

# Lists

In [14]:

```
# creating a list
mylist = [3,5,6,7]
print(mylist)
```

[3, 5, 6, 7]

In [15]:

```
type(mylist)
```

Out[15]:

list

In [16]:

```
print(mylist[0])
print(mylist[2])
print(mylist[-1])
print(mylist[-3])
```

3  
6  
7  
5

In [17]:

```
mylist[2] = "python"    # lists can be taken different types of data
print(mylist)
```

[3, 5, 'python', 7]

In [18]:

```
mylist.append('course') # append(): adding some items end of the list
print(mylist)
```

[3, 5, 'python', 7, 'course']

In [19]:

```
mylist = [3,4,5,6,7]
mylist.append('course')
mylist.append('course')
print(mylist)

thelast = mylist.pop() # pop(): removing the last item of the list
print(thelast)
print(mylist)
```

[3, 4, 5, 6, 7, 'course', 'course']  
course  
[3, 4, 5, 6, 7, 'course']

In [20]:

```
mylist.index("course")
```

Out[20]:

5

In [21]:

```
In [21]:
```

```
mylist.index(4)
```

Out[21]:

```
1
```

In [22]:

```
mylist.count("course")
```

Out[22]:

```
1
```

In [23]:

```
list2 = ["Python", "Java", "R", "JavaScript", "Ruby", "Python", "Python"]  
list2.count("Python")
```

Out[23]:

```
3
```

In [24]:

```
mylist.remove("course")  
print(mylist)
```

```
[3, 4, 5, 6, 7]
```

In [26]:

```
list3 = [100, 23, 87, 13, 1000]  
list3.sort()  
list3
```

Out[26]:

```
[13, 23, 87, 100, 1000]
```

In [27]:

```
list4 = [41, 23, 78, 99, 37, 2.9, 2.8]  
list4.sort()  
list4
```

Out[27]:

```
[2.8, 2.9, 23, 37, 41, 78, 99]
```

In [28]:

```
list4.remove()
```

```
-----  
TypeError                                Traceback (most recent call last)  
<ipython-input-28-10ab72efc404> in <module>  
----> 1 list4.remove()
```

**TypeError:** remove() takes exactly one argument (0 given)

In [29]:

```
list5 = [41, 23, 78, 99, 37, 'python']  
list5.sort()  
list5
```

```
-----  
TypeError                                Traceback (most recent call last)  
<ipython-input-29-05f8850dd456> in <module>  
    1 list5 = [41, 23, 78, 99, 37, 'python']  
----> 2 list5.sort()  
    3 list5
```

**TypeError:** '<' not supported between instances of 'str' and 'int'

In [30]:

```
mylist.remove("course")
mylist.remove("python")
print(mylist)
```

**ValueError**

Traceback (most recent call last)

<ipython-input-30-2afa78f0dea0> in <module>

```
----> 1 mylist.remove("course")
      2 mylist.remove("python")
      3 print(mylist)
```

**ValueError:** list.remove(x): x not in list

In [31]:

```
mylist = [3,4,5,6,7]
mylist.reverse()
mylist
```

Out[31]:

```
[7, 6, 5, 4, 3]
```

In [32]:

```
mylist[::-1]
```

Out[32]:

```
[3, 4, 5, 6, 7]
```

In [33]:

```
mylist2 = ["python", "course", "hello"]
mylist2.sort()
mylist2
```

Out[33]:

```
['course', 'hello', 'python']
```

In [34]:

```
mylist3 = [1, 11, 111, 1111]
mylist.extend(mylist3)
mylist
```

Out[34]:

```
[7, 6, 5, 4, 3, 1, 11, 111, 1111]
```

In [35]:

```
mylist4 = [1, 11, 111, 1111]
mylist.append(mylist4)
print(mylist)
```

```
[7, 6, 5, 4, 3, 1, 11, 111, 1111, [1, 11, 111, 1111]]
```

In [36]:

```
list_in_list = ["python", "Java", 3.2, 4, 11, [5,65,7,8,9]]
print(list_in_list[5])
```

```
[5, 65, 7, 8, 9]
```

In [37]:

```
list_in_list[-1]
```

Out[37]:

```
[5, 65, 7, 8, 9]
```

In [40]:

```
mylist = [2, 3, 4, 5, 6, 'python', 'flutter', 'Android', 'JavaScript', 'dart', 3.2, 5.0]
print(mylist)
```

```
[2, 3, 4, 5, 6, 'python', 'flutter', 'Android', 'JavaScript', 'dart', 3.2, 5.0]
```

In [41]:

```
mylist.insert(5,55)    # insert(x,y) --> adding x th index the y value but don't change t
he x th value, it remains the same.
print(mylist)
```

```
[2, 3, 4, 5, 6, 55, 'python', 'flutter', 'Android', 'JavaScript', 'dart', 3.2, 5.0]
```

