Python programming language

Week 4. Python operators

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Python dasturlash tili

4-Mavzu. Python operatorlari

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4-Mavzu. Python operatorlari

Reja:

- Python arifmetik operatorlari
- Belgilash (tayinlash) operatorlari
- Taqqoslash operatorlari
- Mantiqiy operatorlar
- A’zolik operatorlari

Python dasturlash tilida operatorlar

Arifmetik operatorlar umumiy matematik amallarni bajarish uchun raqamli qiymatlar bilan ishlatiladi

Python dasturlash tilida arifmetik operatorlar

Quyida asosiy python dasturlash tili arifmetik amallari keltirilgan

Operator	Nomi	Misol
+	Qo‘shuv	x + y
-	Ayirma	x - y
*	Ko‘paytiruv	x * y
/	Bo‘luv	x / y
%	Modul	x % y
**	Ko‘rsatkichga ko‘tarish	x ** y

Python dasturlash tilida arifmetik operatorlar

- **+ (qo‘shuv) operatoriga misol.**

```
In [1]: x = 5
        y = 3

        print(x + y)
```

```
8
```

Python dasturlash tilida arifmetik operatorlar

- **+ (qo‘shuv) operatoriga misol.**

```
In [3]: x = 5
        y = 7
        z = 9

        print(x+y+z)
```

```
21
```

Python dasturlash tilida arifmetik operatorlar

- **‘-’ (ayirma) operatoriga misol**

```
In [2]: x = 15
        y = 3

        print(x - y)

        12
```

Python dasturlash tilida arifmetik operatorlar

- **‘-’ (ayirma) operatoriga misol**

```
In [2]: x = 55
        y = 7
        z = 9

        print(x-y-z)
```

```
39
```

Python dasturlash tilida arifmetik operatorlar

- **‘*‘ (ko‘paytiruv) operatoriga misol**

```
In [3]: x = 8
        y = 7

        print(x * y)

        56
```

Python dasturlash tilida arifmetik operatorlar

- **‘*‘ (ko‘paytiruv) operatoriga misol**

```
In [6]: nomer1 = 5
        nomer2 = 7
        nomer3 = 9

        print(nomer1*nomer2*nomer3)
```

```
315
```

Python dasturlash tilida arifmetik operatorlar

- **‘/’ (bo‘luv) operatoriga misol**

```
In [6]: x = 64
        y = 8

        print(x / y)

        8.0
```

Python dasturlash tilida arifmetik operatorlar

- **‘/’ (bo‘luv) operatoriga misol**

```
In [10]: nomer1 = 55
         nomer2 = 3
         nomer3 = 2

         print(nomer1/nomer2/nomer3)
```

```
9.166666666666666
```

Python dasturlash tilida arifmetik operatorlar

- **‘%’ (modul) operatoriga misol**

```
In [7]: x = 7
        y = 3

        print(x % y)
```

```
1
```

Python dasturlash tilida arifmetik operatorlar

- **‘%’ (modul) operatoriga misol**

```
In [15]: nomer1 = 1
         nomer2 = 3
         nomer3 = 2

         print(nomer1%nomer2%nomer3)
```

```
1
```

Python dasturlash tilida arifmetik operatorlar

- **‘**’ (ko‘rsatkichga ko‘tarish) operatori misol**

```
In [8]: x = 2
        y = 5

        print(x ** y) #bunday yozsa ham bo`ladi 2*2*2*2*2

        32
```

Python dasturlash tilida arifmetik operatorlar

- **‘**’ (ko‘rsatkichga ko‘tarish) operatori misol**

```
In [17]: nomer1 = 2
         nomer2 = 3

         print(nomer1 ** nomer2)
```

```
8
```

Python dasturlash tilida tayinlash operatorlar

O‘zgaruvchilarga qiymatlarni belgilash uchun tayinlash operatorlari ishlatiladi:

