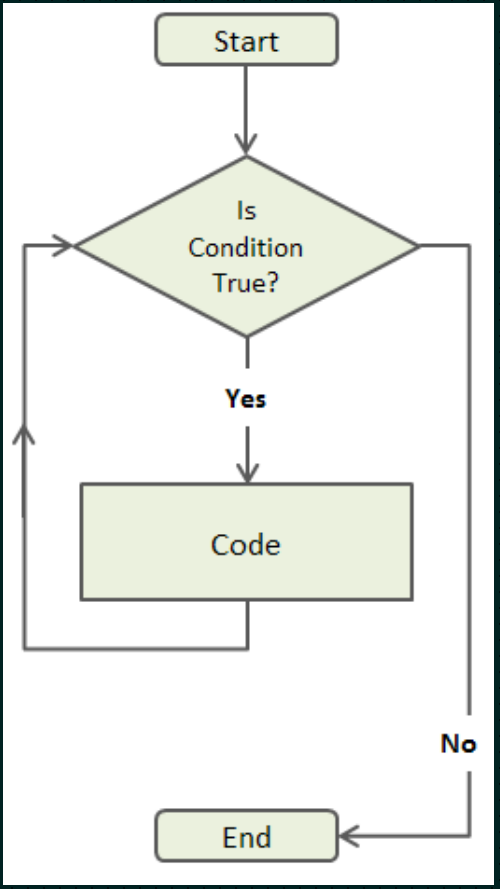
8-lesson

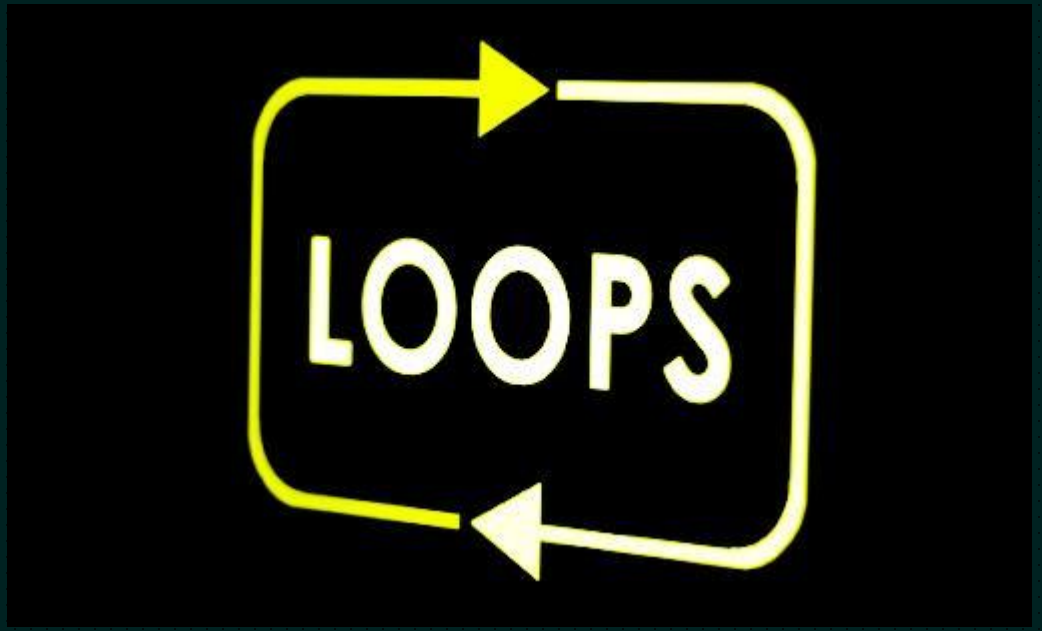
Python – Loops

Takrorlash operatorlari



Pythonda 2 xil sikl operatori mavjud:

- For
- While



FOR SIKLI

For sikli list , tuple, dictionary, set, string kabi ketma-ketliklarni iterasiya qilish uchun ishlatiladi

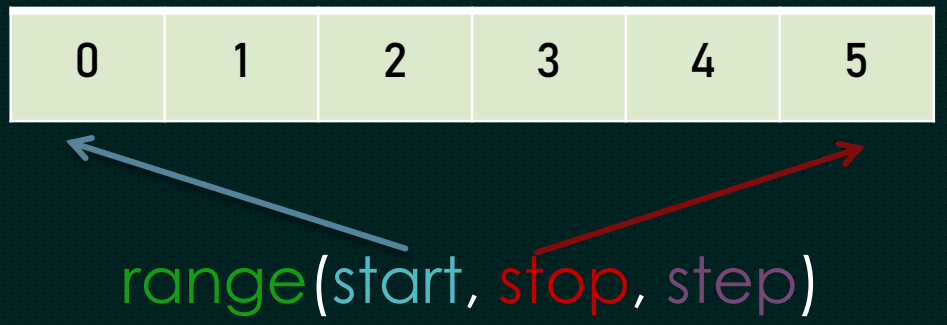
```
fruits = ["apple", "banana", "cherry"]
for x in fruits:
    print(x)
```

