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.
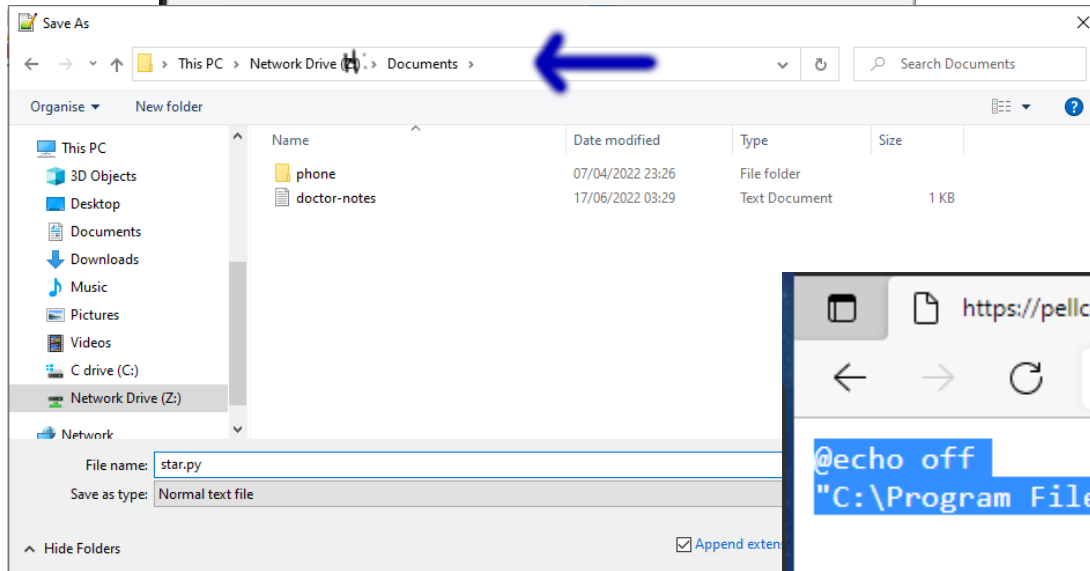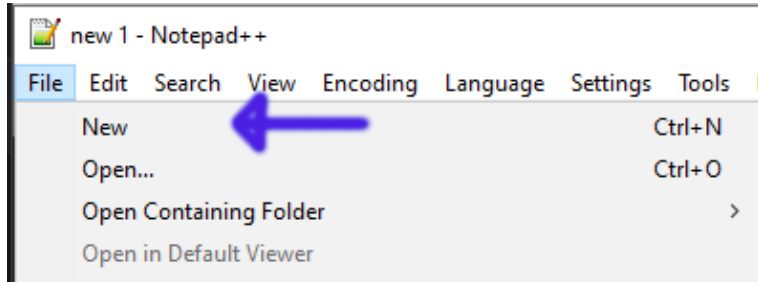
Python If Statement Conditions

- 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 **operator**s include:
  - **==** equals
  - **!=** not equals
  - **>** greater than
  - **>=** greater than or equal
  - **<** less than
  - **<=** less than or equal
  - **in** value in a list or string.
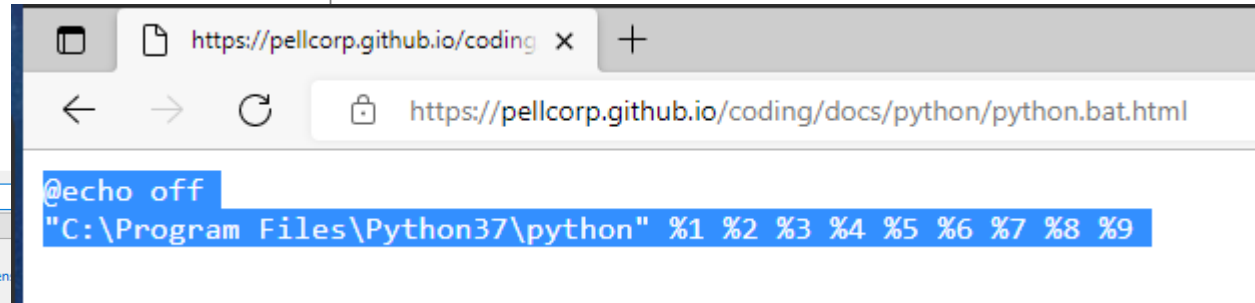 - **not in** value not in a list or string

