

Introduction to Python Programming

2 – Maths with Variables.

Learning Goals/Objectives

Be able to read, comprehend, trace, adapt and create

Python code that:

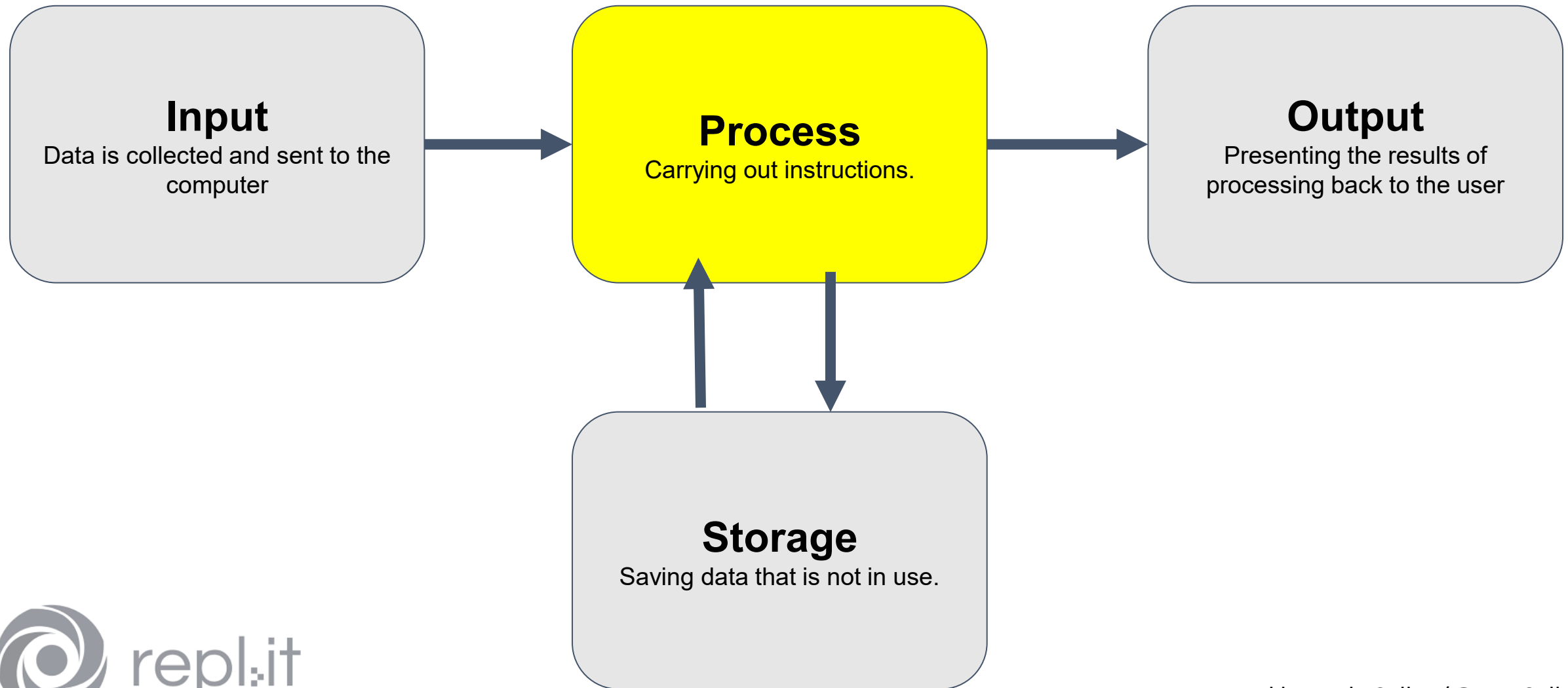
- Performs simple maths (addition, subtraction, multiplication, division and integer division) using fixed numbers
- Performs simple maths using numbers stored in variables
- Converts strings to integers
- Gets number input and uses it in calculations

Maths - Operators

$$2 + 2$$

Maths - Operators

- +** addition
- subtraction
- *** multiplication
- /** division (with decimal)
- //** division (integer result)



Programming – Operators - Predict & Run

```
# Task 1 - add comments to this code to predict what it will do.
```

```
print(8 + 2)
```

```
print( 8 - 2)
```

```
print(8 * 2)
```

```
print(8 / 2)
```

```
print(8 // 2)
```

