[redacted]

By [redacted]

In [1]:
```python
direction = 'West'

len(direction)
```
Out[1]: 4

In [2]:
```python
sign = "Welcome to the city of Toulouse." #[0,1,2,3,4,5,6,..." " = 7, t = 8, 9,...] [-32,-31,-30,-29,-28,-27,...,-5,-4,-3,-2,-1]
```

In [3]:
```python
sign[3]
```
Out[3]: 'c'

In [4]:
```python
sign[:3]
```
Out[4]: 'Wel'

In [5]:
```python
sign[-2]
```
Out[5]: 'e'

In [6]:
```python
sign[-1:]
```
Out[6]: '.'

In [7]:
```python
sign[-1:7]
```
Out[7]: ''

In [8]:
```python
sign[7:-1]
```
Out[8]: ' to the city of Toulouse'

In [9]:
```python
sign[234]  #the strings character is not up to to 234
```
```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
Cell In[9], line 1
----> 1 sign[234]

IndexError: string index out of range
```

In [10]:
```python
'c' in sign
```
Out[10]: True

In [11]:
```python
'k' in sign
```
Out[11]: False

Solutions and Exercises due Wednesday 28-06-2023

Assignment - due Wednesday 28-06-2023

In [ ]:
```python
price_apple = 1.5
price_banana = 2.3
price_total = 0
wallet = 55
```

I am going to the market to buy 30 apples and 56 bananas, use the above variables so that the next cell displays the total of our groceries in the variable `price_total`.

In [1]:
```python
#Your code
```

How much money do I have left in my wallet after our groceries ?

In [ ]:
```python
#Your code
```

Solution - In class

Create a variable containing a float.

In [12]:
```python
# Your code

var_of_float = 456.783
```

Solution - In class

Create a variable `python` containing the value `I am in the training` and another variable `Date_of_Class` containing the value `Today's date`.

In [13]:
```python
#Your code
python = 'I am in the training'

Date_of_Class = "23-06-2023"
```

Solution - In class

I have the following function: y = 2x + 3. Compute the values of y for x = -2,-1, 0, 1, 2

In [31]:
```python
#Your Code

#x = -2,-1,0,1,2

x = -2

y =  2 * x + 3                #The value of y when x = -2 is -1

#print(y)

print("The value of y when x = -2 is " + "" + str(y))
```
```
The value of y when x = -2 is -1
```

In [ ]:
```python
x = -1

y = 2 * x + 3

print("The value of y when x = -1 is " + "" + str(y))
```

In [ ]:
```python
x = 0

y = 2 * x + 3

print("The value of y when x = 0 is " + "" + str(y))
```

In [ ]:
```python
x = 1

y = 2 * x + 3

print("The value of y when x = 1 is " + "" + str(y))
```

In [ ]:
```python
x = 2

y = 2 * x + 3

print("The value of y when x = 2 is " + "" + str(y))
```

Solution - In class

I have the following function: y = 2x^2 + 3x - 5. Compute the values of y for x = -2,-1, 0, 1, 2

In [32]:
```python
#Your code here

#y = 2 * x ** 2 + 3 * x - 5

x = -2

y = 2 * x ** 2 + 3 * x - 5

print(y)

print("The value of y when x = -2 is " + "" + str(y))
```
```
-3
The value of y when x = -2 is -3
```

In [ ]:
```python
x = -1

y = 2 * x ** 2 + 3 * x - 5

print(y)

print("The value of y when x = -1 is " + "" + str(y))
```

In [ ]:
```python
x = 0

y = 2 * x ** 2 + 3 * x - 5

print(y)

print("The value of y when x = 0 is " + "" + str(y))
```

In [ ]:
```python
x = 1

y = 2 * x ** 2 + 3 * x - 5

print(y)

print("The value of y when x = 1 is " + "" + str(y))
```

In [ ]:
```python
x = 2

y = 2 * x ** 2 + 3 * x - 5

print(y)

print("The value of y when x = 2 is " + "" + str(y))
```

Solution - In class

Create a boolean variable.

In [33]:
```python
#Your code

bool_char = True

bool_char
```
Out[33]: True

Solution - In class

Create a variable containing the string `Hello World` and extract the 3rd character.

In [44]:
```python
# Your code

string_of_char = "Hello World"    # left to right = positive [0,1,2,3,4,5,6,7,8,9,10] right to left [-11,-10,-9,-8,-7,-6,-5,-4,-3,-2,-1]

string_of_char[2]

string_of_char[-9]
```
Out[44]: 'l'

Solution - In class

With the same variable as before, extract the last 2 characters.

In [46]:
```python
# Your code

print(string_of_char[9:])

print(string_of_char[-2:])

#print(string_of_char[-1:1:-3])  #Not part of the question.
```
```
ld
ld
```

Solution - In class

What is the result of 39741 divided by 12?
What is the result of the floor division?
What is the remainder of the whole division?

In [48]:
```python
# Your code here

#Division

print(39741 / 12)

#floor division

print(39741 // 12)

# Modulo

print(39741 % 12)
```
```
3311.75
3311
9
```

Solution - In class

I am working as an intern with a job paid rate in Nigeria with minimum wage (mwage). What is my gross salary per week (35h), per month (151.67h), per year (52 weeks)?

In [56]:
```python
smic_hour_gross = 10.25
```

In [61]:
```python
#Your code

hours_worked_week = 35

hours_worked_month = 151.67

weeks_in_a_year = 52

salary_gross_week = hours_worked_week * smic_hour_gross

salary_gross_month = hours_worked_month * smic_hour_gross

salary_gross_year = hours_worked_week * smic_hour_gross * weeks_in_a_year

#salary_gross_week

#salary_gross_month

#salary_gross_year
```

In [62]:
```python
print("The amount earned per week is " + "" + str(salary_gross_week))
print("The amount earned per month is " + "" + str(salary_gross_month))
print("The amount earned per year is " + "" + str(salary_gross_year))
```
```
The amount earned per week is 358.75
The amount earned per month is 1554.6174999999998
The amount earned per year is 18655.0
```

Assignment - due Wednesday 28-06-2023

About 15% of my gross salary is destined for taxes. What is my net salary per week, per month, per year?