Operator	misol	bir xil (bu usulda yozilsa ham bir xil natija beradi)
=	x = 5	x = 5
+=	x += 3	x = x + 3
-=	x -= 3	x = x - 3
*=	x *= 3	x = x * 3
/=	x /= 3	x = x / 3
%=	x %= 3	x = x % 3
//=	x //= 3	x = x // 3
**=	x **= 3	x = x ** 3
&=	x &= 3	x = x & 3
|=	x |= 3	x = x | 3
^=	x ^= 3	x = x ^ 3
>>=	x >>= 3	x = x >> 3
<<=	x <<= 3	x = x << 3

Python dasturlash tilida tayinlash operatorlar

- **‘=’ operatoriga misol**

```
In [9]: x = 2

        print(x)

        2
```

Python dasturlash tilida tayinlash operatorlar

- **‘+=’ operatoriga misol**

```
In [10]: x = 2

         x += 3

         print(x)

         5
```

Python dasturlash tilida tayinlash operatorlar

- **‘-=’ operatoriga misol**

```
In [11]: x = 12

         x -= 3

         print(x)

         9
```

Python dasturlash tilida tayinlash operatorlar

- **‘*=’ operatoriga misol**

```
In [13]: x = 2

         x *= 3

         print(x)

         6
```

Python dasturlash tilida tayinlash operatorlar

- **‘/=’ operatoriga misol**

```
In [14]: x = 6

         x /= 3

         print(x)

         2.0
```

Python dasturlash tilida tayinlash operatorlar

- **‘%=’ operatoriga misol**

```
In [16]: x = 7

         x %= 3

         print(x)

         1
```

Python dasturlash tilida tayinlash operatorlar

- **‘//=’ operatoriga misol**

```
In [17]: x = 7

         x //= 3

         print(x)

         2
```

Python dasturlash tilida tayinlash operatorlar

- **‘**=’ operatoriga misol**

```
In [18]: x = 4

         x **= 3

         print(x)

         64
```

Python dasturlash tilida tayinlash operatorlar

- **‘&=’ operatoriga misol**

```
In [29]: x = 15

         x &= 3

         print(x)

         3
```

Python dasturlash tilida tayinlash operatorlar

- **‘|=’ operatoriga misol**

```
In [31]: x = 5

         x |= 4

         print(x)

         5
```

Python dasturlash tilida tayinlash operatorlar

- **‘^=’ operatoriga misol**

```
In [39]: x = 7

         x ^= 6

         print(x)

         1
```

Python dasturlash tilida tayinlash operatorlar

- **‘>>=’ operatoriga misol**

```
In [44]: x = 9

         x >>= 2

         print(x)

         2
```

Python dasturlash tilida tayinlash operatorlar

- **‘<<=’ operatoriga misol**

```
In [45]: x = 9

         x <<= 2

         print(x)
```

```
36
```

Python dasturlash tilida taqqoslash operatorlar

O‘zgaruvchilarga qiymatlarni belgilash uchun tayinlash operatorlari ishlatiladi:

Operator	Nomi	Misol
==	teng	x == y
!=	teng emas	x != y
>	katta	x > y
<	kichik	x < y
>=	katta yoki teng	x >= y
<=	kichik yoki teng	x <= y

Python dasturlash tilida taqqoslash operatorlar

- **‘==’ (teng) operatoriga misol**

```
In [46]: x = 5

         y = 2

         print(x == y)

         #False javobi qaytaradi
         #sababi 5 soni 2ga teng emas

         False
```

Python dasturlash tilida taqqoslash operatorlar

- **‘!=’ (teng emas) operatori misol**

In [47]:
```
x = 3

y = 2

print(x != y)

#True javobi qaytaradi
#sababi 3 soni 2ga teng emas
```

```
True
```

Python dasturlash tilida taqqoslash operatorlar

- **‘>’ (katta) operatoriga misol**

```
In [48]: x = 7

         y = 6

         print(x > y)

         #True javobi qaytaradi
         #sababi 7 soni 6dan katta

         True
```

Python dasturlash tilida taqqoslash operatorlar

- **‘<’ (kichik) operatoriga misol**

In [50]:
```
x = 7

y = 6

print(x < y)

#False javobi qaytaradi
#sababi 7 soni 6dan katta
```

```
False
```

