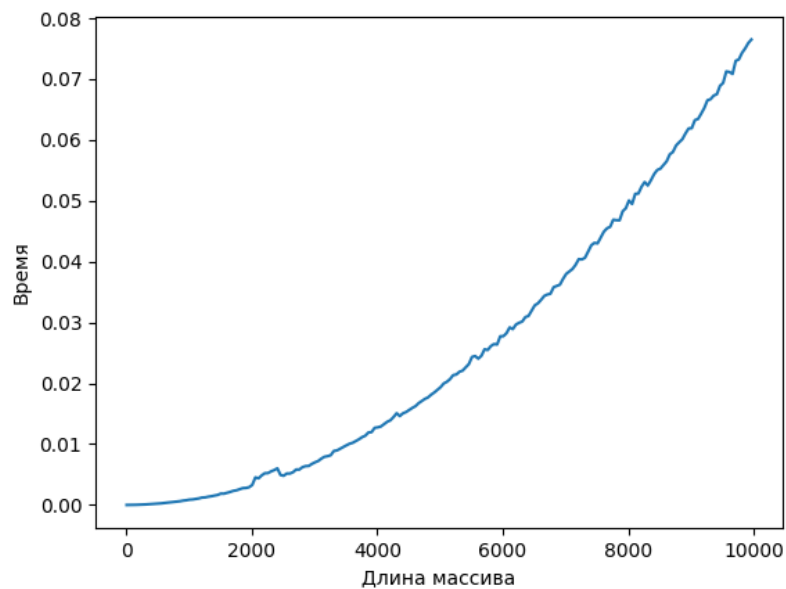


Bubble Sort

```
400 - time: 0.00014 sec
900 - time: 0.00069 sec
1400 - time: 0.001632 sec
1900 - time: 0.002865 sec
2400 - time: 0.004769 sec
2900 - time: 0.00658 sec
3400 - time: 0.009191 sec
3900 - time: 0.012345 sec
4400 - time: 0.015836 sec
4900 - time: 0.019835 sec
5400 - time: 0.023854 sec
5900 - time: 0.027103 sec
6400 - time: 0.031642 sec
6900 - time: 0.036744 sec
7400 - time: 0.042604 sec
7900 - time: 0.048299 sec
8400 - time: 0.055296 sec
8900 - time: 0.060552 sec
9400 - time: 0.068336 sec
9900 - time: 0.075026 sec
10400 - time: 0.083239 sec
10900 - time: 0.091527 sec
11400 - time: 0.099886 sec
11900 - time: 0.110573 sec
12400 - time: 0.118738 sec
12900 - time: 0.127912 sec
13400 - time: 0.137326 sec
13900 - time: 0.148593 sec
14400 - time: 0.160062 sec
14900 - time: 0.17062 sec
Program ended with exit code: 0
```

График по сортировке Bubble sort с 10000 чисел:



Quick Sort

```
400 - time: 4.3e-05 sec
900 - time: 0.000124 sec
1400 - time: 0.000185 sec
1900 - time: 0.000241 sec
2400 - time: 0.000293 sec
2900 - time: 0.000372 sec
3400 - time: 0.000456 sec
3900 - time: 0.000534 sec
4400 - time: 0.000551 sec
4900 - time: 0.00062 sec
5400 - time: 0.000711 sec
5900 - time: 0.000762 sec
6400 - time: 0.000886 sec
6900 - time: 0.000875 sec
7400 - time: 0.000946 sec
7900 - time: 0.001069 sec
8400 - time: 0.001118 sec
8900 - time: 0.001184 sec
9400 - time: 0.00124 sec
9900 - time: 0.001323 sec
10400 - time: 0.001353 sec
10900 - time: 0.001451 sec
11400 - time: 0.00155 sec
11900 - time: 0.001572 sec
12400 - time: 0.001752 sec
12900 - time: 0.001762 sec
13400 - time: 0.001825 sec
13900 - time: 0.00194 sec
14400 - time: 0.001992 sec
14900 - time: 0.002029 sec
```

