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"

- Whole Numbers (ints)
  - Numbers without decimal points

- Decimal Numbers (floats)
  - 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']

  - Don't worry too much about these, hopefully the sample lately will make a bit more sense

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

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

Save hello.py to H:\Documents

- Open Chrome or Edge

- Type **coding.pellcorp.com** into the location bar and hit the **Enter** key.

- Click on the **hello.py** link
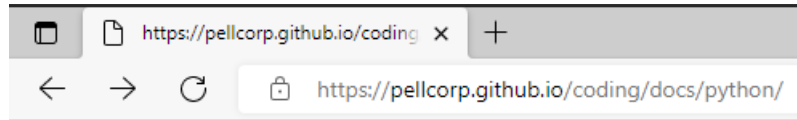
- Select all the code by using **CTRL** key and **A** key
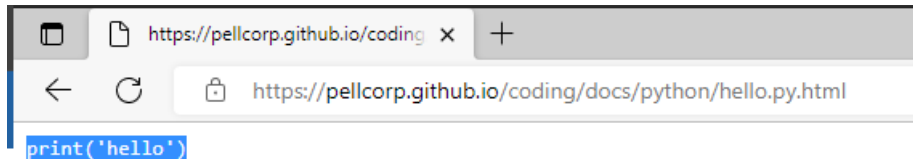
- Copy the selected code by using **CTRL** key and **C** key

