Exercise 2 – Fundamental variables

Objective

To experiment with some of the basic variable types within Python and some of their operations.

Questions

1. This exercise carries out some basic operations on variables.
   a) Create a new script called **ex2.py**.
   b) Create two variables, one containing your first name and another containing your last name. Display them using **print**.
   c) Now transfer these variable values into a list and display the list.
   d) Take the variables and store the values in a dictionary, using keys 'first' and 'last'. Display the dictionary values.

   ...and execute the script ex2.py.

2. Now we'll try some object methods. Create a Python script (call it ex2_2.py if you like) with the following line:

   ```
   var = input("Please enter a value: ")
   ```

   This is an easy way of outputting a prompt to the console and getting a reply. The variable **var** is a reference to that reply, which is a *string*.

   Now print the following:

   a) The value of **var** as upper case.
   b) The number of characters in **var** (this does not require a method).
   c) Does it contain numeric characters. (Try the **isdecimal()** method.)

If time allows...

3. Create two variables:

   a = 6

   b = 6

a) Write some code to check if a is the same value as b (respond with a bool).

b) Why do you think it came out this way?

c) Write the code in another way to get the same result.

d) Try the following code:

print(hex(id(a)))

print(hex(id(b)))

What do you notice about the returned memory addresses – can you think why Python might do this?

Solutions

Question 1

```
# Create two variables, one containing your first name.
first = 'Fred'
# And another containing your last name.
last = 'Bloggs'
# Display them using print.
print(first, last)

# Now transfer these variable values into a list.
names = [first, last]
# Display the list.
print(names)

# Transfer these variable values into a dictionary,
# using keys 'first' and 'last'.
mydict = {'first': first,
        'last': last
           }

# Display the values.
print(mydict['first'], mydict['last'])
```

Question 2

```
var = input("Please enter a value: ")

# Display the value of var in upper case.
print(var.upper())
# Display the number of characters in var.
print(len(var))
```

Question 3

a) **print(a == b)**

b) Both a and b are the same value so **==** is a comparison operator and it should return True.

c) **print(a is b)**

d) Both a and b are the same value, so Python reduces memory usage by having two variables point to the same block of RAM.