

### Instructions

There are 4 python files in my program, two for Poisson Distribution which names are `PoissonQuickSort.py` and `PoissonMyQuickSort.py` and two for random List which generates random real numbers named `randomMyQuickSort.py` and `randomQuickSort.py`

For the first situation, if we want to test the Poisson Distribution part, we need to run the **`PoissonMyQuickSort.py`** first. Because I use two python files to run the program to prevent the happening of stack overflow. So I generate first real number array in **`PoissonMyQuickSort.py`** and write the array into a txt format file. And the `PoissonQuickSort.py` reads from this txt file. If you want to run the code again, remember you need to delete the new generated txt file which appears in the same directory.

Same for the random list situation, first run **`randomMyQuickSort.py`** , then run the `randomQuickSort.py` . If you want to restart the code, please delete the new generated txt file , you can easily find that file by its name.

And if you want to change the data size for the Poisson distribution situation, You just need to change the **`PoissonMyQuickSort.py`**

```
def PoissonDistribution():  
  
    lamda = 500  
    poisson = np.random.poisson(lamda, 1000)
```

In this function, you can change the number 1000 to any number you prefer and lamda should be  $n/2$

And for the random generated real number situation, You just need to modify the **`randomMyQuickSort.py`** only,

```
def randomList():  
    array = []  
    for index in range(1000):  
        array.append(random.randint(1, 1001))  
    brr = array  
    print(brr[0])
```

In this function, 1000 is the size of data set, if you want to change the data size to 500K, you can just modify it to this number.

And 1 to 1001 is the random real number generated, it can generate the real number range from 1 to 1001, you can change the scope to any number you prefer.