

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

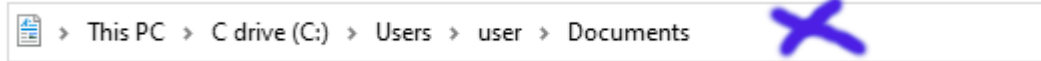


- A condition is something that evaluates to true or false, and example would be.
- A condition is of the format:
 - value or variable **<operator>** value or variable
- Condition **operators** include:
 - **==** equals
 - **!=** not equals
 - **>** greater than
 - **>=** greater than or equal
 - **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

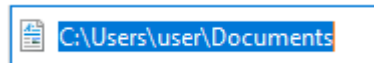
File Path Tips



- 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

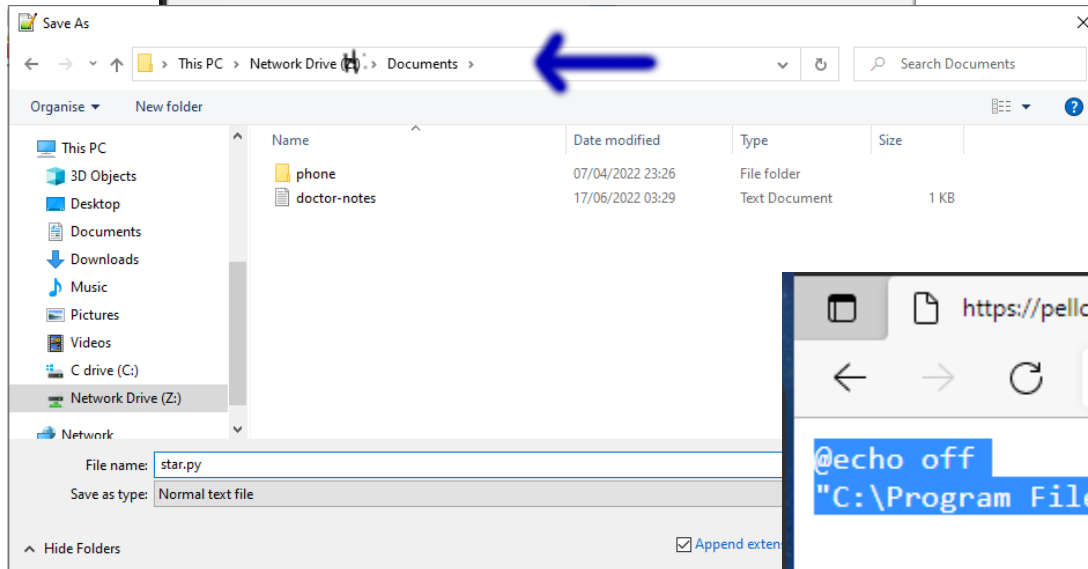
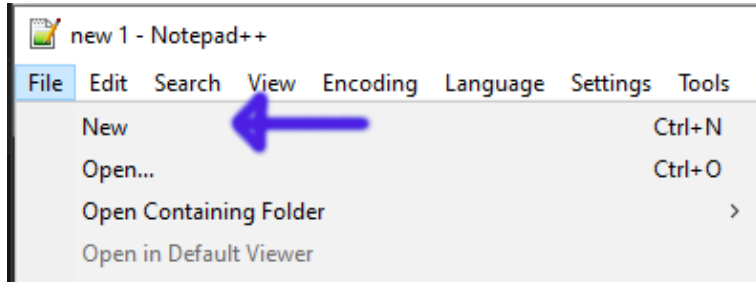


- The up and down arrows can be used to use previous commands
- The left and right arrows can be used to edit a command in place.
- The TAB key can be used for command completion.
- For instance, I want to change to the Documents folder, I can type **cd Do** and then the TAB key and CMD will complete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