for qanday ishlaydi?

```python
mehmonlar = ['Ali','Vali','Hasan', 'Husan','Olim']
for mehmon in mehmonlar:
print(f"Hurmatli {mehmon}, sizni 20 Dekabr kuni nahorga oshga taklif qilamiz")
print("Hurmat bilan, Palonchiyevlar oilasi")
```

```
Hurmatli Ali, sizni 20 Dekabr kuni nahorga oshga taklif qilamiz
Hurmat bilan, Palonchiyevlar oilasi
Hurmatli Vali, sizni 20 Dekabr kuni nahorga oshga taklif qilamiz
Hurmat bilan, Palonchiyevlar oilasi
Hurmatli Hasan, sizni 20 Dekabr kuni nahorga oshga taklif qilamiz
Hurmat bilan, Palonchiyevlar oilasi
Hurmatli Husan, sizni 20 Dekabr kuni nahorga oshga taklif qilamiz
Hurmat bilan, Palonchiyevlar oilasi
Hurmatli Olim, sizni 20 Dekabr kuni nahorga oshga taklif qilamiz
Hurmat bilan, Palonchiyevlar oilasi
```

Range() funksiyasi



Misol 1

0 dan 10 gacha bo'lgan (0,1,2,3,4,5,6,7,8,9) sonlarni ekranga chiqazadigan dastur tuzing

```
for x in range(10):
    print(x)
```

Misol 2

6 dan 15 gacha bo'lgan sonlarni ekranga chiqazadigan dastur tuzing.

```
for x in range(6, 15):
    print(x)
```

for YORDAMIDA SONLI RO'YXATLAR BILAN ISHLASH

```python
sonlar = list(range(1,11))
for son in sonlar:
    print(f"{son} ning kvadrati {son**2} ga teng")

Natija:
    1 ning kvadrati 1 ga teng
    2 ning kvadrati 4 ga teng
    3 ning kvadrati 9 ga teng
    4 ning kvadrati 16 ga teng
    5 ning kvadrati 25 ga teng
    6 ning kvadrati 36 ga teng
    7 ning kvadrati 49 ga teng
    8 ning kvadrati 64 ga teng
    9 ning kvadrati 81 ga teng
    10 ning kvadrati 100 ga teng
```

for YORDAMIDA SONLI RO'YXAT SHAKLLANTIRISH

```python
sonlar = list(range(11))
sonlar_kvadrati =[]
for son in sonlar:
    sonlar_kvadrati.append(son**2)
    print(sonlar)
    print(sonlar_kvadrati)

Natija:
  [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
  [0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

for va input()

```python
dostlar = [] # bo'sh ro'yxat
print("5 ta eng yaqin do'stingiz kim?")
for n in range(5): # n bu yerda 0 dan 4 gacha qiymatlar oladi
  dostlar.append(input(f"{n+1}-do'stingizning ismini kiriting: "))
print(dostlar)
```

```
Natija:
  5 ta eng yaqin do'stingiz kim?
  1-do'stingizning ismini kiriting: Avazbek
  2-do'stingizning ismini kiriting: Bekzod
  3-do'stingizning ismini kiriting: Ilhomjon
  4-do'stingizning ismini kiriting: Akbarjon
  5-do'stingizning ismini kiriting: Isomiddin
  ['Avazbek', 'Bekzod', 'Ilhomjon', 'Akbarjon', 'Isomiddin']
```

Looping Through a String

```
for x in "For loop example":
  print(x)
```

Nested Loop

Nested Loop bu sikl ichida sikldir

```
color = ["red", "green", "yellow"]
fruits = ["apple", "peach", "cherry"]
for x in color:
  for y in fruits:
    print(x, y)
```

Python: enumerate funksiyasi()

enumerate funksiyasi **iterable turlar**(string,list,tuple,range,dict) bilan ishlatiladi

```
txt='Python'
for x in enumerate(txt):
  print(x)

Natija:
  (0, 'P')
  (1, 'y')
  (2, 't')
  (3, 'h')
  (4, 'o')
  (5, 'n')
```

“Python” so’zidagi h harfi nechinchi indexda joylashgan ?

```python
txt='Python'
for index,letter in enumerate(txt):
  if letter=='h':
    print(f'h harfi topildi {index}-indexda joylashgan.')

Natija:
  h harfi topildi 3-indexda joylashgan.
```

Listdagi o elementi nechinchi indexda joylashgan ?

```python
letters=['p','y','t','h','o','n']
for index,letter in enumerate(letters):
  if letter=='y':
    print(f'o elementi topildi {index}-indexda joylashgan.')

