

PERFORMANCE ANALYSIS OF VECTORS

Sorting Random 5 Letter Strings Using **STL Vector**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
1,000,000	0.15625	0.71875	6.09375
2,000,000	0.3125	1.40625	11.9375
3,000,000	0.484375	2.26562	17.4844
4,000,000	0.609375	3.09375	23.6875
5,000,000	0.765725	4.1875	29.5321
6,000,000	0.921875	4.82812	36.0781

Removing Duplicates (Preserving Order) of Random 5 Letter Strings Using **STL Vector**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
5,000	0	0.21875	0.046875
10,000	0	0.859375	0.0625
15,000	0.015625	2	0.125
20,000	0	3.46875	0.140625
25,000	0	5.53125	0.171875

Removing Duplicates (Any Order) of Random 5 Letter Strings Using **STL Vector**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
1,000,000	0.140625	0.734375	5.95312
2,000,000	0.3125	1.5	10.7812
3,000,000	0.453125	2.35938	15.9688
4,000,000	0.625	3.23438	20.2031
5,000,000	0.75	4.23438	24.3906
6,000,000	0.9375	5.04688	27.7812

Finding the Mode of Random 5 Letter Strings Using **STL Vector**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
1,000,000	0.140625	0.734375	0.015625
2,000,000	0.3125	1.54688	0.03125
3,000,000	0.46875	2.45312	0.046875
4,000,000	0.625	3.17188	0.0625
5,000,000	0.78125	4.21875	0.078125
6,000,000	0.921875	4.96875	0.109375

PERFORMANCE ANALYSIS OF LISTS

Sorting Random 5 Letter Strings Using **STL List**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
500,000	0.078125	0.890625	2.95312
1,000,000	0.15625	1.90625	5.79688
1,500,000	0.234375	3.09375	8.8125
2,000,000	0.3125	4.21875	11.8438
2,500,000	0.375	5.32812	15.2031

Removing Duplicates (Preserving Order) of Random 5 Letter Strings Using **STL List**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
5,000	0	0.265625	0.046875
10,000	0.015625	1.10938	0.0625
15,000	0	2.51562	0.09375
20,000	0	4.46875	0.125

Removing Duplicates (Any Order) of Random 5 Letter Strings Using **STL List**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
100,000	0.015625	0.15625	0.625
250,000	0.03125	0.421875	1.48438
500,000	0.078125	0.921875	2.875
1,000,000	0.15625	2.0625	5.54688
2,000,000	0.3125	4.48438	11.3281

Finding the Mode of Random 5 Letter Strings Using **STL List**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
250,000	0.046875	0.40625	0.046875
500,000	0.078125	0.90625	0.078125
1,000,000	0.15625	1.90625	0.1875
1,500,000	0.234375	3.15625	0.296875
2,000,000	0.3125	4.26562	0.421875
2,500,000	0.375	5.4375	0.515625

PERFORMANCE ANALYSIS OF HASH TABLES

Removing Duplicates (Preserving Order) of Random 5 Letter Strings Using **STL unordered map**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
5,000	0	0.421875	0.03125
7,500	0	0.953125	0.0625
10,000	0	1.71875	0.09375
12,500	0.015625	2.78125	0.09375
15,000	0	3.85938	0.109375
17,500	0	5.59375	0.125

Removing Duplicates (Any Order) of Random 5 Letter Strings Using **STL unordered set**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
1,000,000	0.15625	0.671875	5.39062
2,000,000	0.3125	1.32812	10.9351
3,000,000	0.46875	2.04688	15.6719
4,000,000	0.625	2.6875	20.25
5,000,000	0.765625	3.40625	24.0938
6,000,000	0.9375	4.07812	27.5938
7,000,000	1.0625	4.59375	31.4844

Finding the Mode of Random 5 Letter Strings Using **STL unordered map**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
1,000,000	0.15625	0.765625	0.078125
2,000,000	0.3125	1.59275	0.140625
3,000,000	0.453125	2.32812	0.203125
4,000,000	0.6875	3.17188	0.28125
5,000,000	0.78125	3.84375	0.328125
6,000,000	0.90625	4.5	0.359375
7,000,000	1.10938	5.14062	0.40625

PERFORMANCE ANALYSIS OF BINARY SEARCH TREES

Sorting Random 5 Letter Strings Using **STL map**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
500,000	0.078125	1.3125	2.96875
1,000,000	0.15625	2.76562	5.73438
1,250,000	0.1875	3.71875	7.42188
1,500,000	0.234375	4.29688	8.9375
2,000,000	0.3125	6.1875	12.7344

Removing Duplicates (Preserving Order) of Random 5 Letter Strings Using **STL map**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
2,500	0	0.15625	0.0625
5,000	0	0.890625	0.078125
7,500	0	1.89062	0.046875
10,000	0	3.01562	0.078125
12,500	0	4.78125	0.078125

Removing Duplicates (Any Order) of Random 5 Letter Strings Using **STL set**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
500,000	0.09375	1.35938	4.625
750,000	0.15625	2.26562	6.92188
1,000,000	0.203125	2.67188	8.5625
1,250,000	0.265625	3.51562	9.54688
1,500,000	0.421875	5.25	10.9844

Finding the Mode of Random 5 Letter Strings Using **STL map**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
250,000	0.046875	1.25	0.03125
500,000	0.109375	1.71875	0.09375
750,000	0.125	3.04688	0.15625
1,000,000	0.234375	3.89062	0.203125
1,250,000	0.40625	5.25	0.34375

PERFORMANCE ANALYSIS OF PRIORITY QUEUES

Sorting Random 5 Letter Strings Using **STL priority queue**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
500,000	0.09375	1.26562	3.6875
1,000,000	0.171875	2.51562	7.1875
1,250,000	0.25	4.01562	8.9375
1,500,000	0.34375	4.75	10.4219

Removing Duplicates (Any Order) of Random 5 Letter Strings Using **STL priority queue**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
500,000	0.09375	1.3125	3.375
750,000	0.15625	2.26562	5.1875
1,000,000	0.359375	3.03125	6.65625
1,250,000	0.265625	3.45312	8.46875
1,500,000	0.34375	4.46875	9.92188

Finding the Mode of Random 5 Letter Strings Using **STL priority queue**:

# of Strings	Load Time (sec)	Operation Time (sec)	Output Time (sec)
500,000	0.09375	1.09375	0.015625
750,000	0.15625	1.73438	0.015625
1,000,000	0.1875	2.46875	0.015625
1,250,000	0.25	3.14062	0.015625
1,500,000	0.359375	4.46875	0.03125
1,750,000	0.328125	4.6875	0.03125