График по сортировке Quick sort с 10000 чисел:

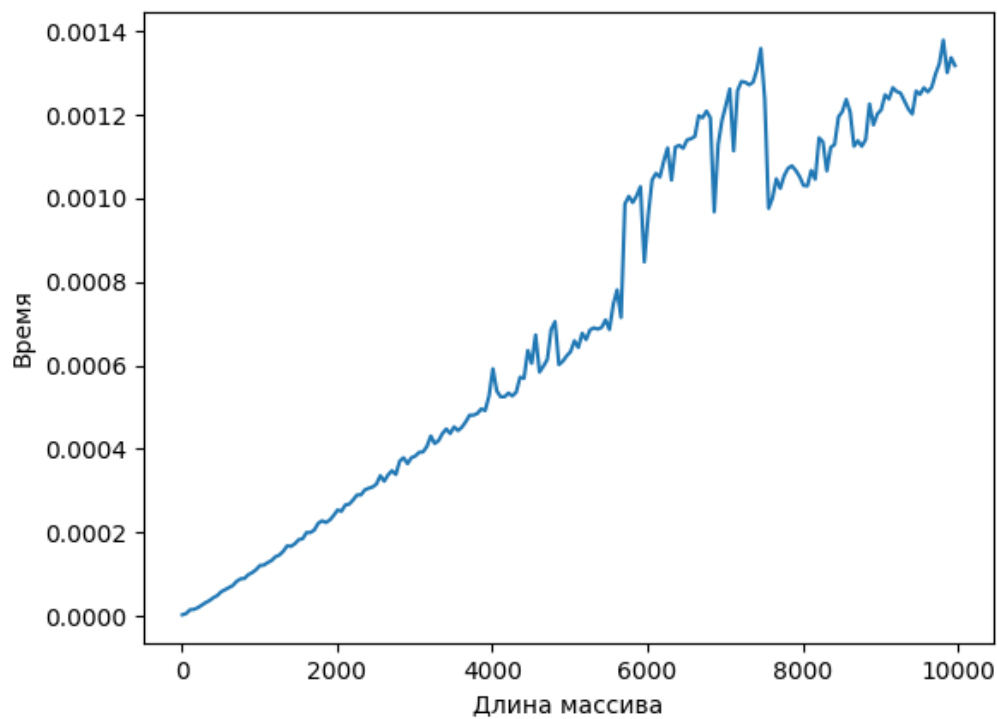
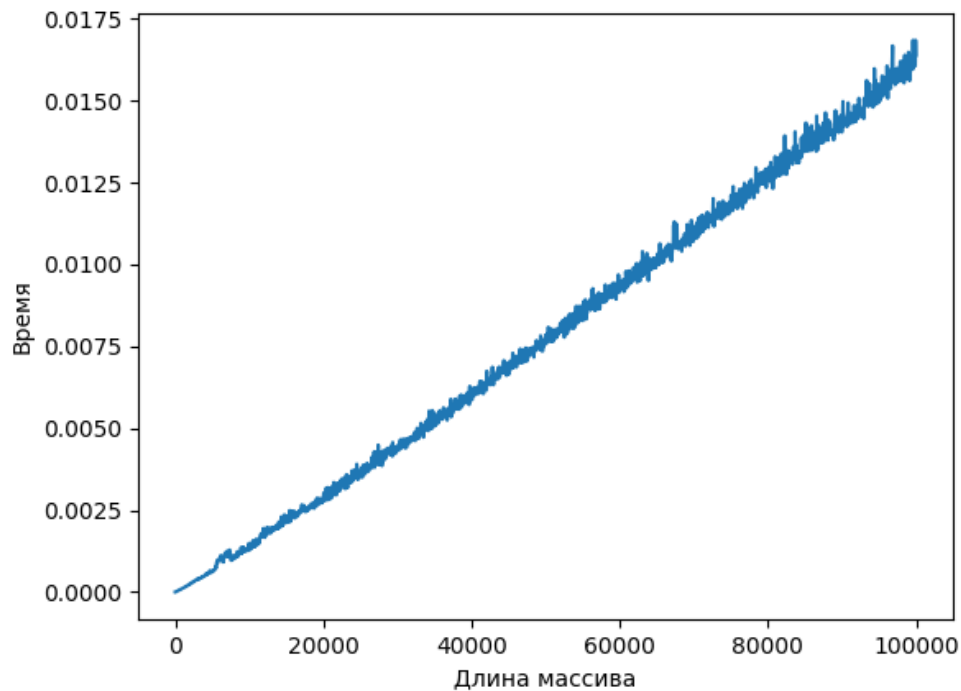