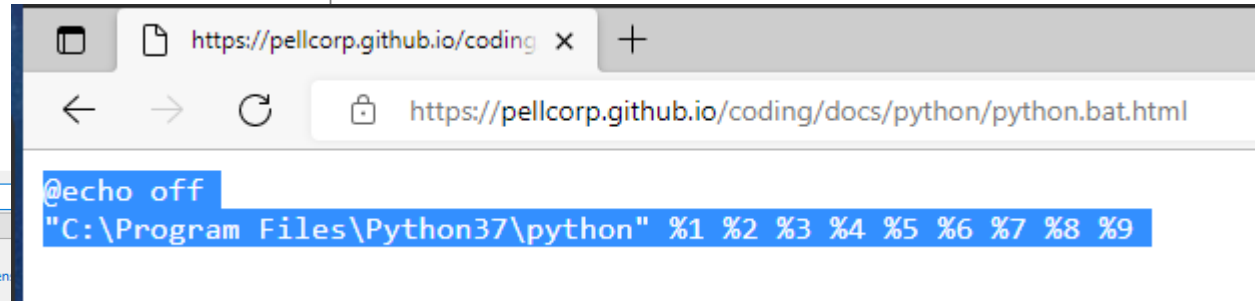
Notepad++ – A new File



- 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



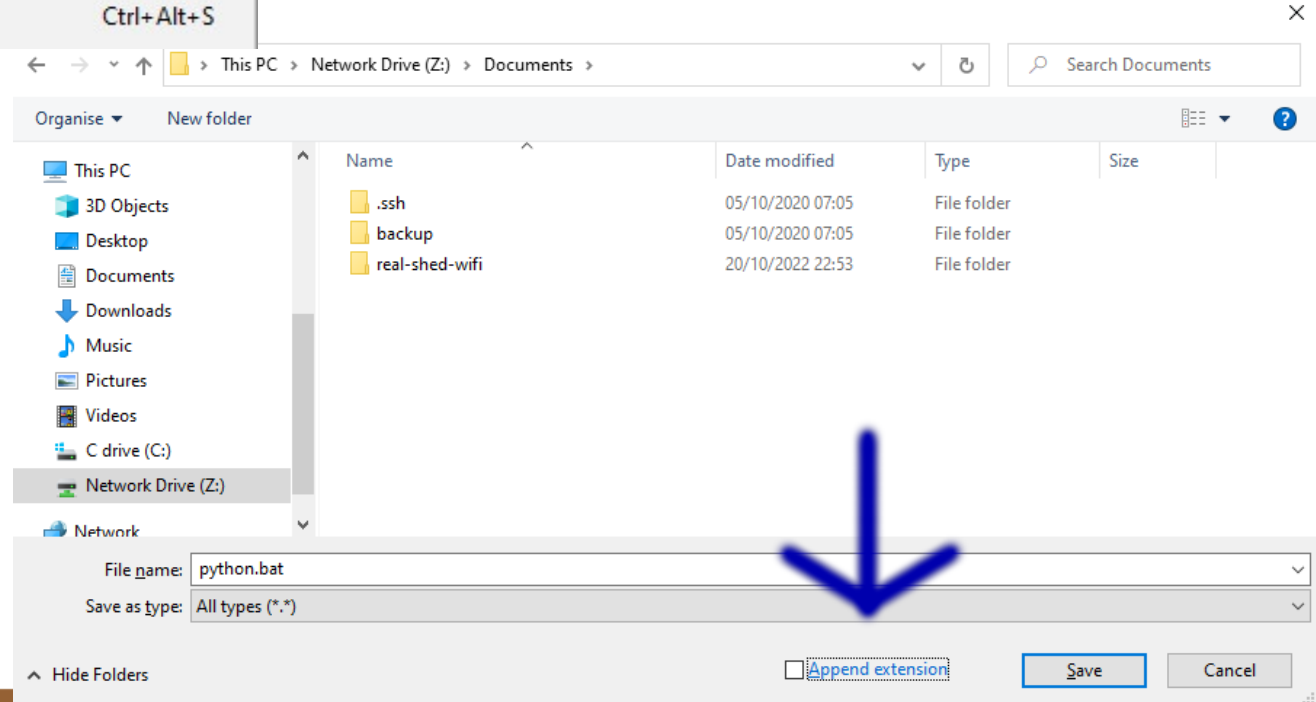
Notepad++ - Save python.bat to H:\Documents



