Pyhton_Notes_Week_o2!

Variable Decleration/Names: A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume).

Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters & underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)
- A variable name cannot be any of the Python keywords

Multi Words Variable Names: Variable names with more than one word can be difficult to read. There are several techniques you can use to make them more readable:

Camel Case: Each word, except the first, starts with a capital letter:
myVariableName = “Muhammad Ibrahim”

Pascal Case: Each word starts with a capital letter:
MyVariableName = “Muhammad Ibrahim”

Snake Case: Each word is separated by an underscore character:
my_variable_name = “Muhammad Ibrahim”

There are two ways of storing values in data
1 Assignment Operator
2 User Input
Note! Variable can not assign right hand side because constant value can not store variable because of memory allocation.

Python Program

Swapping Two numbers
https://github.com/ibraheem-02/Python_Programs/blob/main/Swapping.ipynb)

Swapping two Number using third variable.

```
N1 =  int (input("Enter first No:"))
N2 =  int (input("Enter Second No:"))
print("Values befor Swapping:")
print("N1 = ",N1 , ", N2 = ",N2)
```

```
tem = N1
N1 = N2
N2 = tem
print("Values after Swapping:")
print("N1 = ",N1 , ", N2 = ",N2)
```

Swapping two Numbers without using third variable.

```
N1 =  int (input("Enter first No:"))
N2 =  int (input("Enter Second No:"))
print("Values befor Swapping:")
print("N1 = ",N1 , ", N2 = ",N2)
N1 = N1 + N2
N2 = N1 - N2
N1 = N1 - N2
print("Values after Swapping:")
print("N1 = ",N1 , ", N2 = ",N2)
```

Operators

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https://github.com/ibraheem-02/Python_Programs/blob/main/Operators.ipynb

Arithmetic	Assignment	Relational	Logical	Arithmetic: Assignment
+	=	==	and	+=
-		!=	or	-=
*		>	not	*=
/		>=		/=
**		<		**=
//		<=		//=
%				%=

Operator in python

Arithmetic operator

```
num1 = int(input("Enter First Number   "))
num2 = int(input("Enter Second Number  "))
print() #for one line space
print ("Second number become the power of first number in squa
re function")
print() #for one line space
```

```
print("Square of Two Number is             :       ", num1 ** nu
m2) #power/square
print("Addition of Two Number is           :       ", num1 + num
2)  #Addition
print("Subtraction of Two Number is        :       ", num1 - num
2)  #subtraction
print("Float division of Two Number is     :       ", num1 / num
2)  #Float divisionn
print("Multiplication of Two Number is     :       ", num1 * num
2)  #Multiplication
print("Integer Division of Two Number is   :       ", num1 // nu
m2) #Integer Division
print("Modulus of Two Number is            :       ", num1 % num
2)  #Modulus
```

Relational operators(Return a boolean answer)

```
num1 = int(input("Enter First Number   "))
num2 = int(input("Enter Second Number  "))
print() #for one line space
print("First Number is == Second number  :    ", num1 == num2)
 #Equal to operator
print("First Number is != Second number  :    ", num1 != num2)
 #Not equal to operator
print("First Number is >  Second number  :    ", num1 > num2)
 #Greator then operator
print("First Number is >= Second number  :    ", num1 >= num2)
 #Greater then equal to operator
print("First Number is <  Second number  :    ", num1 < num2)
 #less then operator
print("First Number is <= Second number  :    ", num1 <= num2)
 #less the equal to operator
```

Logical operator (Boolean answer)

```
num1 = int(input("Enter First Number:   "))
num2 = int(input("Enter Second Number:  "))
print()  # Line space
# Logical Operator Examples (AND/OR/NOT)
print("Logical Operator Combinations:")
print("Both numbers are positive?          :    ", (num1 > 0) a
nd (num2 > 0))
```

```
print("At least one number is even?       :    ", (num1 % 2 ==
 0) or (num2 % 2 == 0))
print("First is NOT equal to second?      :    ", not (num1 ==
 num2))
print("First > 10 AND Second < 50?        :    ", (num1 > 10)
and (num2 < 50))
print("Either number is zero?             :    ", (num1 == 0)
or (num2 == 0))
```

Arithmetic Assignment Operator

```
Num1 = int(input("Enter First Number   "))
Num2 = int(input("Enter Second Number  "))
# Using the arithmetic assignment operators
Num1 += Num2  # Add Num2 to Num1 and store the result in Num1
print("After Num1 += Num2, Num1 is:",Num1)
Num2 -
= Num1 # Subtract Num1 from Num2 and store the result in Num2
print("After Num2 -= Num1, Num2 is:", Num2)
# Check if Num2 is not zero before dividing to avoid division
by zero error
if Num2 != 0:
    Num1 /= Num2  # Divide Num1 by Num2 and store the result i
n Num1
    print("After Num1 /= Num2, Num1 is:", Num1)
else:
    print("Cannot divide by zero.")
# Use floor division (//) for integer result division
if Num2 != 0:
    Num1 //= Num2  # Floor divide Num1 by Num2 and store the r
esult in Num1
    print("After Num1 //= Num2, Num1 is:", Num1)
else:
    print("Cannot floor divide by zero.")
# Use exponentiation (Num1 ** Num2) to raise Num1 to the power
 of Num2
Num2 **= Num1  # Raise Num1 to the power of Num2 and store the
 result in Num1
print("After Num1 **= Num2, Num1 is:", Num2)
# Use modulus to find the remainder of Num1 divided by Num2
if Num2 != 0:
    Num1 %= Num2  # Get the remainder of Num1 divided by Num2
and store the result in Num1
    print("After Num1 %= Num2, Num1 is:", Num1)
else:
    print("Cannot calculate modulus by zero.")
```