Python School WB2
Data Types & Operators

NAME:

Data Types

Every value is stored as a particular data type. Some of the simple data types you need to know are:

- Integer
- Real
- String
- Boolean

Examples

Examples of **strings** are: `"Hello"`, `"Goodbye"`.

- To input a string, use `input()`

Examples of **integers** are: `2, 6, -89, 45421`.

- To input an integer at the screen, use `int(input())`

Examples of **reals** are: 2.4, 6.0, -89.54, 111.111.

- To input a real number at the screen, use `float(input())`

A boolean variable always has the value `True` or `False`. Remember Python is case sensitive so the capital `T` or `F` really matters!

https://vimeo.com/70643373

What data type would you use to store a telephone number?

You would use string.

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What data type would you use to store the answer to 4<5?

You would use boolean.

What data type would you use to store the variable VAT Rate = 20

You would use integer

Operators

The following operators are used in expressions in Python:

Operator	What it means	Example	ANSWER
+	Add to: Adds two values to each other.	`4 + 5`	9
-	Subtract: Subtracts one value from another.	`5 - 1`	4
*	Multiply: Multiplies two values with each other.	`7 * 3`	21
/	Divide: Divides one value from another and gives decimal if needed	`7 / 4`	1.75
//	Whole number division: Divides one value from another but doesn't give remainder or decimal, just the whole number	`20 // 3`	6
%	Remainder after whole number division: Divides one value from another but only gives remainder	`20 % 3`	2

**	To the power of: Indices or Of powers show how many times you time the number by itself	`3 ** 4`	`81`
==	Equals: Checks if two values are equal to each other	`5 == 4`	`False because 4 is not equal to 5`
!=	Not equals to: Checks if two values are not equal to each other.	`5 != 4`	`True because 4 is not equal to 5`
>	Greater than: Checks if one value is larger than another.	`5 > 4`	`True because 5 is larger than 4`
<	Less than: Checks if one value is less than another.	`5 < 4`	`False because 5 is larger than 4`
>=	Greater than or equal to: Checks if a value is greater than or equal to another.	`5 >= 5`	`True because 5 may not be greater than 5 but it is equal to`

`<=`	Less than or equal to: Checks if a value is less than or equal to another.	`4 <= 4`	`True because 4 isn't less than 4 but it is equal to`
`&`	Logical AND: Checks if both the conditions are true or false.	`True & False`	**N/a**

Main Exercises

Draw a flowchart on paper to design a program that uses at least two arithmetic operators, use a ruler and keep it very neat. The program should ask the user for two numbers to use in the calculation. Use your phone to take an image and then insert it in the box below. If you don't have a phone, borrow a camera from your teacher.

Insert your photo here

Pseudocode:

```
Def addition():
   Print("You have chosen addition")
   Print("Please type in your first number")
   number1= input()
   Print ("Please type in your second number")
   number2 = input()
   resultAdd = number1 + number2
   print(resultAdd)

Def subtraction():
   Print("You have chosen subtraction")
```

```
  Print("Please type in your first number")
  number3= input()
  Print ("Please type in your second number")
  number4 = input()
  resultSub = number3 - number4
  print(resultSub)

 Print("Type in a for addition and s for subtraction")
If input == a
  addition()
  Else
  subtraction()
```

Create a program that uses at least two arithmetic operators. Remember to use a function using def(main). Screen shot your code and paste it below. Provide some annotation to explain what you did and how the code works.

Box to stick your code

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File Edit Format Run Options Window Help

```
def addition():
    print("You have chosen addition")
    print("Please type in your first number")
    number1= int(input())
    print("Please type in your second number")
    number2 = int(input())
    resultAdd = number1 + number2
    print(resultAdd)

def subtraction():
    print("You have chosen subtraction")
    print("Please type in your first number")
    number3= int(input())
    print("Please type in your second number")
    number4 = int(input())
    resultSub = number3 - number4
    print(resultSub)
def main():
    print("Type in a for addition and s for subtraction")
    answer= input()

    if answer ==("a"):
        addition()
    else:
        subtraction()

main()


print("Do another one?y/n")
answer2= input()

if answer2 ==("y"):
    main()
else:
    quit
```

```
 RESTART: //cur-fsm/2014$/UserData/14LallyM/Year 10/Computing/Python/Python Work
book 2/AdditionOrSubtraction.py
Type in a for addition and s for subtraction
a
You have chosen addition
Please type in your first number
4
Please type in your second number
1
5
Do another one?y/n
y
Type in a for addition and s for subtraction
s
You have chosen subtraction
Please type in your first number
7
Please type in your second number
3
4
>>>
```

Annotation I think I made it a bit too complicated but I think it's good.

Extension Exercises

Extension Task 1

Do some research and find out how to use a comparison operator. Create a program that will do a comparison. For example: **is `5 > 4 and output to the screen TRUE or FALSE.`** It is a lot easier than it sounds!! Screen shot your code and paste it below. Provide some annotation to explain what you did and how the code works.

Box to stick your code
Annotation

Extension Task 2

Create a program that will ask the user for two numbers but also ask them what operator they wish to use on the two numbers eg - or + or * or /.

Box to stick your code
Annotation