



Year 9 Computer Science - Programming



Basic Python Functions

Function	Use	Example Code
Input	The input function is used to prompt the user to enter some data using the keyboard. input can take a string argument which is used as a prompt to the user to tell them what data the computer is expecting.	<pre>name = input("What is your name?") age = int(input("What is your age?"))</pre>
Output	The print function is used to write output to the screen. print takes one or more arguments (strings or variables between the brackets) and writes the data to the screen.	<pre>print("Hello World!") print("Hello", name, "nice to meet you")</pre>
Variable Assignment	Variable assignments are instructions for the computer. This means that the data stored in a variable can change throughout the runtime of the program.	<pre>name = "Bob" total = 20 + 50 + 35</pre>
Random Numbers	When you want to generate a random number in your program you can make use of the random library .	<pre>import random myRandomNumber = random(1, 6)</pre>

Keywords

Keyword	Definition
Algorithm	Step by step instructions to solve a given problem
Pattern Recognition	Looking for similarities or characteristics that can help solve the problem
Decomposition	Breaking the problem down into smaller problems to solve
Abstraction	Removing aspects that are not required to solve the problem
Selection	A choice built into the program to determine the next section of code to execute based on the output to a set condition
Sequence	The order the program code must be in to work correctly
Repetition	A loop of a set section of the program code
Variable	A single temporary storage location within the program code that can be changed or edited
Function	A set of instructions that are given a name and only when this name is called in the main program, is it executed

Sequence

A program which is executed line by line

Selection

A program which makes a choice or decision

Iteration

A program which repeats a number of times or until a condition is met

```
1# -*- coding: utf-8 -*-
2"""
3Created on Thu Dec 28 22:53:20 2017
4
5@author: Philippe BOULANGER
6"""
7from math import cos, sin, pi
8
9
10def create(nb):
11    step = pi / nb
12    var = ( ( i, step * i ) for i in range( nb+1 ) )
13    values = [ ( i, x, cos(x), sin(x) ) for i, x in var ]
14    with open( "concat_test.csv", "w" ) as file:
15        for t in values:
16            text = ""
17            for i, v in enumerate(t):
18                if i != 0:
19                    text += ','
20                text += str( v )
21            file.write( text + "\n" )
22
23nb = 1000000
24create( nb )
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Functions

A function is a piece of code that is created with a name and you can call this function anywhere else by using its name.

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