Python School WB1
Data Types & Operators

NAME:

The Python Interpreter

https://vimeo.com/70588687

Have a go at using the Python Interpreter with code similar to the examples in the video above.

Did you have any issues/problems or are there any observations you would like to make?

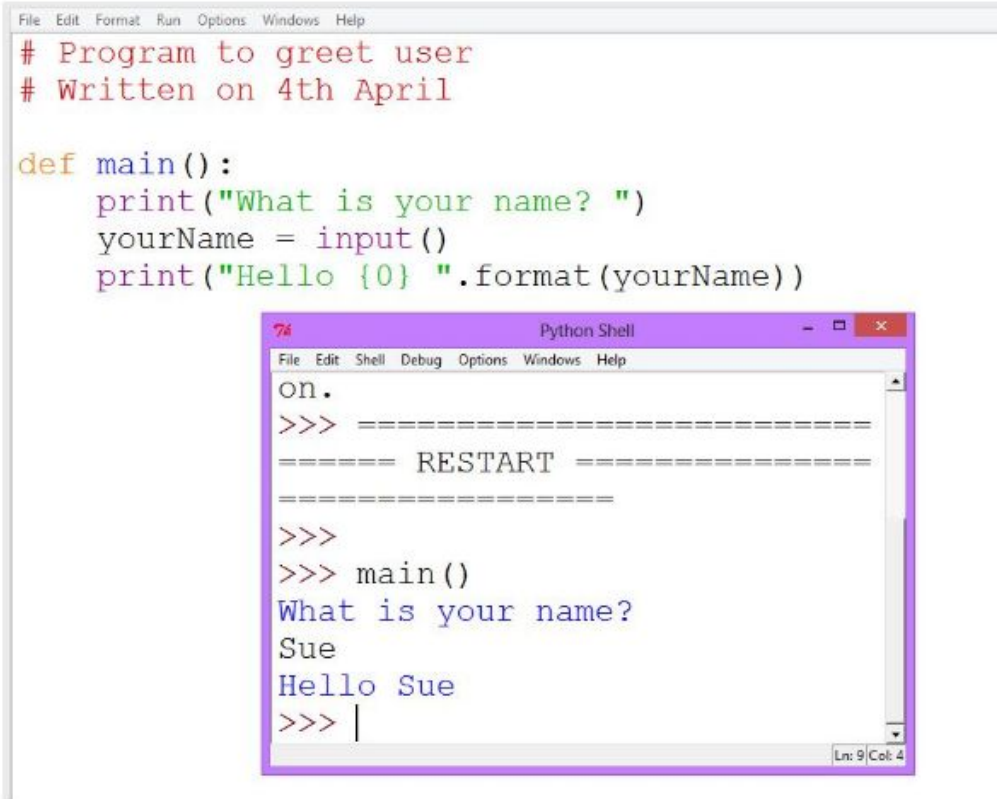
I was using the python shell so I couldn't save it unless I typed it into IDLE.

Saving your programs

In the last section, we used the Python shell to write statements and get an instant response.

However, we could not save any of the statements we wrote.

To write a simple program we need to open the text editor in Idle by selecting **File** then **New Window**. As an example, here is a simple first program which asks a user for their name and then greets them.



Describe **source code**

Source code is what the programmer inputs. The source code is then interpreted into machine code by using an interpreter so the computer can understand what the source code means

Describe **machine code**

Machine code is binary code that the computer can understand because it has been interpreted from source code.

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Python is a programming language that is changed to machine code using an interpreter. Another method used with other programming languages is to use a compiler. State the differences between a language that is interpreted and a language that is compiled.

Compiler

Advantages	Disadvantages
The translation is done once only as a separate process.	If it encounters any error it carries on trying to compile the program and reports the errors at the end. The programmers then have to use the error messages to identify and remove bugs.
The program that is run is already translated into machine code so it is much faster in execution.	You cannot change the program without going back to the original source code, editing that and recompiling.

Interpreter

Advantages	Disadvantages
When an error is found the interpreter reports it and stops so the programmer knows where the error has occurred.	Every line has to be translated every time it is executed and because of this it is slower.
The program can easily be edited as it always exists as source code	Empty

Creating Functions

https://vimeo.com/70681610

Formatting Text & Converting String to Integer

https://vimeo.com/70704177

Exercises

Program 1

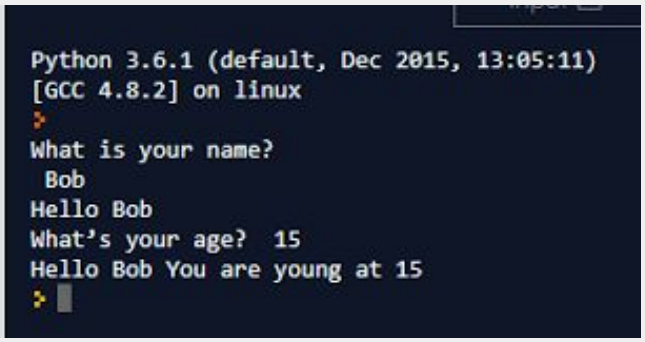
1. Draw a flowchart that will take two messages from a user and output them with some additional text. Draw your flowchart on paper, take a picture and insert in the box below.

```
Pseudocode
Print (“What’s your name”)
yourName = input()
Print (“Hello {0}”.format(yourName))

yourAge = input (“What’s your age? “)
Print (“Hello {0}You are a young {1}”.format(yourName,yourAge))
```

2. Using the skills demonstrated in the videos. Write the program to input two messages and output them to a user with additional text. Remember to create, define (def) a function, format and comment your code. Print screen the code and paste in the box below.

```
1  # Manraj Lally
2  # 04/10/2017
3  # Python Workbook Program 1
4
5
6  def main():
7    print("What is your name? ")
8    yourName = input()
9    print ("Hello {0}".format(yourName))
10   yourAge = int(input("What's your age? "))
11   print ("Hello {0} You are young at {1}".format(yourName,yourAge))
12
13 main()
14
15
16
```



Program 2

1. Draw a flowchart that will input two whole numbers, add them together and print the result to the screen. Draw your flowchart on paper, take a picture and insert in the box below.

```
Pseudocode
number1 = input("Please enter your first number")
number2 = input("Please enter your second number")
Result = number1 + number2
Print("{0}".format(Result))
```

2. Using the skills demonstrated in the videos. Write the program to input two whole numbers, add them together and print the result to the screen. Remember to create, define (def) a function, format and comment your code. Print screen the code and paste in the box below.

```python
# Manraj Lally
# 04/10/2017
# Python Workbook Program 2

def main():
  print("This amazing program can add two numbers together!")
  print("Enter your first number:")
  number1 = int(input())
  print("Enter your second number: ")
  number2 = int(input())
  Result = number1 + number2
  print("Here is your result:{0}. Have a good day!".format(Result))


main()
```

```
Python 3.6.1 (default, Dec 2015, 13:05:11)
[GCC 4.8.2] on linux
>
This amazing program can add two numbers together!
Enter your first number:
 5
Enter your second number:
 12
Here is your result:17. Have a good day!
>
```

Extension Tasks

1. Write a program that will ask the user for two numbers a then divide one by the other. The number of times one goes into another and the remainder should be displayed. For example, If 3 and 2 were entered: 3/2 = 1 remainder 1. The input and output should be user friendly. Press print screen and insert your code below.