

四 操作列表

```
magicians = ["alice", "david", "carolina"]
for magician in magicians :
    print(magician)
```

```
alice
david
carolina
```

```
magicians = ["alice", "david", "carolina"]
for magician in magicians :
    print(f"{magician.title()}, that was a great trick!")
```

```
Alice, that was a great trick!
David, that was a great trick!
Carolina, that was a great trick!
```

```
magicians = ["alice", "david", "carolina"]
for magician in magicians :
    print(f"{magician.title()}, that was a great trick!")
    print(f"I can't wait to see your next trick, {magician.title()}.\\n")
```

```
Alice, that was a great trick!
I can't wait to see your next trick, Alice.

David, that was a great trick!
I can't wait to see your next trick, David.

Carolina, that was a great trick!
I can't wait to see your next trick, Carolina.
```

```
magicians = ["alice", "david", "carolina"]
for magician in magicians :
    print(f"{magician.title()}, that was a great trick!")
    print(f"I can't wait to see your next trick, {magician.title()}.\\n")
print("Thank you, everyone. That was a great magic show!")
```

Alice, that was a great trick!
I can't wait to see your next trick, Alice.

David, that was a great trick!
I can't wait to see your next trick, David.

Carolina, that was a great trick!
I can't wait to see your next trick, Carolina.

Thank you, everyone. That was a great magic show!

```
magicians = ["alice", "david", "carolina"]  
for magician in magicians :  
    print(magician)
```

```
File "<ipython-input-5-ac9b753b8caf>", line 3  
    print(magician)  
    ^  
IndentationError: expected an indented block
```

```
magicians = ["alice", "david", "carolina"]  
for magician in magicians :  
    print(f"{magician.title()}, that was a great trick!")  
    print(f"I can't wait to see your next trick, {magician.title()}.\n")
```

Alice, that was a great trick!
David, that was a great trick!
Carolina, that was a great trick!
I can't wait to see your next trick, Carolina.

```
message = "Hello Python world!"  
print(message)
```

```
File "<ipython-input-7-e744c47c5d20>", line 2  
    print(message)  
    ^  
IndentationError: unexpected indent
```

```
magicians = ["alice", "david", "carolina"]  
for magician in magicians :  
    print(f"{magician.title()}, that was a great trick!")  
    print(f"I can't wait to see your next trick, {magician.title()}.\n")  
    print("Thank you, everyone. That was a great magic show!")
```

Alice, that was a great trick!
I can't wait to see your next trick, Alice.

Thank you, everyone. That was a great magic show!
David, that was a great trick!
I can't wait to see your next trick, David.

Thank you, everyone. That was a great magic show!
Carolina, that was a great trick!
I can't wait to see your next trick, Carolina.

Thank you, everyone. That was a great magic show!

```
magicians = ["alice", "david", "carolina"]
for magician in magicians:
    print(magician)
```

```
File "<ipython-input-9-c67041839db4>", line 2
    for magician in magicians
                                ^
SyntaxError: invalid syntax
```

练习4-1

```
pizzas = ["A pizza", "B pizza", "C pizza"]
for pizza in pizzas:
    print(f"I like {pizza}")
print("I really like pizza!")
```

```
I like A pizza
I like B pizza
I like C pizza
I really like pizza!
```

练习4-2

```
animals = ["dog", "cat", "monkey"]
for animal in animals:
    print(f"A {animal} would make a great pet")
print("Any of these animals would make a great pet")
```

```
A dog would make a great pet
A cat would make a great pet
A monkey would make a great pet
Any of these animals would make a great pet
```

```
for value in range(1, 5):  
    print(value)
```

```
1  
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```

```
for value in range(1, 6):  
    print(value)
```

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```
numbers = list(range(1, 6))  
print(numbers)
```

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

```
even_numbers = list(range(2, 11, 2))  
print(even_numbers)
```

```
[2, 4, 6, 8, 10]
```

```
squares = []  
for value in range(1, 11):  
    square = value ** 2  
    squares.append(square)  
print(squares)
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