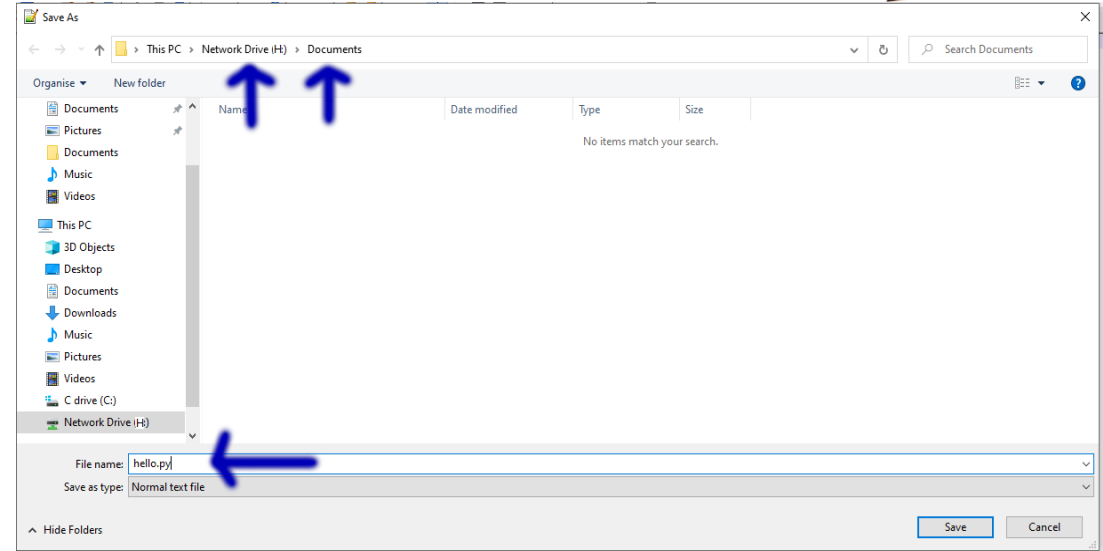- Back to Notepad++

- Use **File → New** to open a new tab
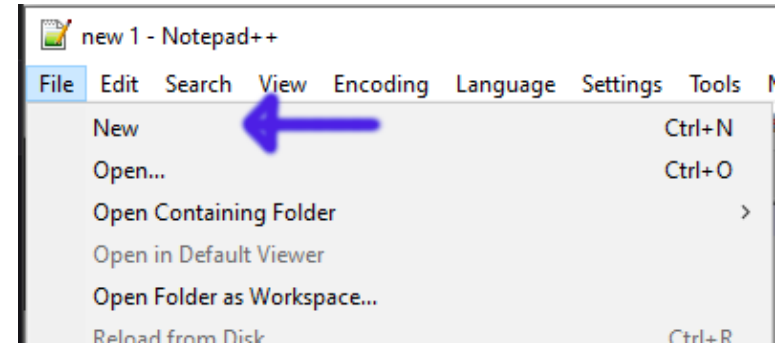
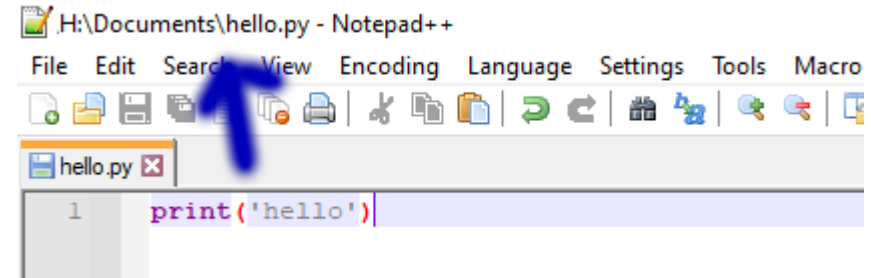- Paste the code into the new Notepad++ tab using **CTRL** key and **V** key

Save hello.py to H:\Documents Cont.

- Click File → Save As

- Save to **H:\Documents** folder with **hello.py** as the File name

- You should now see **H:\Documents\hello.py** at the top of Notepad++

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

```
Command Prompt

Microsoft Windows [Version 10.0.19045.2130]
(c) Microsoft Corporation. All rights reserved.

C:\Users\user>H:

H:\>cd Documents

H:\Documents>_
```
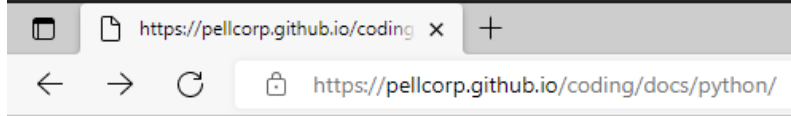
Run hello.py

"C:\Program Files\Python37\python.exe" hello.py
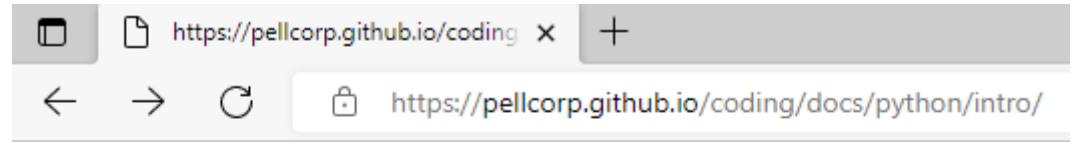
Intro Python Samples

- Open Chrome or Edge

- Type **coding.pellcorp.com** into the location bar and hit the **Enter** key.

- Click on the **intro** link

- The samples should be displayed in your browser like this:

Save 1-variables.py to H:\Documents

- Open Chrome or Edge

- Type **coding.pellcorp.com** into the location bar and hit the **Enter** key.
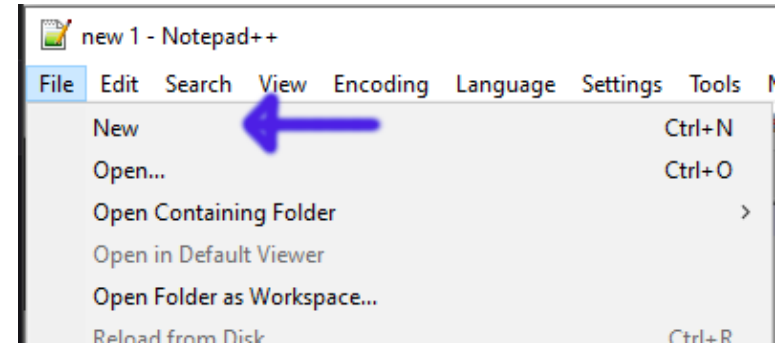
- Click on the **1-variables.py** link