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++

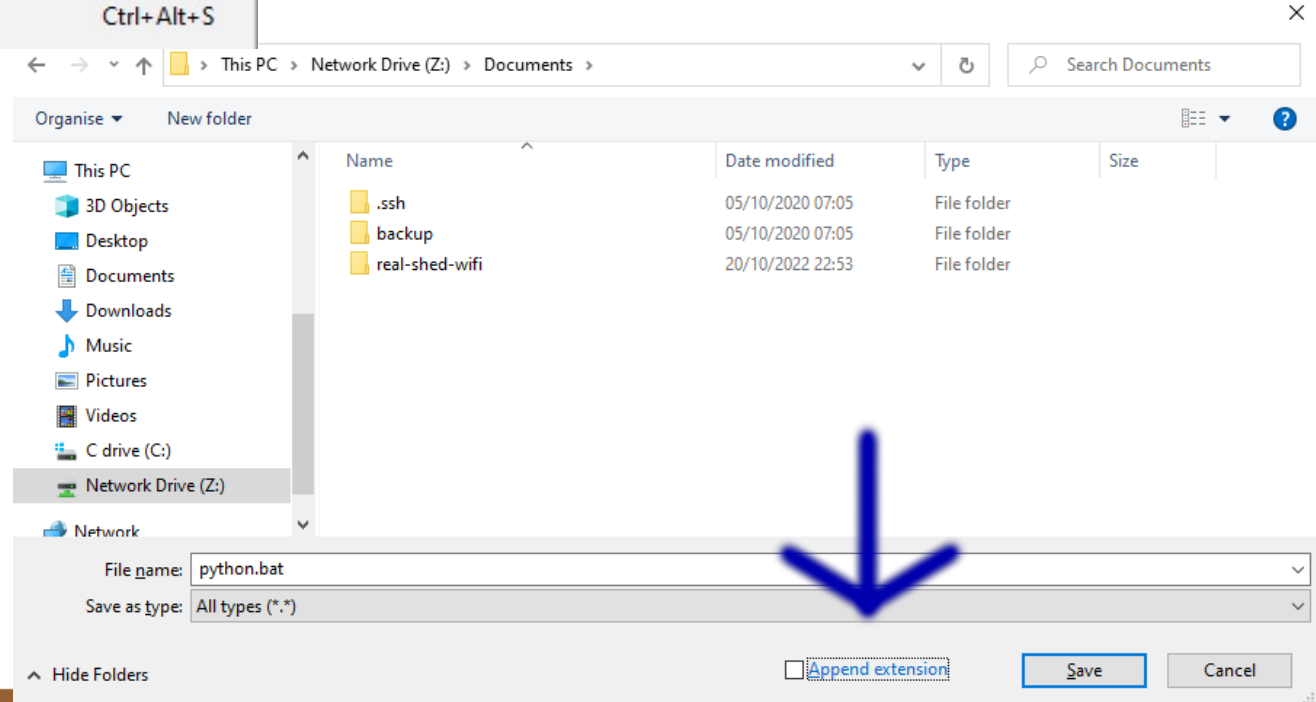- Paste the code using **CTRL** key and **V** key