```
squares = []  
for value in range(1, 11):  
    squares.append(value ** 2)  
print(squares)
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

```
digits = [1, 2, 3, 4, 5, 6, 7, 8, 9, 0]  
min(digits)
```

```
0
```

```
max(digits)
```

```
9
```

```
sum(digits)
```

```
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```

```
squares = [value ** 2 for value in range(1, 11)]  
print(squares)
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

练习4-3

```
for i in range(1, 21):  
    print(i)
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```
list1 = [value for value in range(1, 10001)]  
for value in list1:  
    print(value)
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9987
9988
9989
9990
9991
9992
9993
9994
9995
9996
9997
9998
9999
10000
```

练习4-5

```
print(f"min = {min(list1)}\nmax = {max(list1)}\nsum = {sum(list1)}")
```

```
min = 1
max = 10000
sum = 50005000
```

练习4-6

```
list1 = [value for value in range(1, 21, 2)]
for value in list1:
    print(value)
```

```
1
3
5
7
9
11
13
15
17
19
```

练习4-7

```
list1 = [value for value in range(3, 31, 3)]
for value in list1:
    print(value)
```

```
3
6
9
12
15
18
21
24
27
30
```

练习4-8

```
list1 = [value ** 3 for value in range(1, 11)]
for value in list1:
    print(value)
```

```
1
8
27
64
125
216
343
512
729
1000
```

练习4-9

```
list1 = [value ** 3 for value in range(1, 11)]
```

```
players = ["charles", "martina", "michael", "florence", "eli"]  
print(players[0:3])
```

```
['charles', 'martina', 'michael']
```

```
print(players[1:4])
```

```
['martina', 'michael', 'florence']
```

```
print(players[:4])
```

```
['charles', 'martina', 'michael', 'florence']
```

```
print(players[2:])
```

```
['michael', 'florence', 'eli']
```

```
print(players[-3:])
```

```
['michael', 'florence', 'eli']
```

```
print("Here are the first three players on my team:")  
for player in players[:3]:  
    print(player)
```

```
Here are the first three players on my team:  
charles  
martina  
michael
```

```
my_foods = ["pizza", "falafel", "carrot cake"]
friend_foods = my_foods[:]

print("My favourite foods are:")
print(my_foods)

print("\nMy friend's favourite foods are:")
print(friend_foods)
```

```
My favourite foods are:
['pizza', 'falafel', 'carrot cake']

My friend's favourite foods are:
['pizza', 'falafel', 'carrot cake']
```

```
my_foods = ["pizza", "falafel", "carrot cake"]
friend_foods = my_foods[:]

my_foods.append("cannoli")
friend_foods.append("ice cream")

print("My favourite foods are:")
print(my_foods)

print("\nMy friend's favourite foods are:")
print(friend_foods)
```

```
My favourite foods are:
['pizza', 'falafel', 'carrot cake', 'cannoli']

My friend's favourite foods are:
['pizza', 'falafel', 'carrot cake', 'ice cream']
```

```
my_foods = ["pizza", "falafel", "carrot cake"]

friend_foods = my_foods

my_foods.append("cannoli")
friend_foods.append("ice cream")

print("My favourite foods are:")
print(my_foods)

print("\nMy friend's favourite foods are:")
print(friend_foods)
```

```
My favourite foods are:
['pizza', 'falafel', 'carrot cake', 'cannoli', 'ice cream']

My friend's favourite foods are:
['pizza', 'falafel', 'carrot cake', 'cannoli', 'ice cream']
```

练习4-10

```
my_foods = ["pizza", "falafel", "carrot cake"]

friend_foods = my_foods

my_foods.append("cannoli")
friend_foods.append("ice cream")

print("My favourite foods are:")
print(my_foods)

print("\nMy friend's favourite foods are:")
print(friend_foods)

print(f"The first three items in the list are:{my_foods[:3]}")
print(f"The items from the middle of the list are:{my_foods[1:4]}")
print(f"The last three items in the list are:{my_foods[-3:]}")
```

```
My favourite foods are:
['pizza', 'falafel', 'carrot cake', 'cannoli', 'ice cream']

My friend's favourite foods are:
['pizza', 'falafel', 'carrot cake', 'cannoli', 'ice cream']
The first three items in the list are:['pizza', 'falafel', 'carrot cake']
The items from the middle of the list are:['falafel', 'carrot cake', 'cannoli']
The last three items in the list are:['carrot cake', 'cannoli', 'ice cream']
```