- Click File → Save As



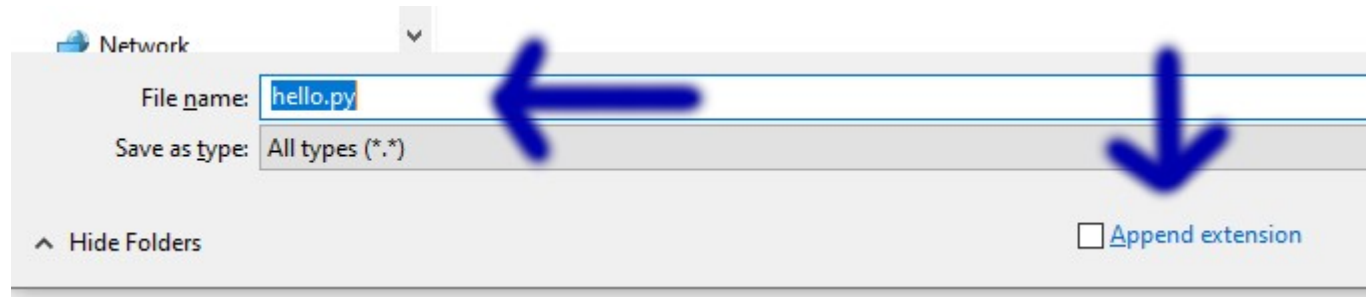
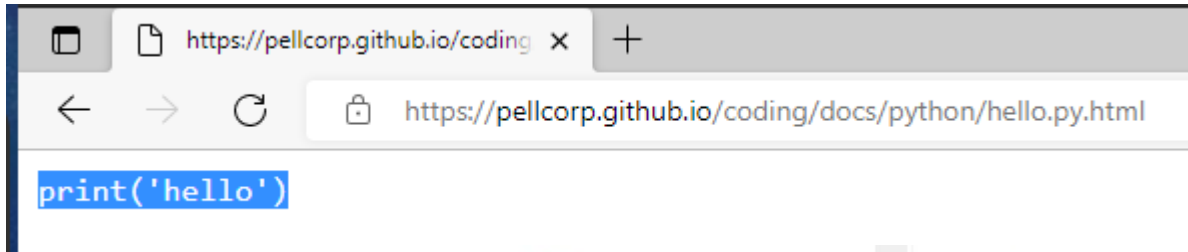
- Save it as H:\Documents\python.bat
- Make sure to uncheck Append extension!!!



Download hello.py



- Do as for python.bat, but this time click the **hello.py** link
- Save to H:\Documents\hello.py
- Uncheck Append extension!



Running Python from Windows Terminal



- Remember Windows Terminal?
- **Windows** Key + **R** Key
- Then **cmd** and **Enter** key

Change the drive letter to H: by typing **H:** and **Enter** key

- Run the hello.py with python.bat:

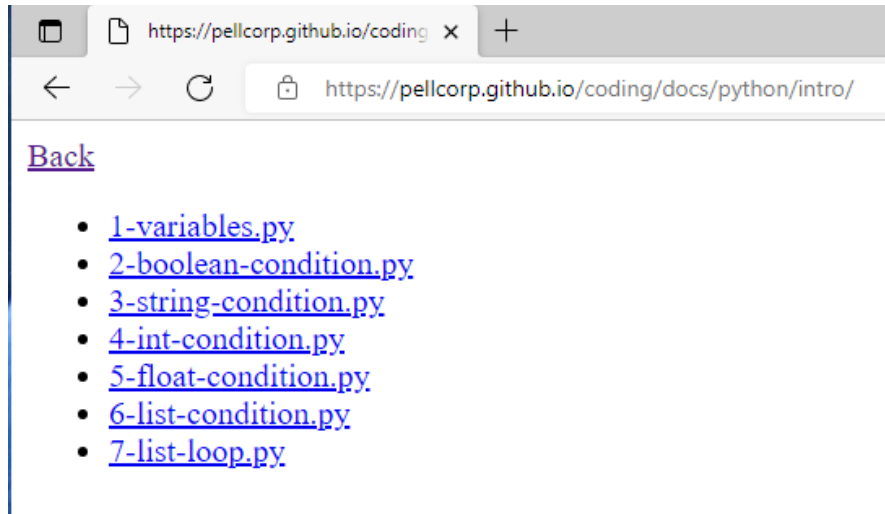
```
C:\Windows\system32\cmd.exe
H:\Documents>python.bat hello.py
hello
H:\Documents>
```

Samples



- The samples are available here:

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



- Save these scripts to H:\Documents:

- 2-boolean-condition.py
- 3-string-condition.py
- 4-int-condition.py
- 5-float-condition.py
- 6-list-condition.py
- 7-list-loop.py

Exercises



- Hack the hello.py
 - Change the text that is printed from 'hello' to whatever you want, just be sure to keep the single quotes!
 - See what happens if you remove the quotes!?
- Hack the condition scripts:
 - 2-boolean-condition.py
 - 3-string-condition.py
 - 4-int-condition.py
 - 5-float-condition.py
 - 6-list-condition.py
- Change the code so that it prints different message(s) in elif and else statements.
- Hack the 7-list-loop.py script