migo_4_strings

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presenting text data and are fundamental data types in the language

a sequence of characters enclosed within either single (' ') or double (" ")

immutable,cannot be changed

```python
[19]: s="Hello world"
      print(s)
      print(type(s),type("lala"))
```

```
Hello world
<class 'str'> <class 'str'>
```

a string is a list of chars

```python
[6]: s="Hello World !!!"
     for ch in s:
         print(ch,end=" ")
```

```
H e l l o   W o r l d   ! ! !
```

string manipulation operations:

concatenation: '+' , '*'

```python
[8]: s="my name is "
     name=input("Enter your name:")
     st=s+name
     print(st)
     st=s+"\""+name+"\""
     t=s+'"'+name+'"'
     print(st+"\n"+t)
```

```
Enter your name: Meny

my name is Meny
my name is "Meny"
my name is "Meny"
```

```python
[9]: ch = "*"
     print(ch)
     print(10*ch)
```

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

indexing,slicing

[10]:
```python
a="abcdefghijklmnopqrstuvwxyz"
print(a[0],a[1],a[len(a)-1])
print(a[-len(a)],a[-1])
print(a[2:5],a[4:1:-1])
print(a[:3])
print(a[20:])
print(a[::5])
print(a[::-1])
```

```
a b z
a z
cde edc
abc
uvwxyz
afkpuz
zyxwvutsrqponmlkjihgfedcba
```

comparison operators:

[23]:
```python
print(f'"a"<"A" : {"a"<"A"}')
print(f'"z2">"z11" : {"z2">"z11"}')
print(f'"z1">"z11" : {"z1">"z11"}')
print(f'"hello"=="hello" : {"hello"=="hello"}')
if "a"+"b" == "ab":
    print("equal")
```

```
"a"<"A" : False
"z2">"z11" : True
"z1">"z11" : False
"hello"=="hello" : True
equal
```

built-in functions that can be applied to strings

str,len,chr,ord,min,max,sorted

[22]:
```python
a=3452
print("The num is:" + str(a))
print(f"The num is:{a}")
print(str(324),str(23.12),str(1e2),str(3+4j))
for i in range(ord("A"),ord("Z")+1):
    print(f"{chr(i)}={i}",end=",")
a="cbadefghijklmnopqrstuvwzyx"
print(len(a))
print(min(a))
```

```python
print(max(a))
print(sorted(a))
```

```
The num is:3452
The num is:3452
324 23.12 100.0 (3+4j)
A=65,B=66,C=67,D=68,E=69,F=70,G=71,H=72,I=73,J=74,K=75,L=76,M=77,N=78,O=79,P=80,
Q=81,R=82,S=83,T=84,U=85,V=86,W=87,X=88,Y=89,Z=90,26
a
z
['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p',
'q', 'r', 's', 't', 'u', 'v', 'w', 'x', 'y', 'z']
```

methods: upper,lower,split,join,strip .... there is much more

```python
[24]: a="abcdefghijklmnopqrstuvwxyz"
print(a.upper())
print(a)
a=a.upper()
print(a)
print(a.lower())
st="lala in lalaworld"
print(st.split())
print(st.split("a"))
print(st)
st="   \'Hello World\'   "
print(st.strip())
print(st)
st="lala"
print("-".join(st))
```

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
['lala', 'in', 'lalaworld']
['l', 'l', ' in l', 'l', 'world']
lala in lalaworld
'Hello World'
    'Hello World'
l-a-l-a
```

draw a piramid

```python
[15]: # Input the base size of the pyramid
base_size = int(input("Enter the base size of the pyramid: "))

# Print the pyramid
for i in range(1, base_size + 1):
```

```
        print(" " * (base_size - i) + "*" * (2*i - 1))
```

Enter the base size of the pyramid: 5

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

draw a rectangle

[14]:
```
ch="+"
print(ch+18*"-"+ch,end="")
print(7*("\n"+"|"+18*" "+"|"))
print(ch+18*"-"+ch,end="")
```

```
+------------------+
|                  |
|                  |
|                  |
|                  |
|                  |
|                  |
|                  |
+------------------+
```

draw a multytable

[13]:
```
num = int(input("Please enter a num:"))
print("+"+"-"*num*6+"+")
for i in range(1,num+1):
    for j in range(i,num*i+1,i):
        #print("| {0:3d} ".format(j),end="")
        print("| %3d "%(j),end="")
    #print(" |\n+"+"-"*num*6+"+")
    print(f" |\n+{'-'*num*6}+")
```

Please enter a num: 7

```
+------------------------------------------+
|   1 |   2 |   3 |   4 |   5 |   6 |   7 |
+------------------------------------------+
|   2 |   4 |   6 |   8 |  10 |  12 |  14 |
+------------------------------------------+
|   3 |   6 |   9 |  12 |  15 |  18 |  21 |
+------------------------------------------+
|   4 |   8 |  12 |  16 |  20 |  24 |  28 |
+------------------------------------------+
|   5 |  10 |  15 |  20 |  25 |  30 |  35 |
+------------------------------------------+
```

```
|   6 |  12 |  18 |  24 |  30 |  36 |  42 |
+------------------------------------------+
|   7 |  14 |  21 |  28 |  35 |  42 |  49 |
+------------------------------------------+
```

Find how many words are in the sentence

```
[12]: s="lala in lala-land        "
      count=0
      if len(s)>0 and s[-1]!= " ":
          count+=1
      for i in range(1,len(s)):
          if s[i]==" " and s[i-1]!=" ":
              count+=1

      print(count)
```

    3

What characters appear in the string

```
[11]: my_str = "Lala like to play in lala-land!!!"
      for i in range(len(my_str)):
          flag=False
          for j in range(i):
              if my_str[i]==my_str[j]:
                  flag=True
          if not flag:
              print(my_str[i],end=" ")
```

    L a l   i k e t o p y n - d !

[ ]:

5
```