Assignment 3

Task 1

1.Write a function to compute 5/0 and use try/except to catch the exceptions.

In [1]:
```
def compute(a, b):
    try:
        return a/b
    except Exception as e:
        raise e

if __name__ == '__main__':
    try:
        compute(5, 0)
    except Exception as e:
        print('O/P: Got Exception as "{}"'.format(e))
```

```
O/P: Got Exception as "division by zero"
```

2. Implement a Python program to generate all sentences where subject is in ["Americans", "Indians"] and verb is in ["Play", "watch"] and the object is in ["Baseball","cricket"].

In [2]:
```
if __name__ == '__main__':
    print('O/P:')
    for subject in ['Americas', 'Indians']:
        for verb in ['Play', 'watch']:
            for obj in ['Baseball', 'cricket']:
                print('{} {} {}'.format(subject, verb, obj))
```

```
O/P:
Americas Play Baseball
Americas Play cricket
Americas watch Baseball
Americas watch cricket
Indians Play Baseball
Indians Play cricket
Indians watch Baseball
Indians watch cricket
```

Task 2

Write a function so that the columns of the output matrix are powers of the input vector.

The order of the powers is determined by the increasing boolean argument. Specifically, when increasing is False, the i-th output column is the input vector raised element-wise to the power of N - i - 1

In [3]:
```
""" First Solution where created own function based on condition in problem stater
def alex_theophile_vandermonde_algo(ls_input_vector, power_val):
    ls_temp = []
    for each_val in ls_input_vector:
        ls_temp.append([(each_val**(power_val-1-i)) for i in range(power_val)])
    return ls_temp


if __name__ == '__main__':
    ls_input_vector = [2,4,6,8]
    ls_output = alex_theophile_vandermonde_algo(ls_input_vector, 4)
    print('O/P: {}'.format(ls_output))
```

```
O/P: [[8, 4, 2, 1], [64, 16, 4, 1], [216, 36, 6, 1], [512, 64, 8, 1]]
```

In [5]:
```
""" Second Solution is directly using numpy's vander() function. """
import numpy as np
x = np.array([2,4,6,8])
N = 4
np.vander(x, N, increasing=False)
```

Out[5]:
```
array([[  8,   4,   2,   1],
       [ 64,  16,   4,   1],
       [216,  36,   6,   1],
       [512,  64,   8,   1]])
```