Exercice 01: (10 pts)

7.5 / 10 pts

The following exercice requires some understanding in the following subjects:

- understand the notion of variable and data-types
- read the user inputs
- understand conditions in python

1. Review: (3 pts)

2.5 pts

1.a. Create two variables `time` and `distance` with the following values "6.89" and "16.7" . Compute the speed and save it in a variable called `speed` and print then the speed. (1 pt)

1 pt

In [9]:
```
# declare the two variables time and distance
# time = 6.89
# distance = 16.7
time= float(6.89)
distance= float(16.7)
t= time
d= distance
speed= d/t
print(speed)
```

```
2.423802612481858
```

1.b. Create a list called `special_lst` with the following values: [12,8,25,13,-11,-2]. Compute the average value of all the value of the list with index and save it to a variable called `avg_special_lst` . (1 pt)

N.B: Do not use Loop or function from the python library, we did not see loop yet. Only use index and operations we've already seen.

1 pt

In [3]:
```
# create the list and then compute its average value
special_lst = [12,8,25,13,-11,-2]
print(len(special_lst))
avg_special_lst = sum(special_lst)/len(special_lst)
print("Average is equal to=" ,avg_special_lst)
```

```
6
Average is equal to= 7.5
```

1.c. Given the following variables: (1 pt)

0.5 / 1 pt

```
tiger = 'cat'
lion = 'cat'
kitty = 'cat'
cheetah = 'cat'
hyena = 'dog'
wolf = 'dog'
```

```
husky = 'dog'
owl = 'bird'
piegon = 'bird'
duck = 'bird'
```

Write the following statements in Boolean and print the answer:

In [62]:

```
tiger = 'cat'
lion = 'cat'
kitty = 'cat'
cheetah = 'cat'
hyena = 'dog'
wolf = 'dog'
husky = 'dog'
owl = 'bird'
piegon = 'bird'
duck = 'bird'

# take this as an example
is_tiger_a_cat = (tiger == 'cat') # true

# change None into a boolean expression

tiger_is_not_a_dog = print(tiger != 'dog')
a_duck_is_not_a_cat = print(duck != 'cat')
a_piegon_is_neither_a_cat_nor_a_dog = print((piegon != 'cat'),(piegon != 'dog'))
a_wolf_is_a_bird = print(wolf == 'dog')
a_duck_is_a_piegon = print(duck == 'piegon' )
owl_is_a_duck_or_a_cheetah = print((owl == 'duck'),(owl == 'cheetah'))
husky_is_a_bird_or_duck_is_a_cat = print((husky == 'bird') or(duck == 'cat'))
owl_is_a_duck_and_hyena_is_a_wolf = print((owl == 'duck'),(hyena == wolf))
```

```
True
True
True True
True
False
False False
False
False True
```

// a_piegon_is_neither_a_cat_nor_a_dog = ((piegon != 'cat') and (piegon != 'dog'))
// owl_is_a_duck_or_a_cheetah = ((owl == duck) or (owl == cheetah)) # (true or false) is true
// husky_is_a_bird_or_duck_is_a_cat = ((husky == 'bird') or (duck == 'cat')) # (false or false) is false
// owl_is_a_duck_and_hyena_is_a_wolf = ((owl == duck) and (hyena == wolf)) # (true and true) is true

2. Conditions (7 pts)

5 pts

2.a. Ask the user for an input (as Integer), save it to a variable called `user_number` and print if the entered number is an *odd* or an *even* number. (2 pts)

2 pts

In [75]:

```
# Scenario examples:
# user inpt: 3
# response: 3 it is an odd number
# ----------------------------------
# user input: 14
# response: 14 is an even number
# ----------------------------------

# get the user_number
user_number = int(input("user_number: "))
if (user_number % 2) == 0:
    print("{0} is Even".format(user_number))
```

```
else:
    print("{0} is odd".format(user_number))
# check if user_number is even.
```

```
6 is Even
```

2.b. Ask the user for 3 integer inputs `val_1`, `val_2` and `val_3` . Create also a variable `val_min` . And then whith the help of if (elif, else) statement ,make the variable `val_min` get the *minimum value* of the `val_1` , `val_2` and `val_3` (without using any other method or function, ONLY with IF and ELIF) (2 pts) 1 pt

In [113…

```
# for example ilf val_1 = 3, val_2 = 4 and val_3 = 7 then val_min shoud be 3
def val_min (val_1,val_2,val_3) :     // what is def? We didn't see it yet.
 if val_1 < val_2 and val_3:
        print("the minimum number is ", val_1)
 elif val_2 < val_3:
        print("the minimum number is ", val_2)
 else:
        print("the minimum number is ", val_3)

val_1 = int(input("please write the first number: "))
val_2 = int(input("please write the second number: "))
val_3 = int(input("please write the third number: "))

print (val_min (val_1,val_2,val_3))
```

```
the minimum number is  7
None
```

2.b. Ask the user for an input (Integer), save it to a variable called `user_number` and print if the entered number is a negative or a positive number (1 pt) 1 pt

In [89]:

```
# ask for the number
#user_number = int(input('Enter a positive or a negative number:'))

user_number = int(input("Enter a number: "))
if user_number >= 0:
   if user_number == 0:
       print("Zero")
   else:
       print("Positive number")
else:
   print("Negative number")
```

```
Negative number
```

2.c. We want to securise a pressurized cabins: (2 pts) 1 pt

The max pressure is : pMax = 2.3, and the max area is aMax = 7.41. Ask the user for the actual pression and area

- if both, the area and the pression are higher than the pMax and aMax, then write: "stop immediately"

- if the pressure is higher than the pMax, then write: "Please, add more area!"
- if the area is higher the aMax, then write: "Please, lower the area!"
- else, write: "everything is fine!"

In [123…

```
# declare the pMax=2.3 and aMax=7.41
pMax, aMax = 2.3, 7.41
def securise_a_pressurized_cabins (p,a):
 if p > pMax and a > aMax:
  print("stop immediately")
 elif p > pMax:
    print("please, add more area!")
 elif a > aMax:
    print("please, lower the area!")
 else:
    print("everything is fine!")

p = int(input("please type the pression"))
a = int(input("please type the area"))


print( securise_a_pressurized_cabins (p,a))
```

// also what is def? We did not do it yet...

```
please, lower the area!
None
```

In [ ]: