

# Variables

- a) Write "My name is \_\_\_" in Python;
- b) Declare a variable a = 3 and print a;
- c) Declare a variable b = 1.1 and print b;
- d) Declare a variable c = a + b and print c;

```
In [4]: a= "João"  
print("My name is "+a)
```

My name is João

```
In [5]: a=3  
print(a)
```

3

```
In [6]: b=1.1  
print(b)
```

1.1

```
In [7]: c=a+b  
print(c)
```

4.1

# Operator

- a) What is the result of the multiplication of 43 by 37?
- b) What is the rest of dividing 71 by 3 ?
- c) Prints today's date;
- d) Creates the word "midterm" through concatenation;
- e) Print the number of letters of the word created above;
- f) Print the word above in capital letters;

43\*37

```
In [9]: 71%3
```

Out[9]: 2

```
In [15]: print("Today is %02d/%02d/%04d" % (4,12,2042))
```

Today is 04/12/2042

```
In [17]: a="mid"  
        b="term"  
        c=a+b  
        c
```

```
Out[17]: 'midterm'
```

```
In [28]: len(c)
```

```
Out[28]: 7
```

```
In [29]: c.upper()
```

```
Out[29]: 'MIDTERM'
```

## Control structures

a) Declares the variable age. Prints the message "You can retire" if your age is over 65;

b) Declares the variable income corresponding to the annual wage. Print the following messages under the conditions:

- 1) "income tax rate = 17%" if income is less than 8000;
- 2) "income tax rate = 24%" if income is between 8000 and 11000;
- 3) "income tax rate = 35%" for income superior to 11000

c) Prints all values between 27 and 33;

d) Declares the divisor variable = 10. While the remainder of the division between 93 and the divisor is different from 0 prints the divisor and decrements it ;

hint:

```
age = 99
```

```
if age > 65:
```

```
    print("you can retire")
```

```
rendimento=10000
```

```
--
```

```
if rendimento <= 8000:
```

```
    print("taxa de IRS=X%")
```

```
else:
```

```
    print("taxa de IRS=Y%")
```

---

```
divisor=2
```

```
while 93%divisor:
```

```
    divisor -= 1
```

```
In [ ]:
```

## List and tuples

- State a list with 5 UC's of your course;
- Print the third and last UC of your list;
- Print, through an iteration, your list;
- Remove the second UC from your list and add another one;
- Create a list of the first 7 multiples of 3;
- Repeat the first line with a Tuple;

hint

```
lista_cursos = ['MAEG','Gestao','Economia','Financas']
```

```
print(lista_cursos[1])
```

```
for curso in lista_cursos:
```

```
    print(curso)
```

In [ ]:

## Dictionaries

- Declares a dictionary with 6 programming languages excluding Python;
- Add Python to the dictionary with key 9;
- Print, through an iteration, your dictionary;
- Print, through an iteration, all the values of your dictionary;
- Print, through an iteration, all the keys of your dictionary;

hint:

```
universidades={1:'ULisboa', 2:'UPorto', 3:'UMinho', 4:'UAlgarve'}
```

```
universidades[5]='ISCTE'
```

```
for chave in universidades.keys():
```

```
    print("Universidade " +str(chave))
```

In [ ]:

## Sets

- Declare the set {10,21,6,17};
- Declare the set {8,20,7,10};
- Print the union and intersection of the first with the second set;
- Print the difference from the second to the first set;
- Print the symmetrical difference of the two sets;

hint:

```
a={5,7,3,1}
```

```
b={3,1,9,4}
```

```
print(a)
```

```
print(a.difference(b))
```

In [ ]:

# Functions

- a) Create a function that returns an age;
- b) Create a function that asks the name and age of the user;
- c) Create a function that calculates whether a number is prime;
- d) Create a function that calculates ALL the divisors of a number;

hint:

```
def age(): idade = input("Qual e a tua idade?") print(idade)
```

```
age()
```

```
def divisor() n = input("Insira o numero:") for i in range(1,n) n%i=0 divisor()
```

In [ ]: