### Hello World

A common exercise (or test) that is used to evaluate how much is needed to get started with a programming language is Hello World. Which is simply creating a runnable application that prints the string “Hello World” to a window (often the console)

* Create a new file (use shortcuts) in the week\_1 directory called hello\_world.py
* Print the string “Hello World” using *print*
* Run the script using either “Run Python File in Terminal” or by “Start Debugging”
* This will create a Terminal that starts the hello\_world python script
* Check that the string “Hello World” was printed in the Terminal
* If it did. Congratulations you just created your first Python Script!!’

## Variables and arithmetic operators

### Swapping the value of two variables

Swap the value of two variables. This cannot be solved with just two variables something more temporary is required. Python have a special way to do this don’t bother with that you have learned enough to do this already. Use debugging or print to validate that you got it right.

* Always create a new file for each exercise with a name that makes it clear it is this exercise. For example, swap\_values\_exercies.py, this is the last time i will mentions that you should create a file but you should always do it.

### Precedence of operators

State the order of evaluation in a comment in each of the following statement and print the value of the variable after the statement.

* Use the following statements
  + x = 7 + 3 \* 6 / 2 - 1
  + y = 2 % 2 + 2 \* 2 - 2 / 2
  + z = ( 3 \* 9 \* ( 3 + ( 9 \* 3 / ( 3 ) ) ) )

### Reading and using arithmetic

Write an app that asks the user to enter two integers, obtains them from the user and displays their sum, product, difference and quotient (division). Remember to write which is the sum, product etc when printing the result

### Implement based on comments

Import the file comments\_exercise.py to your workspace. This file contains common comments that describe a set of tasks that needs to be completed to solve the problem of calculating how many years it takes until you turn one hundred

* Using comments to describe what will happen is a common way to plan what will happen when solving a problem. As we discussed in the problem-solving part.

1. Extending year calculator

Extend the previous solution so that the target age and actual age is read as inputs from the user instead. Format the output so it's apparent which was the target age for example. “It will be {years\_to\_target\_age} years until you are {target\_age} years old”

* When formatting output i will use the convention “Hello {world}” this means that inside of the {} I want the value of the variable world

### Calculate the area of a circle

Calculate the area of a circle where the user inputs the radius. Use the following formula Pi \* r^2 where Pi is the value 3.14 and r is the radius. Output the area and radius using the following format “Give the radius {user\_radius} the area of the circle is {area}”.

* If I were to break this problem down, I would land on these sub-problems:
  + Read a radius from the user
  + Calculate the area using 3.14 \* r^2
  + Output the area and radius.
* Add these sub-problems as comments in your solution. I recommend trying to break down all problems into sub-problems all exercise

## Conditional statements

### Even or odd

Determine whether a number is even or odd. The number should be given by the user as input. When printing the output, it must contain the numbers and the result where result is either “even” or “odd”.

* Tips. Use the modulu operator, all even numbers are divisible by two, no uneven number is divisible by two

### Comparing integers

Determine which integer is the largest or if the integers are equal. The numbers should be given by the user as input.

* Read three numbers from the user
* Output the largest number. Use some text together that states that this is the largest number
* If the two numbers are equal. Display the message “These numbers are equal {number}”

### Arithmetic smallest, largest

Determine sum, average, product and smallest and largest of three numbers. The numbers should be given by the user as input.

* Read three numbers from the user
* Output each result on its own line.
* Output the sum, average, product, the smallest number and the largest of the three numbers. Add some text so that its clear what is what in the output
* If the numbers are equal. Display the message “These numbers are equal {number}”