In [ ]:
```python
#Your code
```

I decide to allocate 50% of my net salary to rent, 39% to necessities and 11% to entertainment. How much money do I have available in each of these categories?

In [ ]:
```python
#Your code
```

I decide to allocate 50% of my monthly net salary to rent, 39% to necessities and 11% to entertainment. How much money do I have available in each of these categories?

In [ ]:
```python
# Your code
```

Knowing that there are approximately 30 days per month, how much money do I have available to spend on necessities per day on average?

In [ ]:
```python
#Your code
```

Solution - In class

Define 2 variables that are integers. Print the concatenation of your 2 numbers.

In [72]:
```python
# Your code
A = 2
B = 3

#A + B  # nor mal addition

conc = str(A) + "" + str(B)

conc

#type(conc)
```
Out[72]: '23'

Solution - In class

Define an integer variable. Convert it to float and then to string.

In [ ]:
```python
# Your code

var_int = 34
var_float = float(var_int)
var_string = str(var_float)
print(var_int)
print(type(var_int))
print(var_float)
print(type(var_float))
print(var_string)
print(type(var_string))
```

Solution

Create a variable with your name and then with that variable, print each letter of your name individually.

In [ ]:
```python
#Your code
my_name = 'ADEGOKE'
print(my_name[0])
print(my_name[1])
print(my_name[2])
print(my_name[3])
print(my_name[4])
print(my_name[5])
print(my_name[6])
```

Solution

I have a room 5.36m wide, 7.78m long and 2.30m high. I want to paint all the walls of my room and the ceiling in yellow. How much surface do I have to paint ?

In [4]:
```python
#Your code
#surface_area_of_a_rectangle = 2 * ( L * w + L * h + w * h)
w = 5.36
L = 7.78
h = 2.3

surface_area_of_a_rectangle = 2 * ( L * w + L * h + w * h )

print("The surface area of the room is " + "" + str(surface_area_of_a_rectangle) + " " + "square-metre")
```
```
The surface area of the room is 143.8456 square-metre
```

Knowing that a 2litre container of my paint costs N232.50 and that with 2litre of paint I can approximately cover 24m^2.
How much money will I spend to repaint my room?

In [5]:
```python
#Your code
print(surface_area_of_a_rectangle)
Two_litre_paint = 24
litre_for_143sqmtr = surface_area_of_a_rectangle / 24
print(litre_for_143sqmtr)
cost_of_two_litre_paint = 32.5
total_cost_repaint = litre_for_143sqmtr * cost_of_two_litre_paint
print(str(total_cost_repaint) + " " + "Naira")
```
```
143.8456
5.993566666666666
194.79091666666665 Naira
```

Solution

In [ ]:
```python
savings_account = 3000
```

I have a savings account with N30000 of initial savings and the savings rate is 2%.
How much gain will I have made after 1 year, 5 years, 10 years and 20 years?

In [ ]:
```python
#Your code
#simple_interest = (P * R * T)/100
n = 1
P = 3000
R = 2
T = 1
simple_interest = (P * R * T)/100
print(simple_interest)
```

In [ ]:
```python
Pr = P + simple_interest
Pr
n = 5
R = 2
T = 5
S_I5 = (Pr * R * T)/100
S_I5
```

In [ ]:
```python
Pr10 = Pr + S_I5
Pr10
n = 10
R = 2
T = 10
S_I10 = (Pr10 * R * T)/100
S_I10
```

In [ ]:
```python
Pr20 = Pr10 + S_I10
Pr20
n = 20
R = 2
T = 20
S_I20 = (Pr20 * R * T)/100
S_I20
```

Solution - In class

Calculate the year of birth of a person from their age.

In [89]:
```python
#Your code
your_age = input("Enter your age: ")    # input statement is used to get comment or info from user

print(your_age)

type(your_age)

age = int(your_age)

type(age)

current_year = input("The current year: ")

#print(current_year)

curr_year = int(current_year)

birth_year = curr_year - age

birth_year

print("Your year of birth is " + "" + str(birth_year))
```
```
Enter your age: 22
22
The current year: 2023
Your year of birth is 2001
```

Solution

Print each word individually of the following sentence.

In [ ]:
```python
sentence = "It's raining today."
```

In [ ]:
```python
# your code
print(sentence[0])
print(sentence[1])
print(sentence[2])
print(sentence[3])
print(sentence[4])
print(sentence[5])
print(sentence[6])
print(sentence[7])
print(sentence[8])
print(sentence[9])
print(sentence[10])
print(sentence[11])
print(sentence[12])
print(sentence[13])
print(sentence[14])
print(sentence[15])
print(sentence[16])
print(sentence[17])
print(sentence[18])
```

Solution

What is the length of the previous sentence ?

In [ ]:
```python
#Your code
len(sentence)
```

Assignment - due Wednesday 28-06-2023

Extract each number of the following sentence and add them together.

In [6]:
```python
word = "6 A 15 C 4 G 24 T"
```

In [ ]:
```python
#Your code
```

Assignment - due Wednesday 28-06-2023

The number of bacteria in a culture where there were initially 50 bacteria increases exponentially. The function that models the number B of bacteria in the culture as a function of the number n of days is defined by : B(n)=50×10^(n/2)

How many bacteria are there after 1 day, 2 days, 5 days, 10 days, 20 days?

```
#Your code
```