The TAB key can be used for command completion.
- For instance, I want to change to the Documents folder, I can type **cd Do** and then the TAB key and CMD will complete the command for me
- CTRL key + V key can be used in Terminal to paste text you have previously copied

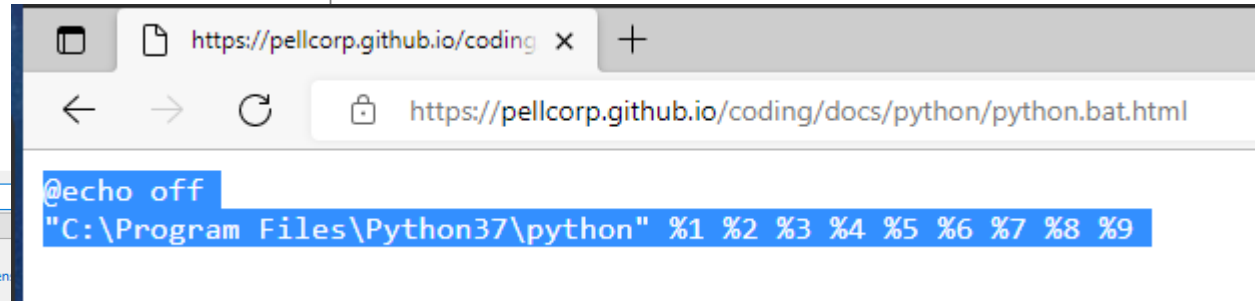
# Notepad++ – A new File



- Click the File → New



- Open Chrome or Edge (not firefox!!!)
- Visit: <https://coding.pellcorp.com>
- Click on the **python.bat** link
- Select all the code by using **CTRL** key and **A** key
- Copy the selected code by using **CTRL** key and **C** key
- Back to Notepad++
- Paste the code using **CTRL** key and **V** key





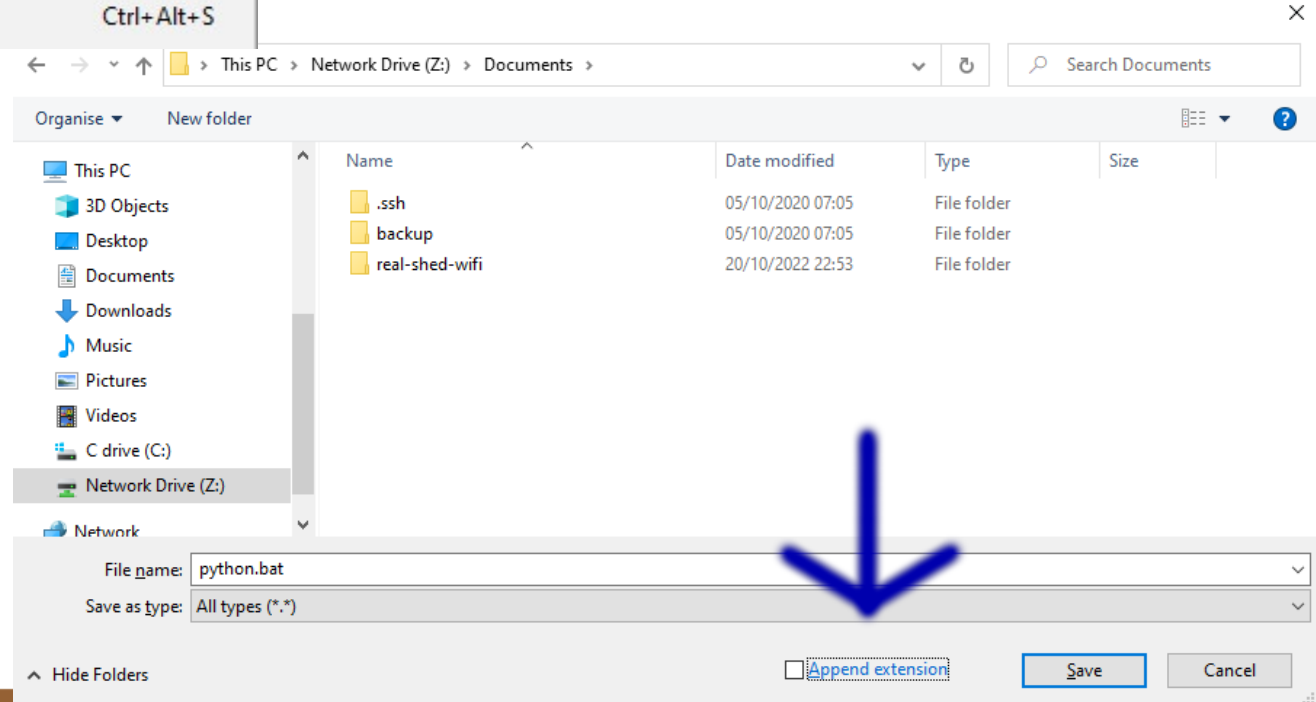
# Notepad++ - Save a File to H:\Documents



- Click File → Save As



- Save it as H:\Documents\python.bat
- Make sure to uncheck Append extension!!!



## Download hello.py



- We are going to test that our python.bat is working, by downloading the very simple python hello.py!
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# Running Python from Windows Terminal



- Remember Windows Terminal?
- Windows Key + R
- Then **cmd** and Enter
- Change the drive letter to H: by typing **H:** and **Enter** key.
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# Samples



- The samples are available here:

<https://pellcorp.github.io/coding/docs/python/intro/>

- [1-hello.py](#)
- [2-variables.py](#)
- [3-boolean-condition.py](#)
- [4-string-condition.py](#)
- [5-int-condition.py](#)
- [6-float-condition.py](#)
- [7-list-condition.py](#)
- [8-list-loop.py](#)

# Exercises



- Run the hello.py
  - Change the text that is printed to the VSC Terminal window
- Hack the following scripts:
  - string-condition.py
  - int-condition.py
  - float-condition.py
  - boolean-condition.py
  - list-condition.py
- Change the code so that it prints different message(s) in elif and else statements.
- Run the turtle/star.py
  - See if you can get it to draw different things, for help go to:  
<https://docs.python.org/3/library/turtle.html>