4. Measure runtime performance of Binary Search Tree sort and Red Black Tree sort.

The results are depicted in the below table and line chart which shows the variation of time for various inputs. The input d varies between 0, 1 and -1. 0 is for creating a random array. -1 is for reverse sorted array and 1 is for sorted array. In my analysis, most of the reverse sorted and sorted array generation did not provide result as there was segmentation fault occurring. We can increase the stack size to resolve the problem. As the tree size increases, the time to sort increased. The random generated array took more time to sort than the other two cases.

Input d	Input n	Binary Search Tree Sort	Red Black Tree Sort
0	50000	3	3
1	50000	4	1
-1	50000	4	1
0	100000	4	4
1	100000	7	2
-1	100000	11	2
0	250000	20	19
0	500000	60	53
0	1000000	122	96
0	2500000	343	234
0	5000000	687	729