Python dasturlash tilida taqqoslash operatorlar

- **‘>=’ (katta yoki teng) operatoriga misol**

```
In [52]: x = 7

         y = 6

         print(x >= y)

         True
```

Python dasturlash tilida taqqoslash operatorlar

- **‘<=’ (kichik yoki teng) operatoriga misol**

```
In [54]: x = 8

         y = 2

         print(x <= y)

         False
```

Python dasturlash tilida mantiqiy operatorlar

- Mantiqiy operatorlar shartli gaplarni birlashtirish uchun ishlatiladi:

Operator	**Ta’rifi**	**Misol**
and	Ikkala holat ham to‘g‘ri bo‘lsa,**True** qiymatini qaytaradi	x < 5 and x < 10
or	Agar holatlardan biri to‘g‘ri bo‘lsa, **True** qiymatini qaytaradi	x < 5 or x < 4
not	Natijani teskari o‘zgartiring, agar natija to‘g‘ri bo‘lsa, **False** qiymatini qaytaradi	not(x < 5 and x < 10)

Python dasturlash tilida mantiqiy operatorlar

- **‘and’ operatoriga misol**

```
In [55]: x = 7

         print(x > 3 and x < 10)

         True
```

Python dasturlash tilida mantiqiy operatorlar

- **‘or’ operatoriga misol**

```
In [58]: x = 1

         print(x > 5 or x < 15)

         True
```

Python dasturlash tilida mantiqiy operatorlar

- **‘not’ operatoriga misol**

```
In [64]: x = 5

         print(not(x > 3 and x < 10))

         False
```

Python dasturlash tilida Identifikatsiya operatorlar

Identifikatsiya operatorlari o‘zgaruvchilarni solishtirish uchun ishlatiladi, taqqoslash operatidan farqi identifikatsiya operatorlari, o‘zgaruvchilarni xotira joylashuvi bilan solishtiradi:

Operator	**Ta’rifi**	**Misol**
is	Ikkala o‘zgaruvchi ham bir xil obyekt bo‘lsa, **True** qiymatini qaytaradi	x is y
is not	Ikkala o‘zgaruvchi ham bir xil obyekt bo‘lmasa, **True** qiymatini qaytaradi	x is not y

Python dasturlash tilida Identifikatsiya operatorlar

- **‘is’ operatoriga misol**

In [67]:
```
x = ["python", "java"]
y = ["python", "java"]
z = x

print(x is z)

#True qaytaradi sababi
#z va x bir obyektga hisoblanadi

print(x is y)

#False qayataradi sababi x va y
#bir xil obyekt emas
```

```
True
False
```

Python dasturlash tilida Identifikatsiya operatorlar

- **‘is not’ operatoriga misol**

In [69]:
```
x = ["python", "java"]
y = ["python", "java"]
z = x

print(x is not z)

#False qaytaradi sababi
#z va x bir xil obyekt hisoblanadi

print(x is not y)

#True qayataradi sababi x va y
#bir xil obyekt emas
```

```
False
True
```

Python dasturlash tilida A’zolik operatorlar

- O‘zgaruvchida ketma-ketlik mavjudligini tekshirish uchun a’zolik operatorlari ishlatiladi:

Operator	**Ta’rifi**	**Misol**
in	Obyektda ko‘rsatilgan qiymatga ega ma’lumot mavjud bo‘lsa, **True** qiymatini qaytaradi	x in y
not in	Belgilangan qiymatga ega ma’lumot obyektda mavjud bo‘lmasa, **True** qiymatini qaytaradi	x not in y

Python dasturlash tilida A’zolik operatorlar

- **‘in’ operatoriga misol**

```
In [70]: x = ["python", "java"]

         print("python" in x)

         #True qayataradi sababi python
         #so`zi x to`plamida mavjud
```

```
True
```

Python dasturlash tilida A’zolik operatorlar

- **‘not in’ operatoriga misol**

```
In [71]: x = ["python", "java"]

         print("C++" in x)

         #False qayataradi sababi C++
         #so`zi x to`plamida mavjud emas
```

```
False
```

Foydalanilgan adabiyotlar

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E’tiboringiz uchun rahmat!