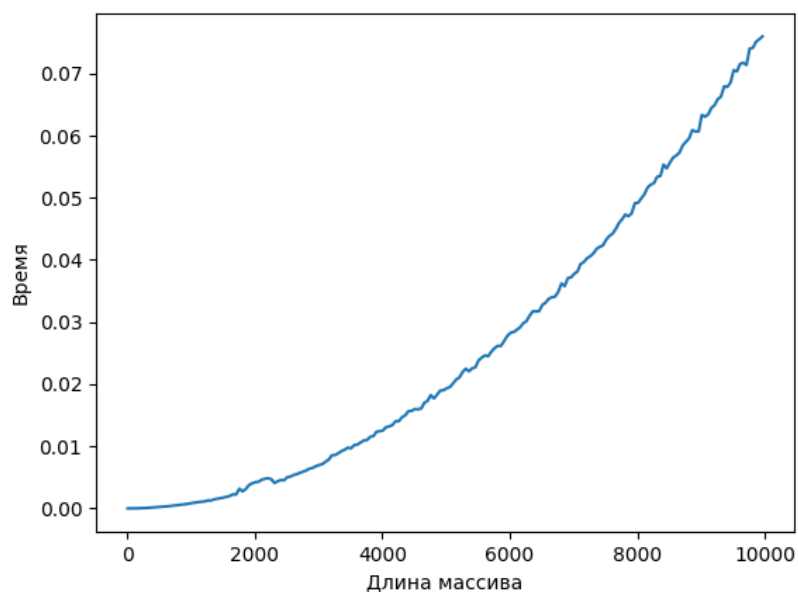
График по сортировке Quick sort с 100000 чисел:



Insertion Sort

```
400 - time: 0.000127 sec
900 - time: 0.000691 sec
1400 - time: 0.001575 sec
1900 - time: 0.002828 sec
2400 - time: 0.00451 sec
2900 - time: 0.006597 sec
3400 - time: 0.008878 sec
3900 - time: 0.012354 sec
4400 - time: 0.015468 sec
4900 - time: 0.019706 sec
5400 - time: 0.023302 sec
5900 - time: 0.027944 sec
6400 - time: 0.032211 sec
6900 - time: 0.037753 sec
7400 - time: 0.043787 sec
7900 - time: 0.049362 sec
8400 - time: 0.055857 sec
8900 - time: 0.061536 sec
9400 - time: 0.068224 sec
9900 - time: 0.075783 sec
10400 - time: 0.083205 sec
10900 - time: 0.090469 sec
11400 - time: 0.099541 sec
11900 - time: 0.109852 sec
12400 - time: 0.120416 sec
12900 - time: 0.129257 sec
13400 - time: 0.138437 sec
13900 - time: 0.149115 sec
14400 - time: 0.160902 sec
14900 - time: 0.171329 sec
```

График по сортировке Insertion sort с 10000 чисел:



Вывод: самой эффективной является сортировка Quick sort, на графике с 100000 видно, что график почти линейный, что является крайне положительным результатом, чего, соответственно, не могут сделать две другие сортировки.