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Group_04_Exercice_01

December 1, 2020

1 Exercice 01:

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:

### 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.
```

[5]:
```
# declare the two variables time and distance
time = 6.89
distance = 16.7
speed = distance / time
print('The speed is', speed,'mile/hour')
```

```
The speed is 2.423802612481858 mile/hour
```

1.0.1 1.b. Create a list called special_lst with the following values: [12,8,9,13,11,10]. Compute the average value of all the value of the list with index and save it to a variable called avg_special_lst .

[28]:
```
# create the list and then compute its average value
special_lst = [12,8,9,13,11,10]
type (special_lst)
special_lenth = len(special_lst)
sum_special_lst =␣
↪special_lst[0]+special_lst[1]+special_lst[2]+special_lst[3]+special_lst[4]+special_lst[5]
avg_special_lst = sum_special_lst / special_lenth
print('sum is    :',sum_special_lst)
print('lenth is  :',special_lenth)
print('average is:',avg_special_lst)
```

```
sum is    : 63
lenth is  : 7
average is: 9.0
```

[46]:
```
tiger = 'cat'
tiger is 'cat'
```

[46]: True

[47]:
```
lion = tiger
lion is 'cat'
```

[47]: True

[48]:
```
kitty = lion
kitty is 'cat'
```

[48]: True

[49]:
```
cheetah = 'cat'
cheetah is lion
```

[49]: True

[50]:
```
cheetah != tiger
cheetah is kitty
```

[50]: True

[51]:
```
cheetah is tiger
```

[51]: True

[53]:
```
owl = 'bird'
cheetah is 'bird'
```

[53]: False

[54]:
```
tiger is owl
```

[54]: False

[55]:
```
tiger is lion and tiger is kitty
```

[55]: True

[59]:
```
tiger is cheetah and tiger is not owl
```

[59]: True

1.0.2 1.c. Given the following variables:

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

Write the following statements in Boolean and print the answer:

```
ex: is_tiger_a_cat = (tiger == 'cat') # true because 'true equals true' is true.

tiger_is_not_a_dog

a_duck_is_not_a_cat

a_piegon_is_neither_a_cat_nor_a_dog

a_wolf_is_a_bird

a_duck_is_a_pigeon

owl_is_a_duck_or_a_cheetah

husky_is_a_bird_or_duck_is_a_cat

owl_is_a_duck_and_hyena_is_a_wolf
```

1.1 2. Conditions

1.1.1 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.

[62]:
```
# 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 # check if user_number is even.
user_number = int(input())
test_user_number = user_number % 2
if test_user_number == 0:
    print ('it is an even number.')
```

```
else:
    print ('it is an odd number')
print ('Please check if the number is even.')
```

```
8
it is an even number.
Please check if the number is even.
```

1.1.2 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)

[19]:
```
# for example ilf val_1 = 3, val_2 = 4 and val_3 = 7 then val_min shoud be 3
val_1 = int(input())
val_2 = int(input())
val_3 = int(input())
if val_1 >= val_2:
    if val_2 >= val_3:
        print('val_min is', val_3)
    else:
        print('val_min is', val_2)
elif val_1 <= val_2:
    if val_1 >= val_3:
        print('val_min is', val_3)
    else:
        print('val_min is', val_1)
else:
    print('keine Ahnung!')
```

```
1
1
1
val_min is 1
```

[ ]:
```

```

1.1.3 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]:
```
# ask for the number
user_number = int(input())
if user_number >= 0:
    print('The number is a positive number.')
else:
    print('The number is a negativ number.')
```

```
-3
```

```
The number is a negativ number.
```

1.1.4 2.c. We want to securise a pressurized cabins:

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!”

[2]:
```
# declare the pMax=2.3 and aMax=7.41   # ask for the actual area and volume
p = int(input('Pressure:'))
a = int(input('Area:'))
pMax = 2.3
aMax = 7.41
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!")
```

```
Pressure: 2
Area: 7

Everything is fine!
```

[ ]:
```

```