

شرط

```
if age >= 18:
    print("adult")
elif age >= 13:
    print("teen")
else:
    print("child")
msg = "ok" if ok else "no"
```

متغیر و انواع داده

```
name = "Ali"           # str
age = 25                # int
price = 19.5            # float
ok = True               # bool
x = None                # NoneType
type(age)               # <class 'int'>
int("5"), str(5), float("2.5")
```

حلقه‌ها

```
for i in range(5):      # 0..4
    print(i)
for i in range(1, 10, 2): # 1 3 5 7 9
    ...
for i, v in enumerate(["a", "b"]):
    print(i, v)
while n > 0:
    n -= 1
break      continue      pass
```

ورودی و خروجی

```
name = input("Name: ") # always str
n = int(input("N: "))
print("Hi", name, sep=" - ")
print(f"{name} is {age} years old")
print(f"{price:.2f}") # 19.50
```

عملگرها

```
7 + 2, 7 - 2, 7 * 2 # 9 5 14
7 / 2               # 3.5
7 // 2, 7 % 2       # 3 1
2 ** 3              # 8
== != < > <= >=
and or not in is
```

رشته‌ها

```
s = "Hello Python"
len(s)           # 12
s[0], s[-1]      # 'H' 'n'
s[0:5]           # 'Hello'
s.upper(), s.lower()
s.replace("Hello", "Hi")
s.split()         # ['Hello', 'Python']
" ".join(["a", "b"]) # 'a b'
s.strip(), s.startswith("He")
s.find("Py")      # 6
```

List Comprehension

```
squares = [x**2 for x in range(5)]  
# [0, 1, 4, 9, 16]  
evens = [x for x in range(10) if x % 2 == 0]  
d = {x: x**2 for x in range(3)}  
# {0: 0, 1: 1, 2: 4}
```

لیست (list)

```
nums = [3, 1, 2]  
nums.append(4)      # [3, 1, 2, 4]  
nums.insert(0, 9)   # by value  
nums.remove(9)      # removes last  
nums.pop()          # in place  
nums.sort()         # sorted(nums, reverse=True)  
nums[1:], len(nums), sum(nums)  
3 in nums           # True
```

تابع

```
def greet(name, msg="Hi"):  
    return f"{msg}, {name}!"  
  
greet("Ali")        # 'Hi, Ali!'  
greet("Ali", msg="Hello")  
  
def total(*args, **kwargs):  
    return sum(args)  
  
square = lambda x: x * x
```

تاپل و مجموعه

```
t = (1, 2, 3)        # immutable  
a, b, c = t          # unpacking  
s = {1, 2, 2, 3}     # {1, 2, 3}  
s.add(4)  
{1, 2} | {2, 3}     # union {1,2,3}  
{1, 2} & {2, 3}     # {2}
```

توابع داخلی پرکاربرد

```
len() type() range() print()  
min() max() sum() abs() round()  
sorted() reversed() enumerate()  
zip() map() filter() isinstance()
```

دیکشنری (dict)

```
user = {"name": "Ali", "age": 25}  
user["name"]      # 'Ali'  
user.get("city", "-") # default  
user["city"] = "Tehran"  
del user["age"]  
for k, v in user.items():  
    print(k, v)  
user.keys(), user.values()
```

کلاس و شیء‌گرایی

```
class Dog:
    def __init__(self, name):
        self.name = name

    def bark(self):
        return f"{self.name}: Woof!"

class Puppy(Dog):          # inheritance
    def bark(self):
        return super().bark() + "!"

Dog("Rex").bark()          # 'Rex: Woof!'
```

مدیریت خطا

```
try:
    n = int(input("N: "))
except ValueError:
    print("Not a number!")
else:
    print("OK")
finally:
    print("done")
raise ValueError("bad value")
```

ماژول و pip

```
import math
from random import randint
import datetime as dt

math.sqrt(16)          # 4.0
randint(1, 6)
dt.date.today()

# terminal:
pip install requests
python -m venv venv
```

کار با فایل

```
with open("a.txt", "w", encoding="utf-8")
as f:
    f.write("salam\n")

with open("a.txt", encoding="utf-8") as f:
    for line in f:
        print(line.strip())
# modes: "r" read, "w" write, "a" append
```

قدم بعدی چیست؟

dev-source.ir

دوره رایگان پایتون از صفر تا سطح متوسط و ساخت ربات تلگرام در dev-source.ir