

Assignment 2

1. What are the two values of the Boolean data type? How do you write them?
The two values of the Boolean data type are true and false. When assigning a Boolean value to a variable, we should capitalize its first letter. So, it should be True or False.
2. What are the three different types of Boolean operators?
The three different types of Boolean operators: and, or, not.
3. Make a list of each Boolean operator's truth tables (i.e. every possible combination of Boolean values for the operator and what it evaluates).

P	!P (not P)
True	False
False	True

P	Q	P AND Q
T	T	T
T	F	F
F	T	F
F	F	F

P	Q	P OR Q
T	T	T
T	F	T
F	T	T
F	F	F

4. What are the values of the following expressions?

(5 > 4) and (3 == 5)	False
not (5 > 4)	False
(5 > 4) or (3 == 5)	True
not ((5 > 4) or (3 == 5))	False
(True and True) and (True == False)	False
(not False) or (not True)	True

5. What are the six comparison operators?

The six comparison operators are <, <=, >, >=, ==, !=.

6. How do you tell the difference between the equal to and assignment operators?

Describe a condition and when you would use one.

The symbol for equal to operator is ==. The symbol for the assignment operator is =.

The assignment operator is used when a value is assigned to a variable.

The equal to operator is used in a logical condition to compare if two values are equal.

7. Identify the three blocks in this code: The three blocks in the code are highlighted using different colors.

```
spam = 0
if spam == 10:
    print('eggs')
if spam > 5:
    print('bacon')
else:
    print('ham')
    print('spam')
    print('spam')
```

8. Write code that prints Hello if 1 is stored in spam, prints Howdy if 2 is stored in spam, and prints Greetings! if anything else is stored in spam.

```
if (spam == 1):
    print("Hello")
elif (spam == 2):
    print("Howdy")
else:
    print("Greetings!")
```

9. If your program is stuck in an endless loop, what keys you'll press? Ctrl + C

10. How can you tell the difference between break and continue?

A break statement would end the loop it is in and move to running the code listed after the loop. On the other hand, the continue statement would have the program skip the lines of code after it and start the next iteration of the loop it is in.

11. In a for loop, what is the difference between range(10), range(0, 10), and range(0, 10, 1)?

They all create the same sequence of numbers from 0 to 9 with an increment of 1. The only difference between them is the number of parameters given when they are called a function.

The range function contains three parameters to create a sequence: the start, the stop, and the step. The default start value is 0, and the default step value is 1. When calling the range function, it is necessary to give a stop value, which is excluded in the sequence.

In the first one, range(10), a sequence of numbers from 0 to 9 with an increment of 1 is generated. The stop parameter is only given. The other two parameters are set to their default values.

In the second one, range(0,10), the same sequence of numbers is created as described above. The main difference in this one is that the start and stop parameters are defined, and default increment is used. The start parameter is equal to the default value, so the same sequence of numbers is generated.

In the third one, range(0,10,1), the same sequence of numbers is created as described above. The main difference in this one is that all three parameters are defined. The start and step parameters are equal to their default values, so the same sequence of numbers is generated.

12. Write a short program that prints the numbers 1 to 10 using a for loop. Then write an equivalent program that prints the numbers 1 to 10 using a while loop.

```
# for loop that prints the numbers 1 to 10
for i in range(1,11):
    print(i)

# while loop that prints the numbers 1 to 10
i = 1
while i < 11:
    print(i)
    i = i+1
```

13. If you had a function named bacon() inside a module named spam, how would you call it after importing spam?

```
from spam import bacon
```