Exceptions:

1. Key Error

In [11]:
```
a={'x':2,'y':3}

print (a['z'])
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
<ipython-input-11-e1c60ffd540a> in <module>
      1 a={'x':2,'y':3}
      2
----> 3 print (a['z'])

KeyError: 'z'
```

2. Arithmaic Error (ZeroDivisionError)

In [43]:
```
a = 10/0
print (a)
```

```
---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
<ipython-input-43-488d44c3c5b9> in <module>
----> 1 a = 10/0
      2 print (a)

ZeroDivisionError: division by zero
```

3. Assertion Error

In [45]:
```
a,b = 5,4
assert a==b , 'Unequal values'
```

```
---------------------------------------------------------------------------
AssertionError                            Traceback (most recent call last)
<ipython-input-45-0fe61dcbba44> in <module>
      1 a,b = 5,4
----> 2 assert a==b , 'Unequal values'

AssertionError: Unequal values
```

4. Import Error

In [45]:
```
import mathi
```

```
---------------------------------------------------------------------------
ModuleNotFoundError                       Traceback (most recent call last)
<ipython-input-45-99c0136c5646> in <module>
----> 1 import mathi

ModuleNotFoundError: No module named 'mathi'
```

5. Index Error

In [47]:
```
x = [1,2,3,4,5]

print (x[5])
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
<ipython-input-47-b2d96cb8d8bb> in <module>
      1 x = [1,2,3,4,5]
      2
----> 3 print (x[5])

IndexError: list index out of range
```

6. Name Error

In [49]:
```
print (abc)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-49-473c89b54ed8> in <module>
----> 1 print (abc)

NameError: name 'abc' is not defined
```

7. Type Error

In [52]:
```
a = 5
b = 'cat'
c= a+b
print (c)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-52-04493688b93c> in <module>
      1 a = 5
      2 b = 'cat'
----> 3 c= a+b
      4 print (c)

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

8. Value Error

In [13]:
```
x = int('a')
x
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
<ipython-input-13-3921ea7ff53c> in <module>
----> 1 x = int('a')
      2 x

ValueError: invalid literal for int() with base 10: 'a'
```

9. End of file Error

In [9]:
```
x = int(input('print the number')
```

```
  File "<ipython-input-9-f296759c3ffb>", line 1
    x = int(input('print the number')
                                     ^
SyntaxError: unexpected EOF while parsing
```

Purpose of Try and Except:

In [13]:
```
try:
    b = 100/0
    print (b)
except (ZeroDivisionError):
    print ('error')
print ('continue from here')
```

```
error
continue from here
```

Try and except:

In [36]:
```
try :
    a = 2
    if a < 4:

        # throws ZeroDivisionError for a = 3
        c = a/(a-3)

    # throws NameError if a >= 4
    print ("Value of c = ", c)

# note that braces () are necessary here for multiple exceptions
except(ZeroDivisionError, NameError):
    print ("\nError Occurred and Handled")
for i in range(0,5):
    print (i)
```

```
Value of c =  -2.0
0
1
2
3
4
```

In [43]:
```
try :
    a = 2
    if a < 4:

        # throws ZeroDivisionError for a = 3
        c = a/(a-3)

    # throws NameError if a >= 4
    print ("Value of c = ", c)

# note that braces () are necessary here for multiple exceptions
except(ZeroDivisionError):
    print ("zero division error occured")
except (NameError):
    print ('Name error occured')
for i in range(0,5):
    print (i)
```

```
Value of c =  -2.0
correct value
0
1
2
3
4
```

In [42]:
```
def fnc (x):
    try:
        rev = 1/int(x)
        return rev
    except ZeroDivisionError as ZDE:
        print ('division not possible by zero')
    except ValueError as ve:
        print ('enter correct value')
p = [0,'t',5,8]
for i in map (fnc,p):
    print (i)
# fnc('i')
# fnc(0)
```

```
division not possible by zero
None
enter correct value
None
0.2
0.125
```

Raise an exception when a condition is not met:

In [58]:
```
for i in range (0,10):
    try:
        if (i==5):
            raise (ValueError)
        print (i)
    except (ValueError):
        print ('Error at value ',i)
```

```
0
1
2
3
4
Error at value  5
6
7
8
9
```

In [31]:
```
try:
    a = str(input('enter positive integer: '))
    if (int(a)>=0):
       print ('Correct value')
    else:
        raise (ValueError)
except ValueError as ve:
    print ('this is the value error1 :', a)
```

```
enter positive integer: 10
Correct value
```

Exception with multiple exception statements

In [57]:
```
try:
    a= int(input('Sum of marks '))
    b= int(input('Overall marks '))

    if b ==0:
        print ('total subjects cant be zero')
        raise (ZeroDivisionError);
    if b <0:
        print ('total subjects less than zero')
        raise (ValueError);
    else:
        percentage = a/b*100
        print ('percentage: ',percentage,'%')

except ValueError as e:
    print ('Value not given in correct format')
except ZeroDivisionError as f:
    print ('Division by zero is not possible')


else:
    if percentage >=75:
        print ('congrats you have secured honors degree')
    else:
        print('you have cleared the exam')
finally:
    print ('Thanks for using this code')
```

```
Sum of marks 20
Overall marks 25
percentage:  80.0 %
congrats you have secured honors degree
Thanks for using this code
```

Assertion Statement

In [58]:
```
a = 11
assert (a<10), 'value is more'
```

```
---------------------------------------------------------------------------
AssertionError                            Traceback (most recent call last)
<ipython-input-58-ae2d0c9589bf> in <module>
      1 a = 11
----> 2 assert (a<10), 'value is more'

AssertionError: value is more
```

In [36]:
```
a= -2
if a < 0
    print ('h')
```

```
  File "<ipython-input-36-30343ed1b150>", line 2
    if a < 0
           ^
SyntaxError: invalid syntax
```

In [59]:
```
a = ['f', 0,'g' , 2,3]
for i in a:
    try:

        print ('the value is : ',i)
        rev = 1/int(i)
        print ('rev is :', rev)
    except ValueError:
        print ('Excepion raised 1')
    except ZeroDivisionError:
        print ('Exception raised 2')
```

```
the value is :  f
Excepion raised 1
the value is :  0
Exception raised 2
the value is :  g
Excepion raised 1
the value is :  2
rev is : 0.5
the value is :  3
rev is : 0.3333333333333333
```

In [33]:
```
try:
    a = int(input('Enter the age '))
    if (a < 18):
        print ('value less than 18')
    else:
        raise (ValueError)
except ValueError:
    print ('Value error raised')
```

```
Enter the age 19
Value error raised
```