练习4-11

```
pizzas = ["A pizza", "B pizza", "C pizza"]
friend_pizzas = pizzas[:]
pizzas.append("D pizza")
friend_pizzas.append("E pizza")

print("My favourite pizzas are:")
for pizza in pizzas:
    print(pizza)
print("\nMy friend's favourite pizzas are:")
for pizza in friend_pizzas:
    print(pizza)
```

My favourite pizzas are:

A pizza

B pizza

C pizza

D pizza

My friend's favourite pizzas are:

A pizza

B pizza

C pizza

E pizza

练习4-12

```
my_foods = ["pizza", "falafel", "carrot cake"]
friend_foods = my_foods[:]
my_foods.append("cannoli")
friend_foods.append("ice cream")
for food in my_foods:
    print(food)
print()
for food in friend_foods:
    print(food)
```

pizza
falafel
carrot cake
cannoli

pizza
falafel
carrot cake
ice cream

```
dimensions = (200, 50)
print(dimensions[0])
print(dimensions[1])
```

200
50

```
dimensions = (200, 50)
dimensions[0] = 250
```

```
-----  
TypeError                                Traceback (most recent call last)  
  
<ipython-input-51-258c8b06eee2> in <module>()  
      1 dimensions = (200, 50)  
----> 2 dimensions[0] = 250
```

```
TypeError: 'tuple' object does not support item assignment
```

```
my_t = (3,)
```

```
dimensions = (200, 50)  
for dimension in dimensions:  
    print(dimension)
```

```
200  
50
```

```
dimensions = (200, 50)  
print("Original dimensions:")  
for dimension in dimensions:  
    print(dimension)  
  
dimensions = (400, 100)  
print("\nModified dimensions:")  
for dimension in dimensions:  
    print(dimension)
```

```
Original dimensions:  
200  
50  
  
Modified dimensions:  
400  
100
```

练习4-13

```
foods = ("fish", "potato", "tomato", "meat", "cookie")  
for food in foods:  
    print(food)  
  
foods[0] = "shit"
```



```
fish
potato
tomato
meat
cookie
```

```
-----

TypeError                                Traceback (most recent call last)

<ipython-input-2-e80f3c1c0518> in <module>()
      3     print(food)
      4
----> 5 foods[0] = "shit"
```

```
TypeError: 'tuple' object does not support item assignment
```

五 if语句

```
cars = ["audi", "bmw", "subaru", "toyota"]

for car in cars:
    if car == "bmw" :
        print(car.upper())
    else:
        print(car.title())
```

```
Audi
BMW
Subaru
Toyota
```

```
car = "bmw"
car == 'bmw'
```

```
True
```

```
car = 'audi'
car == 'bmw'
```

False

```
car = 'Audi'  
car == 'audi'
```

False

```
car = 'Audi'  
car.lower() == 'audi'
```

True

```
car = 'Audi'  
car.lower() == 'audi'
```

True

car

'Audi'

```
requested_topping = 'mushrooms'  
  
if requested_topping != 'anchovies':  
    print('Hold the anchovies')
```

Hold the anchovies

```
age = 18  
age < 21
```

True

```
age <= 21
```

True

```
age > 21
```

False

```
age >= 21
```

False

```
age_0 = 22  
age_1 = 18  
age_0 >= 21 and age_1 >= 21
```

False

```
age_1 = 22  
age_0 >= 21 and age_1 >= 21
```

True

```
(age_0 >= 21) and (age_1 >= 21)
```

True

```
age_0 = 22  
age_1 = 18  
age_0 >= 21 or age_1 >= 21
```

True

```
age_0 = 18  
age_0 >= 21 or age_1 >= 21
```

False

```
requested_toppings = ['mushrooms', 'onions', 'pineapple']  
'mushrooms' in requested_toppings
```

True

```
'pepperoni' in requested_toppings
```

False

```
banned_users = ['andrew', 'carolina', 'david']
user = 'marie'

if user not in banned_users:
    print(f"{user.title()}, you can post a response if you wish.")
```

