Python Programming

Lesson 1: Introduction to Python and Variables

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Programming

Programming

Introduction to Python and Variables

Objectives
Understand how to use to use Python to carry out simple calculations.
Understand the use of Variables and how to assign them values.
Understand the different data types used in Python (Int, Float, Strings).
Understand how to join and print variables statements.

Outcomes		Time
Task 1	Simple Equations and Printing using the Python Shell	
Task 2	Simple Equations and Printing using Variables	
Task 3	Inputting Values into Variables and Printing.	
Task 4	Joining and printing Variables	
Task 5	Calculations with inputted Variables	
Task 6	Employee Pay	

Task 1 – Simple Equations and Printing using the Python Shell

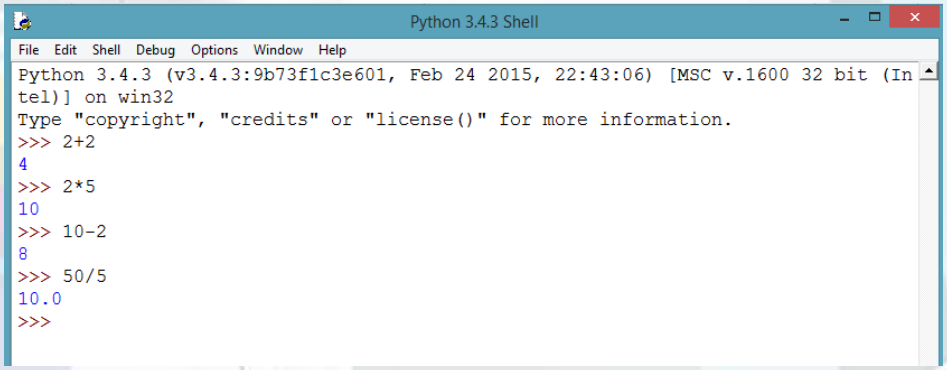
print (“ “)

```
>>> print ("Hello my name is Yasar Ahmad")
Hello my name is Yasar Ahmad
>>>
```

Use the Print command to introduce yourself to Python. The print command will return the values in speech marks in the brackets.

Enter the following Equations into the Python Shell. The Python Shell will work as a calculator to work out the values.

```
>>> 2+2
4
>>> 2*5
10
>>> 10-2
8
>>> 50/5
10.0
```




```
>>> 52/5
10.4
>>> 52%10
2
>>>
```

/

Using the slash (/) will work out the divided value – 10.4

%

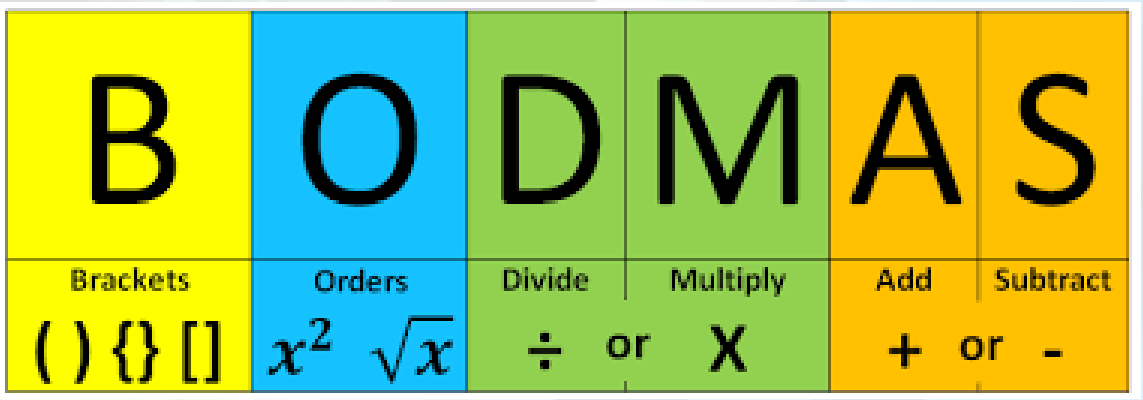
Using the slash (%) will work out the remainder – 2

Task 1 – Simple Equations using the Python Shell

Python will follow the BODMAS order of operations to complete calculations.

Enter the following Equations

```
>>> 7+10*5+3
60
>>> (7+10)*(5+3)
136
>>> 2+10*5+10
62
>>> (2+10)*(5+10)
180
>>>
```



B: Work out the contents in the Brackets first.