Natija:
  o elementi topildi 1-indexda joylashgan.
```

Python – Amaliy Mashq

- ✓ Finding Duplicates - Listning ichidagi takrorlangan elementlarni alohida listga yozish
- ✓ Finding Duplicates - Listning ichidagi takrorlangan elementlarni faqat bittadanini alohida listga yozish
- ✓ Listdagi eng katta elementni topish

Python – Nested Loop Amaliy Mashq

```
binary=[
    [0,0,0,1,0,0,0],
    [0,0,1,1,1,0,0],
    [0,1,1,1,1,1,0],
    [1,1,1,1,1,1,1],
    [0,0,1,1,0,0,0],
    [0,0,1,1,0,0,0],
    [0,0,1,1,0,0,0],
]
```

```
        *
      * * *
    * * * * *
  * * * * * * *
      * *
      * *
      * *
```

Python – While Loop

While loopi ham For loop ga o'xshab takrorlanishlarni amalga oshirish uchun ishlatiladi

For Loop

```
for i in range(1,5):
    print(i,end=' ')

Natija:
  1 2 3 4
```

While Loop

```
i=0 # dastlabki qiymat
while i<5:
    print(i,end=' ')
    i+=1

Natija:
  1 2 3 4
```

Python – break and continue

break - kalit so'zidan ma'lum bir shart bajarilsa jarayonni to'xtatish uchun foydalanamiz.

continue - kalit so'zidan ma'lum shart bajarilsa o'sha qiymatni tashlab keyingisiga o'tish uchun foydalanamiz.

```
numbers=[1,3,5,2,4,6,7,8,9,10]
odds=[]
for i in numbers:
    if i%2==0:
        break
    odds.append(i)
print(odds)
Natija:
  [1, 3, 5]
```

```
numbers=[1,3,5,2,4,6,7,8,9,10]
odds=[]
for i in numbers:
    if i%2==0:
        continue
    odds.append(i)
print(odds)
Natija:
  [1, 3, 5, 7, 9]
```

Python – Topshiriqlar

Topshiriq 1 – Kamida 5 elementdan iborat ismlar degan ro'yxat tuzing, va ro'yxatdagi har bir ismga takrorlanuvchi xabar yozing

Topshiriq 2 – Yuoqirdagi sikl tugaganidan so'ng, ekranga "Kod n marta takrorlandi" degan xabarni chiqaring (n o'rniga kod necha marta takrorlanganini yozing)

```
Salom Ali
Salom Vali
Salom Hasan
Salom Husan
Salom Olim
Kod 5 marta takrorlandi
```

Python – Topshiriqlar

Topshiriq 3 – 10 dan 100 gacha bo'lgan toq sonlar ro'yxatini tuzing. Ro'yxatning xar bir elementining kubini yangi qatordan konsolga chiqaring.

```
1331
2197
3375
4913
6859
9261
12167
15625
19683
24389
29791
```

Topshiriq 4 – Foydalanuvchidan 5 ta eng sevimli kinolarini kiritshni so'rang, va kinolar degan ro'yxatga saqlab oling. Natijani konsolga chiqaring.

```
5 ta eng sevimli kinolarizni sanang:
1-kinoyingiz nomini kiriting: The Net
2-kinoyingiz nomini kiriting: Webmaster
3-kinoyingiz nomini kiriting: The Code
4-kinoyingiz nomini kiriting: Open Windows
5-kinoyingiz nomini kiriting: The Circle
['The Net', 'Webmaster', 'The Code', 'Open Windows', 'The Circle']
```

Python – Topshiriqlar

Topshiriq 5 – 1 – 100 oraliqdagi natural sonlardan 7 ga karrali sonlarning kvadratlarini ekranga chiqaring.

```
0 ning kvadrati 0 ga teng
7 ning kvadrati 49 ga teng
14 ning kvadrati 196 ga teng
21 ning kvadrati 441 ga teng
28 ning kvadrati 784 ga teng
35 ning kvadrati 1225 ga teng
42 ning kvadrati 1764 ga teng
```

Python – Topshiriqlar

Topshiriq 6 – 2 dan 9 gacha bo'lgan sonlarning karra jadvalini ekranga chiqaruvchi dastur tuzing

```
2 * 1 = 2  |  3 * 1 = 3  |  4 * 1 = 4  |  5 * 1 = 5  |  6 * 1 = 6  |
2 * 2 = 4  |  3 * 2 = 6  |  4 * 2 = 8  |  5 * 2 = 10 |  6 * 2 = 12 |
2 * 3 = 6  |  3 * 3 = 9  |  4 * 3 = 12 |  5 * 3 = 15 |  6 * 3 = 18 |
2 * 4 = 8  |  3 * 4 = 12 |  4 * 4 = 16 |  5 * 4 = 20 |  6 * 4 = 24 |
2 * 5 = 10 |  3 * 5 = 15 |  4 * 5 = 20 |  5 * 5 = 25 |  6 * 5 = 30 |
2 * 6 = 12 |  3 * 6 = 18 |  4 * 6 = 24 |  5 * 6 = 30 |  6 * 6 = 36 |
2 * 7 = 14 |  3 * 7 = 21 |  4 * 7 = 28 |  5 * 7 = 35 |  6 * 7 = 42 |
2 * 8 = 16 |  3 * 8 = 24 |  4 * 8 = 32 |  5 * 8 = 40 |  6 * 8 = 48 |
2 * 9 = 18 |  3 * 9 = 27 |  4 * 9 = 36 |  5 * 9 = 45 |  6 * 9 = 54 |
```