

调试

现在主流的调试方法有4种：

1. print

2. pdb

3. ipython

4. IDE自带的调试方案

错误程序err.py

```
def div(a, b):  
    return a / b  
  
def main(a=1, b=0):  
    return div(a, b)  
  
if __name__ == '__main__':  
    main()
```

```
> python err.py  
Traceback (most recent call last):  
  File "err.py", line 10, in <module>  
    main()  
  File "err.py", line 6, in main  
    return div(a, b)  
  File "err.py", line 2, in div  
    return a / b  
ZeroDivisionError: division by zero
```

1. print 调试

```
def div(a, b):  
    return a / b  
  
def main(a=1, b=0):  
    print(a, b)  
    return div(a, b)
```

```
if __name__ == '__main__':  
    main()
```

```
> python err_print.py  
1 0  
Traceback (most recent call last):  
  File "err_print.py", line 11, in <module>  
    main()  
  File "err_print.py", line 7, in main  
    return div(a, b)  
  File "err_print.py", line 2, in div  
    return a / b  
ZeroDivisionError: division by zero
```

2. 使用pdb

第二种方法：用pdb的set_trace方法

```
import pdb
```

```
def div(a, b):  
    # 运行到这里会自动暂停 🖱️  
    pdb.set_trace()  
    return a / b
```

```
def main(a=1, b=0):  
    return div(a, b)
```

```
if __name__ == '__main__':  
    main()
```

```
> python err_pdb.py
```

```
> /Users/dongweiming/sansa/introduction-python/2.Python知识/15/
```

```
-> return a / b
```

```
(Pdb) p a
```

```
1
```

```
(Pdb) p b
```

```
0
```

```
(Pdb) a
```

```
a = 1
```

```
b = 0
```

```
(Pdb) c
```

```
Traceback (most recent call last):
```

```
  File "err_pdb.py", line 14, in <module>
```

```
    main()
```

```
  File "err_pdb.py", line 10, in main
```

```
    return div(a, b)
```

```
  File "err_pdb.py", line 6, in div
```

```
    return a / b
```

```
ZeroDivisionError: division by zero
```

3. IPython

```

> ipython -i err.py --pdb --no-banner
-----
ZeroDivisionError                                Traceback (most recent call last)
/Users/dongweiming/sansa/introduction-python/2.Python知识/15/err.py in <module>()
      8
      9 if __name__ == '__main__':
----> 10     main()

/Users/dongweiming/sansa/introduction-python/2.Python知识/15/err.py in main(a, b)
      4
      5 def main(a=1, b=0):
----> 6     return div(a, b)
      7
      8

/Users/dongweiming/sansa/introduction-python/2.Python知识/15/err.py in div(a, b)
      1 def div(a, b):
----> 2     return a / b
      3
      4
      5 def main(a=1, b=0):

ZeroDivisionError: division by zero
> /Users/dongweiming/sansa/introduction-python/2.Python知识/15/err.py(2)div()
      1 def div(a, b):
----> 2     return a / b
      3
      4
      5 def main(a=1, b=0):

ipdb> p b
0

```

调试经验总结

调试只是开发时的手段，线上环境应该记录业务日志，也应该是用sentry搜集错误日志，通过这些日志去回溯问题，不应该出了问题线上调试。

延伸阅读

1. <https://docs.python.org/3/library/pdb.html>
2. <https://www.digitalocean.com/community/tutorials/how-to-use-the-python-debugger>