Marie, you can post a response if you wish.

```
for i not in range(1, 11):
    print(i)
```

```
File "<ipython-input-13-2a799359ac21>", line 1
    for i not in range(1, 11):
        ^
SyntaxError: invalid syntax
```

```
game_active = True
can_edit = False
```

练习5-1

```
print('略')
```

略

练习5-2

```
astring = 'aaaaaa'
bstring = 'bbbbbb'
astring == bstring
```

False

```
astring = 'AaaBbb'
bstring = 'aaabbb'
astring.lower() == bstring.lower()
```

True

```
1 in range(1, 11)
```

True

```
10 not in range(1, 6)
```

True

```
age = 19
if age >= 18:
    print('You are old enough to vote!')
    print('Have you registered to vote yet!')
```

You are old enough to vote!
Have you registered to vote yet!

```
age = 17
if age >= 18:
    print('You are old enough to vote!')
    print('Have you registered to vote yet!')
else :
    print('Sorry, you are too young to vote.')
    print('please resigter to vote as soon as you turn 18!')
```

Sorry, you are too young to vote.
please resigter to vote as soon as you turn 18!

```
age = 12

if age < 4:
    print('Your admission cost is $0')
elif age < 18:
    print('Your admission cost is $25')
else :
    print('Your admission cost is $40')
```

Your admission cost is \$25

```
age = 12

if age < 4:
    price = 0
elif age < 18:
    price = 25
else :
    price = 40

print(f'Your admission cost is ${price}')
```

Your admission cost is \$25

```
age = 12

if age < 4:
    price = 0
elif age < 18:
    price = 25
elif age < 65 :
    price = 40
elif age >= 65 :
    price = 20

print(f'Your admission cost is ${price}')
```

Your admission cost is \$25

```
requested_toppings = ['mushrooms', 'extra cheese']

if 'mushrooms' in requested_toppings:
    print('Adding mushrooms')
if 'pepperoni' in requested_toppings:
    print('Adding pepperoni')
if 'extra cheese' in requested_toppings:
    print('Adding extra cheese')

print('\nFinish making your pizza!')
```

Adding mushrooms
Adding extra cheese

Finish making your pizza!

```
requested_toppings = ['mushrooms', 'extra cheese']

if 'mushrooms' in requested_toppings:
    print('Adding mushrooms')
elif 'pepperoni' in requested_toppings:
    print('Adding pepperoni')
elif 'extra cheese' in requested_toppings:
    print('Adding extra cheese')

print('\nFinish making your pizza!')
```

Adding mushrooms

Finish making your pizza!

练习5-3

```
alien_color = 'red'

if alien_color == 'green':
    print('You have got a 5 point!')
```

```
alien_color = 'green'

if alien_color == 'green':
    print('You have got a 5 point!')
```

You have got a 5 point!

练习5-4

```
alien_color = 'green'

if alien_color == 'green':
    print('You have got a 5 point!')
else :
    print('You have got a 10 point!')
```

You have got a 5 point!

```
alien_color = 'red'

if alien_color == 'green':
    print('You have got a 5 point!')
else :
    print('You have got a 10 point!')
```

You have got a 10 point!

练习5-5

```
alien_color = 'red'

if alien_color.lower() == 'green':
    print('You have got a 5 point!')
elif alien_color.lower() == 'yellow' :
    print('You have got a 10 point!')
elif alien_color.lower() == 'red' :
    print('You have got a 15 point!')
```

You have got a 15 point!

```
alien_color = 'yellow'

if alien_color.lower() == 'green':
    print('You have got a 5 point!')
elif alien_color.lower() == 'yellow' :
    print('You have got a 10 point!')
elif alien_color.lower() == 'red' :
    print('You have got a 15 point!')
```

You have got a 10 point!

```
alien_color = 'green'

if alien_color.lower() == 'green':
    print('You have got a 5 point!')
elif alien_color.lower() == 'yellow' :
    print('You have got a 10 point!')
elif alien_color.lower() == 'red' :
    print('You have got a 15 point!')
```

You have got a 5 point!