O: Exponents/indices have second priority (Powers and Roots)

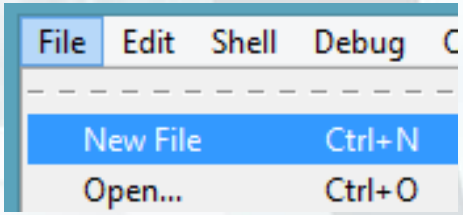
DM: Division and Multiplication are next

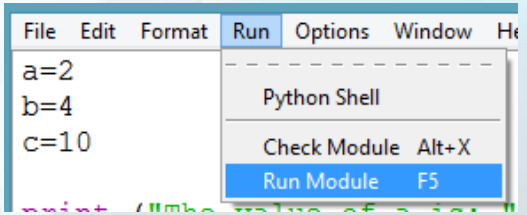
AS: Last are Addition and Subtraction

Task 2 – Simple Equations and Printing using Variables

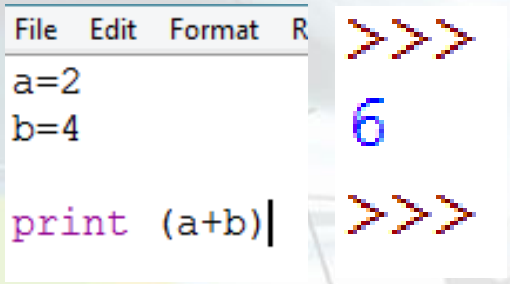
Programming

1) Click on File >> New File
2) Write the program below and then Run Module.





Assigned Variables



Variable: Placeholder to store values which can be called upon later in the program

Print: Will print a statement placed in brackets

3) Write the program below and then Run Module.

STR: Datatype for a Text String

INT: These values are being stored as Integers

```
a=2
b=4
c=10

print ("The value of a is: "+str(a))
print ("The value of b is: "+str(b))
print ("The value of c is: "+str(c))

print ("a plus b equals "+str(a+b))
print ("a multipled b equals "+str(a*b))
```

+

Join parts of text string

```
The value of a is: 2
The value of b is: 4
The value of c is: 10
a plus b equals 6
a multipled b equals 8
a plus b and c equals 16
```

Integer values (int) need to be converted into a text string (str).

Task 3 – Inputting Values into Variables and Printing.

1. You need to create a simple program to enter data into variables.
2. You will be required to print each variable.

STR: Data type for a Text String (Default Data type – "hello")

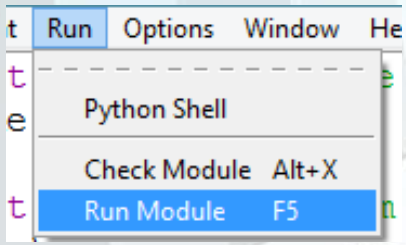
INT – Data type for Integer values (5, 665, 4545, 54, 565)

Float – Data type for decimal numbers (4.5, 5.66, 65.6)

```
name=(input("Enter your name: "))
print (name)

form=(input("Enter your form: "))
print (form)

school=(input("Enter the name of your school: "))
print (school)

subject=(input("Enter the name of your favorite subject: "))
print (subject)

age=int(input("Enter your age: "))
print (age)

height=float(input("Enter your height: "))
print (height)
```

INT

Float




```
Enter your name: Billy Jones
Billy Jones
Enter your form: 8A
8A
Enter the name of your school: CIS
CIS
Enter the name of your favorite subject: ICT
ICT
Enter your age: 13
13
Enter you height: 5.8
5.8
```

Task 4 – Joining and printing Variables

1. You need to create a simple program to enter data into variables
2. You will then print the variables as part of sentence.

```
name=(input("Enter your name: "))
age=int(input("Enter your age: "))

print ("Your name is "+name+" and your age is "+str(age)+".")
```

Create your own program. User will be prompted to input answers for specific questions into variables.

You can ask up to 6 different questions.
Print the variables as part of a sentence.

```
Your name is Yasar Ahmad and your age is 34.
Your nationality is British and you were born in in Manchester.
Your favorite movie is Gladiator and your favorite type of food is Pakistani.
>>>
```

Task 5 – Calculations with inputted Variables

1. You need to create a simple program to calculate two numbers together.
2. You need to create variables to store each number and the total.
3. Your program will have to allow the user to input two different numbers.

```
number1=int(input("Enter your first number: "))
number2=int(input("Enter your second number: "))
total=number1+number2

print ("The total sum of the two numbers is: "+str(total))
```

Extension 1:
Create a program to work out the area of a shape. You need to prompt the user to enter the values of the Length and Width into appropriately names variables. The program should print the Length, Width and Area in a sentence.

Extension 2:
Create a program to work out the price for your meal. Your meal includes a starter, main and a Dessert. The program should print the price for each course of the meal and the final total.

You can include additional variables to includes drinks and tips.

Task 6 – Employee Pay

1. You will be making a program to work out the employees weekly and monthly pay.
2. You need to include suitable variables including:
    1. Name
    2. jobtype (part time/fulltime)
    3. hours (per week)
    4. payperhour
    5. weeklypay = Hours * Payperhour
    6. monthlypay = Weeklypay * 4

3. You need to print the following statement:
    1. "Your name is _____. You are a _____ employee.
    2. You have worked _____ hours this week and your pay per hour is _____.
    3. Your weekly pay is _____. Your monthly pay is _____.

Extension

Can you make your own program containing variables?

Homework: Create a program using the skills you have learnt in this lesson.

Include variables and some type of calculation.

Plenary – Refer to the Lesson Objectives

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Plenary Task (Q&A)

Peer assess each other scripts.
Question: What is the purpose of variables?
Question: What are the different data types you have used in this lesson.