In [ ]:

```
a = list([1,2,3,4,5,6])
a
```

In [44]:

```
listel = list()
numbers = list(range(8))

print(numbers)
print(listel)
```

```
[0, 1, 2, 3, 4, 5, 6, 7]
[]
```

In [45]:

```
numbers2 = list(range(2,15,3)) #range(start, stop, step)
print(numbers2)
numbers2.reverse()
print(numbers2)
```

```
[2, 5, 8, 11, 14]
[14, 11, 8, 5, 2]
```

In [46]:

```
print(numbers[2:5])
```

```
[2, 3, 4]
```

In [47]:

```
numbers[5:8] = [10,11,12]
numbers
```

Out[47]:

```
[0, 1, 2, 3, 4, 10, 11, 12]
```

In [48]:

```
12 in numbers
```

Out[48]:

```
True
```

In [49]:

```
15 in numbers
```

```
Out[49]:
```

```
False
```

```
In [50]:
```

```
[1,2,3] + [4,5]
```

```
Out[50]:
```

```
[1, 2, 3, 4, 5]
```

```
In [52]:
```

```
[1,2,3] * 3
```

```
Out[52]:
```

```
[1, 2, 3, 1, 2, 3, 1, 2, 3]
```

```
In [53]:
```

```
list1 = [[1,2], 3, [4,5,6]]  
list1[1]
```

```
Out[53]:
```

```
3
```

## Conditional Statements

### If

if "condition":

```
    "do something"
```

print()

```
In [1]:
```

```
num = int(input("Please enter a number: "))
```

```
if num < 0:  
    num *= -1    #num = num*-1  
print("Result: ", num)
```

```
Please enter a number: 5
```

```
Result:  5
```

### If-Else

if "condition":

```
    "do something"
```

else:

```
    "do something another"
```

print()

### If-Elif-Else

**if "condition":**

**"do something"**

**elif "condition-2":**

**"do something another"**

**elif "condition-3":**

**"do something another"**

**else:**

**"do something different"**

**print()**

In [2]:

```
score = int(input("Please enter your score: "))

if score <= 40:
    print("Very bad, you should work hard..")
elif score <= 60:
    print("Nice but you should work more..")
elif score <= 100:
    print("Congratulation!")
else:
    print("Invalid score!!!")
```

Please enter your score: 3  
Very bad, you should work hard..

In [11]:

```
x = 8

if x > 4:
    x = x+1
elif x > 5:
    x = x+2
elif x > 7:
    x = x+3

print ("x, ", x)
```

x, 9

In [12]:

```
x = 5

if x > 4:
    x = x+1

if x > 5:
    x = x+2

if x > 7:
    x = x+3

print ("x, ", x)
```

x, 11

In [17]:

```
print("*****ATM Giriş Paneli*****")

kullanici_adi = "Omer"
parola = "hello"

kullanici_adil = input("Lütfen kullanıcı adınızı giriniz")

parola1= input("Lütfen Parolanızı giriniz.")

if (kullanici_adi != kullanici_adil and parola == parola1):
    print("Kullanıcı adınız hatalı")
elif (kullanici_adi==kullanici_adil and parola != parola1):
    print("Parolanız hatalı")
elif (kullanici_adi != kullanici_adil and parola!= parola1):
    print("Kullanıcı adınız ve parolanız hatalıdır.")
else:
    print("Tebrikler, Başarıyla giriş yaptınız")
```

```
*****ATM Giriş Paneli*****
Lütfen kullanıcı adınızı girinizOmer
Lütfen Parolanızı giriniz.Cengiz
Parolanız hatalı
```

In [18]:

```
x = 10

if x > 5:
    if x >7:
        print("İlker and Eylül")
```

İlker and Eylül

## Question

At a particular company, employees' salaries are raised progressively, calculated using the following formula:

**salary = salary + salary x (raise percentage)**

Raises are predefined as given below, according to the current salary of the worker. For instance, if the worker's current salary is less than or equal to 1000 TL, then its salary is increased 15%.

Range	Percentage
0 < salary ≤ 1000	15%
1000 < salary ≤ 2000	10%
2000 < salary ≤ 3000	5%
3000 < salary	2.5%

Write a program that asks the user to enter his/her salary. Then your program should calculate and print the raised salary of the user.

Some example program runs:

Please enter your salary: 1000

Your raised salary is 1150.0.

Please enter your salary: 2500

Your raised salary is 2625.0.

