LOADING RESULT:

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Red-Black Tree input time: 4.8972e+06 nano seconds

2-3-4 Tree input time: 6.6671e+06 nano seconds

Conclusion: Red-Black Tree has lower input time than 2-3-4 Tree by 1.7699e+06 nano seconds

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SEARCHING RESULT:

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Search for 12

Red-Black Tree successfully find the integer by searching 4 nodes.

Red-Black Tree takes 413000 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2100 nano seconds to search

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Search for 53

Red-Black Tree unsuccessfully find integer by searching 2219 nodes

Red-Black Tree takes 884500 nano seconds to search

2-3-4 Tree unsuccessfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2700 nano seconds to search

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Search for 71

Red-Black Tree successfully find the integer by searching 18 nodes.

Red-Black Tree takes 193000 nano seconds to search

2-3-4 Tree successfully find integer by searching 8 nodes.

2-3-4 Tree's search takes 2700 nano seconds to search

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Search for 111

Red-Black Tree successfully find the integer by searching 30 nodes.

Red-Black Tree takes 1483600 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2900 nano seconds to search

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Search for 140

Red-Black Tree unsuccessfully find integer by searching 2219 nodes

Red-Black Tree takes 285800 nano seconds to search

2-3-4 Tree unsuccessfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2800 nano seconds to search

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Search for 517

Red-Black Tree successfully find the integer by searching 122 nodes.

Red-Black Tree takes 732700 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3900 nano seconds to search

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Search for 1807

Red-Black Tree successfully find the integer by searching 404 nodes.

Red-Black Tree takes 6137300 nano seconds to search

2-3-4 Tree successfully find integer by searching 6 nodes.

2-3-4 Tree's search takes 2100 nano seconds to search

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Search for 2179

Red-Black Tree successfully find the integer by searching 485 nodes.

Red-Black Tree takes 8197700 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 4900 nano seconds to search

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Search for 5668

Red-Black Tree successfully find the integer by searching 1259 nodes.

Red-Black Tree takes 9189900 nano seconds to search

2-3-4 Tree successfully find integer by searching 6 nodes.

2-3-4 Tree's search takes 2500 nano seconds to search

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Search for 5690

Red-Black Tree unsuccessfully find integer by searching 2219 nodes

Red-Black Tree takes 418100 nano seconds to search

2-3-4 Tree unsuccessfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3000 nano seconds to search

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Search for 5691

Red-Black Tree successfully find the integer by searching 1267 nodes.

Red-Black Tree takes 2381500 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 6200 nano seconds to search

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Search for 6640

Red-Black Tree successfully find the integer by searching 1493 nodes.

Red-Black Tree takes 780200 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2700 nano seconds to search

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Search for 6649

Red-Black Tree successfully find the integer by searching 1494 nodes.

Red-Black Tree takes 859000 nano seconds to search

2-3-4 Tree successfully find integer by searching 8 nodes.

2-3-4 Tree's search takes 2700 nano seconds to search

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Search for 7865

Red-Black Tree successfully find the integer by searching 1772 nodes.

Red-Black Tree takes 1767200 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3100 nano seconds to search

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Search for 7952

Red-Black Tree successfully find the integer by searching 1792 nodes.

Red-Black Tree takes 1783700 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3000 nano seconds to search

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Search for 7969

Red-Black Tree successfully find the integer by searching 1797 nodes.

Red-Black Tree takes 823500 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2400 nano seconds to search

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Search for 8127

Red-Black Tree successfully find the integer by searching 1831 nodes.

Red-Black Tree takes 1565900 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2600 nano seconds to search

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Search for 8186

Red-Black Tree successfully find the integer by searching 1849 nodes.

Red-Black Tree takes 641300 nano seconds to search

2-3-4 Tree successfully find integer by searching 7 nodes.

2-3-4 Tree's search takes 1400 nano seconds to search

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Search for 8190

Red-Black Tree successfully find the integer by searching 1850 nodes.

Red-Black Tree takes 994400 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3100 nano seconds to search

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Search for 8192

Red-Black Tree successfully find the integer by searching 1851 nodes.

Red-Black Tree takes 710100 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2200 nano seconds to search

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Search for 8194

Red-Black Tree successfully find the integer by searching 1852 nodes.

Red-Black Tree takes 5009900 nano seconds to search

2-3-4 Tree successfully find integer by searching 8 nodes.

2-3-4 Tree's search takes 2600 nano seconds to search

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Search for 8265

Red-Black Tree successfully find the integer by searching 1867 nodes.

Red-Black Tree takes 3601600 nano seconds to search

2-3-4 Tree successfully find integer by searching 8 nodes.

2-3-4 Tree's search takes 6000 nano seconds to search

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Search for 8268

Red-Black Tree successfully find the integer by searching 1868 nodes.

Red-Black Tree takes 28223500 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3000 nano seconds to search

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Search for 8322

Red-Black Tree successfully find the integer by searching 1880 nodes.

Red-Black Tree takes 12212600 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3200 nano seconds to search

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Search for 9117

Red-Black Tree successfully find the integer by searching 2040 nodes.

Red-Black Tree takes 7006000 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 2800 nano seconds to search

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Search for 9355

Red-Black Tree successfully find the integer by searching 2090 nodes.

Red-Black Tree takes 35432900 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 20000 nano seconds to search

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Search for 9589

Red-Black Tree successfully find the integer by searching 2132 nodes.

Red-Black Tree takes 2953700 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3600 nano seconds to search

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Search for 9841

Red-Black Tree successfully find the integer by searching 2188 nodes.

Red-Black Tree takes 4700500 nano seconds to search

2-3-4 Tree successfully find integer by searching 8 nodes.

2-3-4 Tree's search takes 2800 nano seconds to search

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Search for 9985

Red-Black Tree successfully find the integer by searching 2217 nodes.

Red-Black Tree takes 7753200 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3100 nano seconds to search

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Search for 9990

Red-Black Tree successfully find the integer by searching 2218 nodes.

Red-Black Tree takes 16773700 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 3700 nano seconds to search

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Search for 9992

Red-Black Tree successfully find the integer by searching 2219 nodes.

Red-Black Tree takes 1130100 nano seconds to search

2-3-4 Tree successfully find integer by searching 9 nodes.

2-3-4 Tree's search takes 232300 nano seconds to search

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