<https://repl.it/@MrAColley/21-Maths-part-1>



Maths With Variables

```
num1 = 5
```

```
num2 = 10
```

Assign numbers
to your variables.

```
result = num1 + num2
```

Perform the calculation.
Assign the result to a **NEW
VARIABLE.**

```
print(result)
```

Don't forget to output the
result



Variables - vary - changing data

“blue”

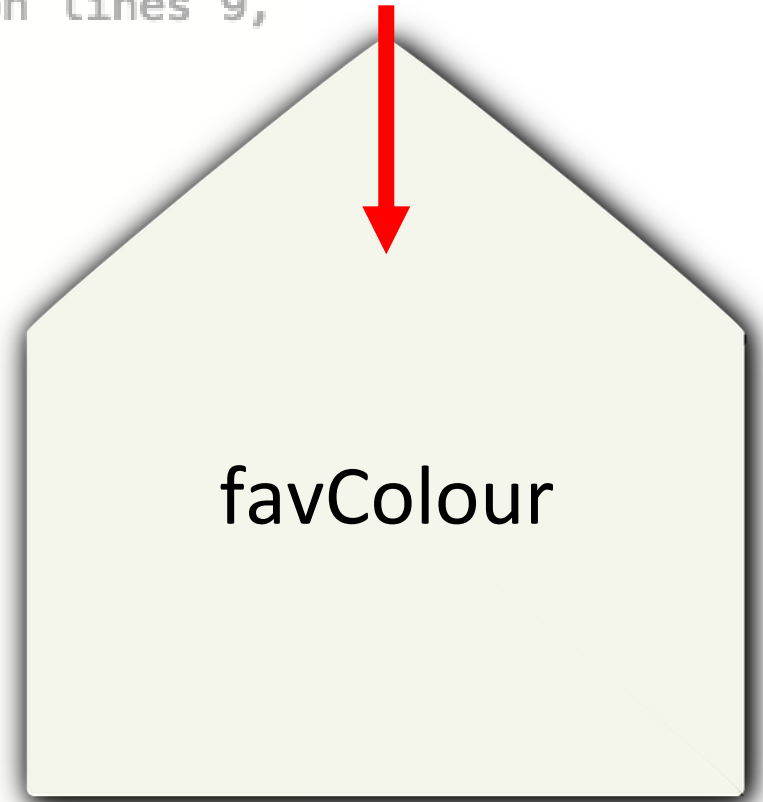
```
# Task1 – Add comments to the code to predict the output on lines 9,  
10 and 14
```

```
name1 = "Ross"  
name2 = "Monica"  
name3 = "Joey"  
name4 = "Rachel"  
name5 = "Chandler"
```

```
print(name1 + " and " + name4)  
print(name3)
```

```
name3 = "Phoebe"
```

```
print(name3)
```



Programming – Variable Maths – Modify & Make

```
score = 0  
print(score)  
score = 10  
print(score)
```

Changing Variables With Maths

```
score = 0
```

```
print(score)
```

```
score = 10
```

```
score += 1
```

```
print(score)
```



```
score -= 1
```

```
print(score)
```

Programming – Input & Variables - Integers

Input works with **strings**. Strings are **text**.

Computers can't do maths/logic with text. **They have to use numbers.**

Whole numbers are called **integers** (ints for short).

We have to write code to convert our string input to an int before we can do maths with it.

Programming – Input & Variables - Integers

```
num1 = int(input("Enter a number"))
```

Tells the computer to
convert to an integer

BRACKETS!
Because syntax!

Programming – Input & Variables - Integers

```
print(str(num1))
```

Tells the computer to
convert an integer variable to a string

Task 5 - Homework Challenge - Area Calc

Create a program that allows the user to enter 2 numbers representing the width and length of a rectangle.

The program calculates and displays the area of the rectangle.

Example solution -

<https://repl.it/@MrAColley/25ChallengeExampleSolution>

Extra Credit Challenges

Perimeter Calc

Create a program that allows the user to enter 2 numbers representing the width and length of a rectangle. The program calculates and displays the perimeter of the rectangle.

Restaurant Tip Calculator

Create a program that allows the user to enter the price of a meal at a restaurant. The program calculates the amount of the tip to be paid at 20%. The tip and total price are then displayed separately.

Volume and Surface Calc

Create a program that allows the user to enter 3 numbers representing the height, width and length of a cuboid. The program calculates and displays the volume and total surface area of the cuboid.