COMPUTER PROGRAMMING I
Introduction To Python

BIL2205

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Python Programming Language

☐ Loops

☐ Condition Controlled Loops

◻ A condition controlled loop is programming structure that causes a statement or set of statements to repeat as long as a condition evaluates to True.

`while` condition:

       things to do while condition is True.

Python Programming Language

☐Condition Controlled Loops

☐ We refer to the process of going through a loop as an "iteration"

```
while condition:
```

       things to do while condition is True.

Python Programming Language

☐Condition Controlled Loops

standard Boolean condition
that evaluates to True
or False

```
while condition:
    statement
    statement
    statement
    statement
```
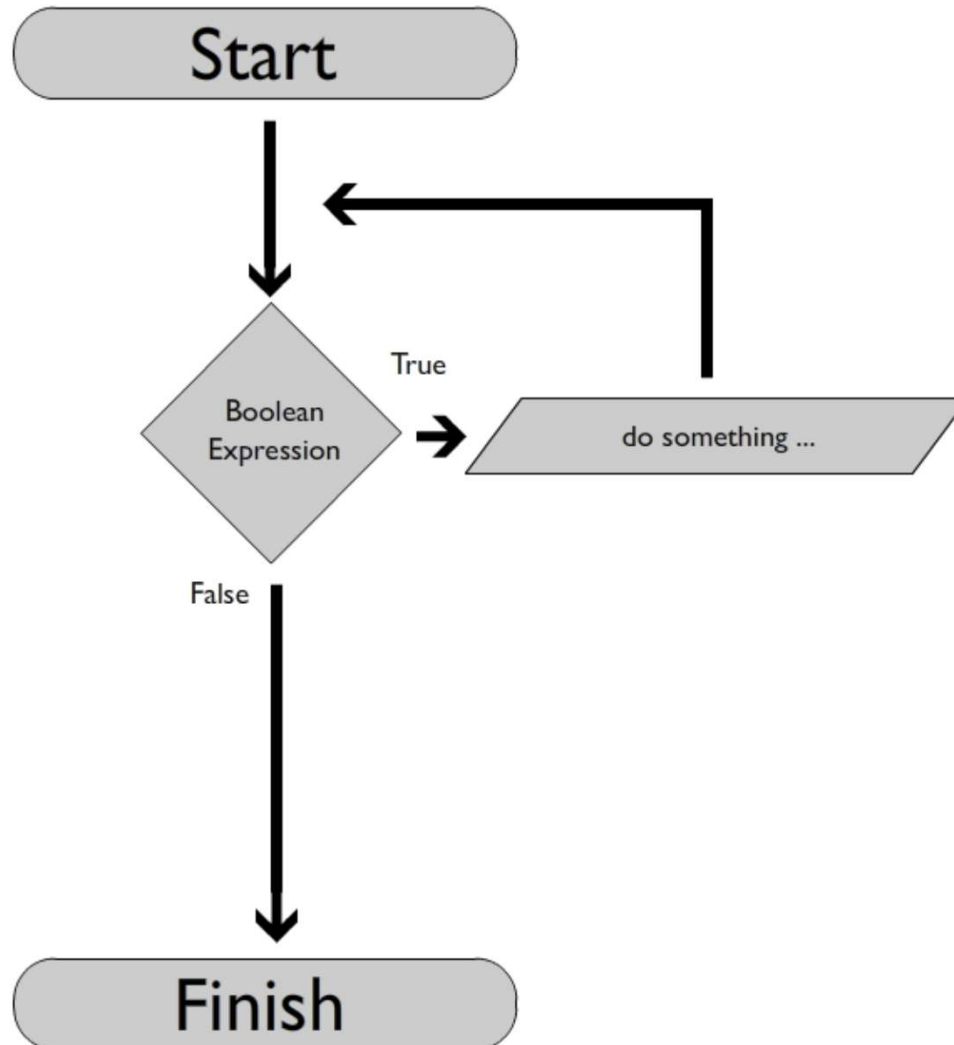
the statements that
will be repeated

indentation indicates that
the statements under the while
loop should be repeated

Python Programming Language

Start

True

Boolean
Expression

do something ...

False

Finish

while

☐Print the numbers from 1 to 10.

```
sayi = 1
while sayi <= 10:
    print (sayi)
    sayi = sayi + 1
```

Alper VAHAPLAR

while

☐Print the sum of numbers from 1 to 10.

```python
sayi = 1
toplam = 0
while sayi <= 10:
    toplam = toplam + sayi
    sayi = sayi + 1
print (toplam)
```

while

☐Calculate the sum of digits of a number entered by the user.

```python
sayi = int(input("Enter a number: "))
toplam = 0
while (sayi > 0):
    toplam = toplam + (sayi % 10)
    sayi = sayi // 10
print (toplam)
```

while

□A bank offers an interest of %5 of the balance for each year. In how many years does 100TL becomes 200TL or more?

```python
para = 100
yil = 0
while (para < 200):
    para = para + para*0.05
    yil += 1
print (yil,"yıl sonra",para,"TL olur")
```

while

☐Find the average of 10 numbers randomly generated between 55 and 65.

```python
import random
toplam = 0
adet = 0
while adet < 10:
    sayi = random.randint(55,65)
    toplam = toplam + sayi
    adet = adet + 1
avg = toplam / adet
print ("Ortalama =",avg)
```

while

☐Flip a coin for 100 times. Count the number of heads and tails. (100 kere para at, yazı – tura sayısını bul)

```python
import random
yazi = 0
tura = 0
atis = 0
while atis<100:
    para = random.choice(["Yazı","Tura"])
    if (para=="Yazı"): yazi += 1
    else: tura += 1
    atis += 1
print("Yazı sayısı:", yazi)
print("Tura sayısı:", tura)
```

□Calculate the average of numbers entered by the user.

Sentinel value

```python
toplam = 0
adet = 0
sayi=int(input("Enter a number (0) to exit: "))
while (sayi>0):
    toplam = toplam + sayi
    adet = adet + 1
    sayi=int(input("Enter a number (0) to exit: "))
print ("Average = ",toplam/adet)
```

while – sentinel values

☐ Find the minimum of the numbers entered by the user.

☐ Find the maximum of the numbers entered by the user.

☐ Find the range of the numbers entered by the user.

While – Exercises

☐ Print the proper divisors of a given number. (Verilen bir sayının tam bölenlerini yazdırınız.)

☐ Check if a given number is prime or not. (Verilen sayının asal olup olmadığını bulunuz.

☐ Check if a given number is "perfect number" or not. (Verilen sayının mükemmel sayı olup olmadığını bulunuz.)

Perfect number is a positive integer that is equal to the sum of its proper divisors.

Eg: 6 = 1 + 2 + 3,

Eg: 28 = 1 + 2 + 4 + 7 + 14

While – Exercises

☐ List the common divisors of two given numbers (Verilen iki sayının ortak bölenlerini yazdırınız.)

☐ Factorize a given number (Verilen bir sayıyı çarpanlarına ayırın. Ör: 420 = 2 x 2 x 3 x 5 x 7)

☐ Calculate the factorial of a given number.

☐ Calculate x^y for the given x and y values.

☐ List the prime numbers between 1 and 100

☐ List the perfect numbers between 1 and 10.000