The following materials have been collected from the numerous sources including my own and my students over the years of teaching and experiences of programming. Please help me to keep this tutorial up-to-date by reporting any issues or questions. Please send any comments or criticisms to [idebtor@gmail.com](mailto:idebtor@gmail.com). Your assistances and comments will be appreciated.

A doubly linked list with sentinel nodes(ver 2.)

# Step 8. Test scores

If it takes less than a second, you may just write **"instant".**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| N | | 10,000 | 100,000 | 1,000,000 |  |
| Pop\_all  O(n) | my code | 0.000668 sec | 0.005941 sec | 0.043568 sec | Insert N/2 nodes with random numbers, then N/2 nodes with a fixed number. |
| listdsx | 0.000654 sec | 0.006661 sec | 0.041846 sec |
| unique  O(n) | my code | 0.001054 sec | 0.007976 sec | 0.073866 sec |
| listdsx | 0.00737 sec | 0.009171 sec | 0.068221 sec |
| selection sort  O(n^2) | my code | 0.703828 sec | 34. 9234 sec | xxxx | takes too long unless use quicksort |
| listdsx | 0.217543 sec | 21.6569 sec | xxxx |
| reverse  O(n) | my code |  |  |  | Insert N nodes with random numbers. |
| listdsx |  |  |  |
| Shuffle/half  O(n) | my code |  |  |  |
| listdsx |  |  |  |
| push sorted  O(n) | my code | 0.000153 sec | 0.001093 sec | 0.009641 sec |
| listdsx | 0.000155 sec | 0.001607 sec | 0.114436 sec |
| push sortedN  O(n^2) | my code | 53. 3794 sex |  | xxxx | Insert N/2 nodes with random numbers, then N/2 nodes with a fixed number. |
| listdsx | 55.0066 sec | 55.0066 sec | xxxx |
| push sortedN  O(n log n) | my code |  |  |  |
| listdsx |  |  |  |