练习5-6

```
age = 18

if age < 2:
    print('婴儿')
elif age < 4:
    print('幼儿')
elif age < 13:
    print('儿童')
elif age < 20:
    print('青少年')
elif age < 65:
    print('成年人')
```

```
elif age >= 65:  
    print('老年人')
```

青少年

练习5-7

```
favourite_fruits = ['banana', 'apple', 'orange']  
  
if 'banana' in favourite_fruits:  
    print('You really like banana!')  
if 'apple' in favourite_fruits:  
    print('You really like apple!')  
if 'orange' in favourite_fruits:  
    print('You really like orange!')  
if 'pear' in favourite_fruits:  
    print('You really like pear!')  
if 'lemon' in favourite_fruits:  
    print('You really like lemon!')
```

You really like banana!
You really like apple!
You really like orange!

```
requested_toppings = ['mushrooms', 'green pepers', 'extra cheese']  
  
for requested_topping in requested_toppings:  
    print(f'Adding {requested_topping}')  
  
print('\nFinished making your pizza')
```

Adding mushrooms
Adding green pepers
Adding extra cheese

Finished making your pizza

```
requested_toppings = ['mushrooms', 'green pepers', 'extra cheese']  
  
for requested_topping in requested_toppings:  
    if requested_topping == 'green pepers':  
        print('Sorry, we are out of green pepers right now.')  
    else :  
        print(f'Adding {requested_topping}')  
  
print('\nFinished making your pizza')
```

Adding mushrooms
Sorry, we are out of green pepers right now.
Adding extra cheese

Finished making your pizza

```
requested_toppings = []  
if requested_toppings:  
    for requested_topping in requested_toppings:  
        print(f'Adding {requested_topping}')  
    print('\nFinished making your pizza')  
else :  
    print('Are you sure you want a plain pizza?')
```

Are you sure you want a plain pizza?

```
available_toppings = ['mushrooms', 'olives', 'green peppers',  
                     'pepperoni', 'pineapple', 'extra cheese']  
  
requested_toppings = ['mushrooms', 'green pepers', 'extra cheese']  
  
for requested_topping in requested_toppings:  
    if requested_topping in available_toppings:  
        print(f'Adding {requested_topping}.')  
    else :  
        print(f"Sorry we don't have {requested_topping}.")  
  
print('Finished making your pizza!')
```

Adding mushrooms.
Sorry we don't have green pepers.
Adding extra cheese.
Finished making your pizza!

练习5-8

```
users = ['Sam', 'Amy', 'admin', 'Tom']  
  
for user in users:  
    if user.lower() == 'admin':  
        print('Hello admin, would you like to see a status report?')  
    else :  
        print(f'Hello {user.title()}, thank you for logging in again.')
```

Hello Sam, thank you for logging in again.
Hello Amy, thank you for logging in again.
Hello admin, would you like to see a status report?
Hello Tom, thank you for logging in again.

练习5-9

```
users = []

if users:
    for user in users:
        if user.lower() == 'admin':
            print('Hello admin, would you like to see a status report?')
        else :
            print(f'Hello {user.title()}, thank you for logging in again.')
else :
    print('We need to find some users!')
```

We need to find some users!

练习5-10

```
current_users = ['sam', 'Amy', 'Tom', 'A', 'B']
current_users_1 = []
for user in current_users:
    current_users_1.append(user.lower())
print(current_users_1)

# current_users_1 = current_users[:]
# for user in current_users_1:
#     user = user.lower() #current_users_1里的值不会改变。
# print(current_users_1)

new_users = ['C', 'D', 'A', 'E', 'Sam']

for user in new_users:
    if user.lower() in current_users_1:
        print('该用户名已被使用! ')
    else :
        print('该用户名未被使用! ')
```

['sam', 'amy', 'tom', 'a', 'b']

该用户名未被使用!

该用户名未被使用!

该用户名已被使用!

该用户名未被使用!

该用户名已被使用!

```
a = range(1, 10)

for i in a:
    if i == 1:
        print('1st')
    elif i == 2:
        print('2nd')
    elif i == 3:
        print('3rd')
    else :
        print(f'{i}th')
```

```
1st
2nd
3rd
4th
5th
6th
7th
8th
9th
```