

Multi-dimensional View of Python

Python面面

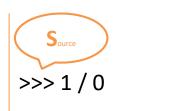
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用Python玩转数据

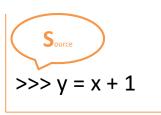
异常

异常 (Exception)



Traceback (most recent call last):
File "<pyshell#9>", line 1, in <module>
1/0

ZeroDivisionError: division by zero



Traceback (most recent call last):

File "<pyshell#12>", line 1, in

<module>
y = x + 1

NameFrror: name 'x' is not defined

用异常对象(exception object)表示异常情况

异常

查看异常类>>> dir(_builtins__)

-	
类 名	描述
BaseException	所有异常的基类
Exception	常规异常的基类
AttributeError	对象不存在此属性
IndexError	序列中无此索引
I0Error	输入/输出操作失败
KeyboardInterrupt	用户中断执行(通常输入Ctr-C)
KeyError	映射中不存在此键
NameError	找不到名字(变量)
SyntaxError	Python 语法错误
TypeError	对类型无效的操作
ValueError	传入无效的参数
ZeroDivisionError	除(或取模)运算的第二个参数为0

异常处理

```
if y != 0:
    print(x / y)
else:
    print('division by zero')
```

try-except

异常

```
# Filename: exception1.py
num1 = int(input('Enter the first number: '))
num2 = int(input('Enter the second number: '))
print(num1 / num2)
```

```
Enter the first number: a
Traceback (most recent call last):
  File "C:\Python\programs\exception1.py", line 1, in <module>
    num1 = int(input('Enter the first number: '))
ValueError: invalid literal for int() with base 10: 'a'
```

try-except语句

```
# Filename: exception2.py
try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
except ValueError:
    print('Please input a digit!')
```

```
try:
    raise
except Exception as err:
    print(err)
```

```
# Filename: exception3.py
try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
except ZeroDivisionError as err:
    print('The second number cannot be zero!')
    print(err)
```

多个except子句和一个except块捕捉多个异常

```
# Filename: exception4.py
try:
  num1 = int(input('Enter the first number: '))
  num2 = int(input('Enter the second number: '))
  print(num1 / num2)
except ValueError:
  print('Please input a digit!')
except ZeroDivisionError:
  print('The second number cannot be zero!')
```

```
File
```

```
# Filename: exception5.py
try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
except (ValueError, ZeroDivisionError):
    print('Invalid input!')
```

空except子句和as



```
# Filename: exception6.py
try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
except:
    print('Something went wrong!')
```

```
F<sub>ile</sub>
```

```
# Filename: exception7.py
try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
except Exception as err:
    print('Something went wrong!')
    print(err)
```

一了百了: except:

else子句

```
# Filename: exception8.py
try:
  num1 = int(input('Enter the first number: '))
                                                     Enter the first number: 3
  num2 = int(input('Enter the second number: '))
                                                     Enter the second number: 5
  print(num1 / num2)
                                                     0.6
except(ValueError, ZeroDivisionError):
                                                     Aha, everything is OK.
  print('Invalid input!')
else:
  print('Aha, everything is OK.')
```

循环

```
# Filename: exception9.py
while True:
  try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
    break
  except ValueError:
    print('Please input a digit!')
  except ZeroDivisionError:
    print('The second number cannot be zero!')
```

```
Enter the first number: a
Please input a digit!
Enter the first number: 3
Enter the second number: 0
The second number cannot be zero!
Enter the first number: 3
Enter the second number: 5
0.6
```

break的位置

```
# Filename: exception10.py
while True:
  try:
    num1 = int(input('Enter the first number: '))
    num2 = int(input('Enter the second number: '))
    print(num1 / num2)
  except Exception as err:
    print(err)
  else:
    break
```

```
File
```

```
# Filename: exception11.py
aList = [1, 2, 3, 4, 5]
i = 0
while True:
  try:
     print(aList[i])
  except IndexError:
     print('index error')
     break
  else:
     i += 1
```

finally子句

```
Enter the first number: 3
# Filename: exception12.py
                                                     Enter the second number: 5
def finallyTest():
                                                     0.6
  try:
                                                     It is a finally clause.
    x = int(input('Enter the first number: '))
    y = int(input('Enter the second number: '))
     print(x / y)
    return 1
                                                      Enter the first number: 3
  except Exception as err:
                                                      Enter the second number: 0
     print(err)
    return 0
                                                     division by zero
  finally:
                                                     It is a finally clause.
     print('It is a finally clause.')
result = finallyTest()
print(result)
```

上下文管理器 (Context Manager) 和with语句

```
# Filename: exception13.py
try:
  f = open('data.txt')
  for line in f:
     print(line, end = ")
except IOError:
  print('Cannot open the file!')
finally:
  f.close()
```

```
File
```

```
with语句和文件异常处理
try:
with open('data.txt') as fp:
... #各种文件和后续处理
except IOError as err:
print(err)
```

```
# Filename: exception14.py
with open('data.txt') as f:
   for line in f:
        print(line, end=")
```

定义和控制代码块执行前的准备动作及执行后的收尾动作