## Answer

In [4]:

```
salary = float(input("Please enter your salary: "))

if salary < 0:
    print("Invalid value")
else:

    if 0 < salary <= 1000:
        salary = salary + salary * 0.15
    elif salary <= 2000:
        salary = salary + salary * 0.1
    elif salary <= 3000:
        salary = salary + salary * 0.05
    else:
        salary = salary + salary * 0.025

    print("Your raised salary is", salary)
```

Please enter your salary: -5  
Invalid value

## While Loop Structure

### Condition Intro

**while :**

**"true statement"**

**"true statement"**

**condition update**

**A logical condition is repeated as long as it has a logical true value. For ending the loop, that condition must become false.**

In [7]:

```
num = 0

while num < 9:
    print("Value:{}".format(num))
    num = num +1
```

Value:0  
Value:1  
Value:2  
Value:3  
Value:4  
Value:5  
Value:6  
Value:7  
Value:8

In [ ]:

```
num2 = 0

while num2 != 9:
    print("Value:", num2)
    num2 +=2

#infinite loop
```

In [ ]:

```
num3 = int(input("Please enter an integer between 1 and 10: "))
```



```
while num3 < 1 or num3 > 10:
    print("Invalid value!!!!")
    sayi3 = int(input("Please enter an integer between 1 and 10: "))
print("Congrats...")
```

In [ ]:

```
num3 = int(input("Please enter an integer between 1 and 10: "))

while num3 < 1 or num3 > 10:
    print("Invalid value!!!!")
    num3 = int(input("Please enter an integer between 1 and 10: "))

print("Congrats!!...")
```

## Print items of a list

In [7]:

```
t = [1,2,3,4,5,6]
len(t)
```

Out[7]:

6

In [14]:

```
i = 0 #counter value

while (i < len(t)):
    #i+=1
    print(i, "th item: ", t[i])
    i+=1
```

```
0 th item: 1
1 th item: 2
2 th item: 3
3 th item: 4
4 th item: 5
5 th item: 6
```

In [15]:

```
while True:
    a = input("Enter a value: ")
    if a == "Exit":
        break
```

```
Enter a value: Sefa
Enter a value: Berkcan
Enter a value: exit
Enter a value: Deniz
Enter a value: Burcu
Enter a value: Kaan
Enter a value: Osman
Enter a value: Exit
```

## For Loop Structure

for "repeated value" in "list":

"true statement"

It takes the items as in sequence and processes them in a loop.

In [16]:

```
"""
a[0]
a[1]
a[2]
"""

a = [2,45,57]

for i in a:
    print(i)
```

2  
45  
57

In [20]:

```
i = 5
i in range(5)
```

Out[20]:

False

In [22]:

```
list1 = list(range(5))
list1
```

Out[22]:

[0, 1, 2, 3, 4]

In [23]:

```
list2 = list("Python")
list2
```

Out[23]:

['P', 'y', 't', 'h', 'o', 'n']

In [24]:

```
for i in range(5):
    print(i)
```

0  
1  
2  
3  
4

In [26]:

```
for i in "Python Course":
    print(i)
```

P  
y  
t  
h  
o  
n  
  
C  
o  
u  
r  
s  
e

In [32]:

```
for i in "Python Course".split():  
    print(i)
```

Python  
Course

In [33]:

```
for i in range(10):  
    if i == 5:  
        break  
    print(i)
```

0  
1  
2  
3  
4

In [35]:

```
for i in range(10):  
    if i == 5:  
        continue  
    print(i)
```

0  
1  
2  
3  
4  
6  
7  
8  
9

In [37]:

```
nums = list(range(8))  
  
squares = []  
  
for i in nums:  
    squares.append(i**2)  
print(squares)
```

[0, 1, 4, 9, 16, 25, 36, 49]

In [39]:

```
nums = list(range(8))  
print(nums)  
squares = [i**2 for i in nums]  
print(squares)
```

[0, 1, 2, 3, 4, 5, 6, 7]  
[0, 1, 4, 9, 16, 25, 36, 49]

In [41]:

```
nums = list(range(8))  
  
even_squares = [i**2 for i in nums if i % 2 == 0]  
  
odd_squares = [i**3 for i in nums if i % 2 == 1]  
  
print(even_squares)
```

```
print(odd_squares)
```

```
[0, 4, 16, 36]  
[1, 27, 125, 343]
```

In [43]:

```
mylist = [3,5,12,7,65,35]  
  
sum1 = 0  
  
for i in mylist:  
    sum1 = sum1 + i    #sum += i  
    print(sum1)  
  
print(sum1)  
    #print(sum1)
```

```
3  
8  
20  
27  
92  
127  
127
```

## Built-in functions

In [45]:

```
list1 = [1,2,3]  
list2 = [4,5,6]  
  
list(zip(list1,list2))
```

Out[45]:

```
[(1, 4), (2, 5), (3, 6)]
```

In [43]:

```
list1 = [1,2,3]  
list2 = [4,5,6]  
  
list3 = [a + b for a,b in zip(list1,list2)]  
  
print(list3)
```

```
[5, 7, 9]
```

## Find the max item of a list

In [3]:

```
mylist = [3,5,12,7,65,35]  
print(mylist[0])  
  
max1 = mylist[0]  
  
for i in mylist:  
    if i > max1:  
        max1 = i  
        print("max1: ", max1)  
        print("i: ", i)  
print(max1)
```

```
3  
max1:  5  
i:  5  
max1:  12
```

```
i: 12  
max1: 65  
i: 65  
65
```