

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 now 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 2 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 2 variables point to the same block of RAM