Notepad++ - Save python.bat to H:\Documents
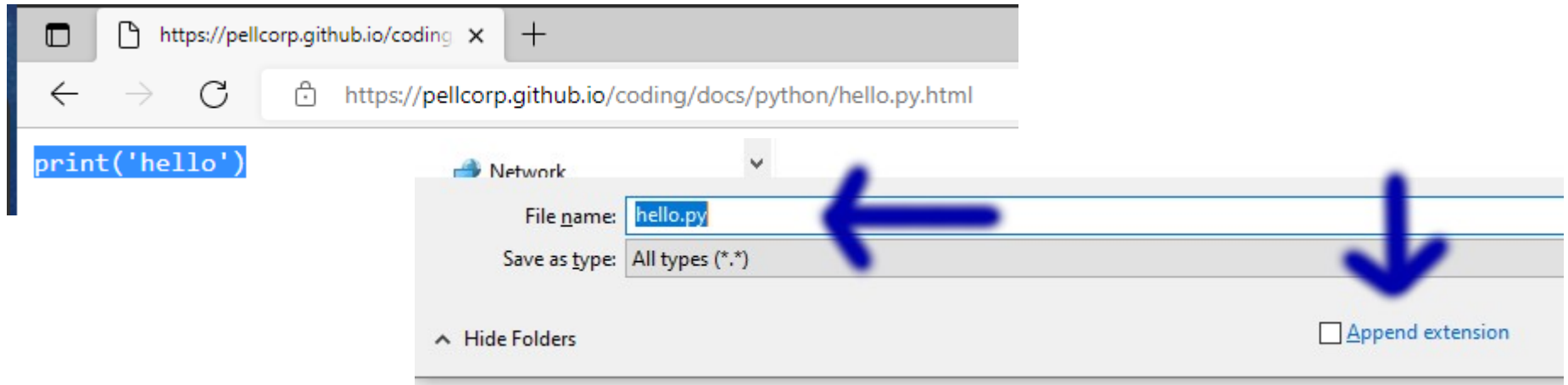
- Click File → Save As

- Save it as H:\Documents\python.bat

- Make sure to uncheck Append extension!!!

Download hello.py

- 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

- Change to H:\Documents by typing **cd Documents** and **Enter** key

- Run the hello.py with python.bat:

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19044.1288]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\user>H:

H:\>cd Documents

H:\Documents>

H:\Documents>python.bat hello.py
hello
```

Windows Terminal Tips
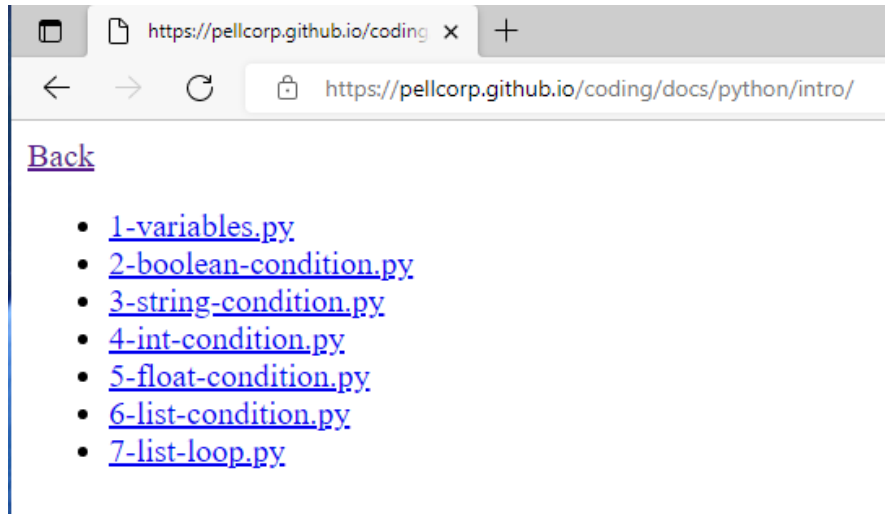
- In windows Terminal you can use the arrow keys

- 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

Samples

- The samples are available here:

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

- Save these scripts to H:\ Documents:
  - 1-variables.py
  - 2-boolean-condition.py
  - 3-string-condition.py
  - 4-int-condition.py
  - 5-float-condition.py
  - 6-list-condition.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!?

- Run the 1-variables.py

    – See how each of the different types of variables is printed, hack around with it if you like :-)

- 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.