- 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++
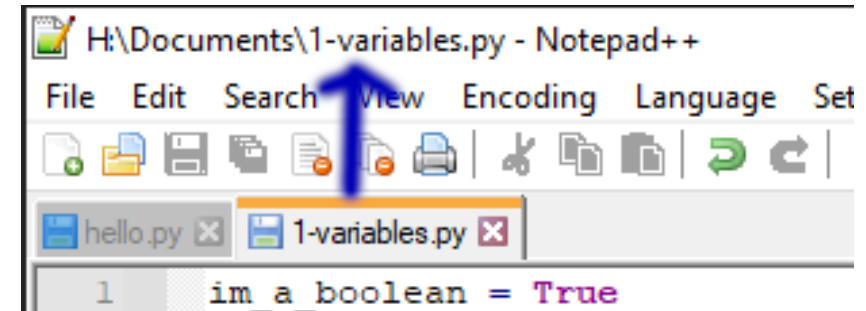
- Use **File → New** to open a new tab

- Paste the code into the new Notepad++ tab using **CTRL** key and **V** key

Save 1-variables.py to H:\Documents Cont.

- Click File → Save As

Reload from Disk	Ctrl+R
Save	Ctrl+S
Save As...	Ctrl+Alt+S
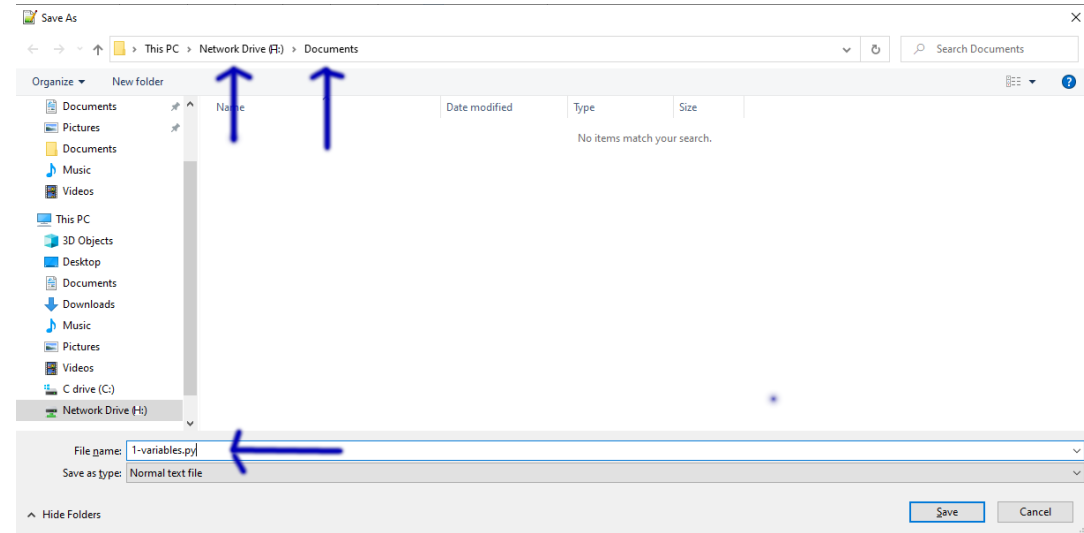
- Save to **H:\Documents** folder with **hello.py** as the File name

- You should now see **H:\Documents\1-variables.py** at the top of Notepad++

Run 1-variables.py

`"C:\Program Files\Python37\python.exe" 1-variables.py`

Save all the samples

- Repeat the steps for:
  - 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, change some of the text and rerun the command (remember the up arrow on your keyboard!)

- 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.

- There are some bugs in the code, see if you can find them.