

DSA Q-3

- in1.txt

OP./SIZE	2	5	10	20
INSERT	452.384	181.1741	90.7331	45.5054
SEARCH	483.63	193.547	97.096	48.791
DELETE	483.63	199.246	99.782	50.125
TOTAL	458.694417	183.711167	92.017417	46.164167

- in2.txt

OP./SIZE	2	5	10	20
INSERT	450.1257	180.1471	90.2237	45.2552
SEARCH	492.562	197.916	99.297	49.953
DELETE	500.837	201.215	100.673	50.953
TOTAL	457.888	183.3835	91.85058	46.0915

- in3.txt

OP./SIZE	2	5	10	20
INSERT	451.9586	180.9002	90.668	45.5262
SEARCH	488.023	195.618	97.978	49.196
DELETE	501.23	200.854	100.558	50.451
TOTAL	459.069917	183.7895	92.101333	46.242417

- in4.txt

OP./SIZE	2	5	10	20
INSERT	499.5	199.5	99.5	49.5

OP./SIZE	2	5	10	20
SEARCH	500.5	200.5	100.5	50.5
DELETE	—	—	—	—
TOTAL	500	200	100	50

- in5.txt

OP./SIZE	2	5	10	20
INSERT	499.5	99.5	99.5	49.5
SEARCH	250.25	150.25	50.25	25.25
DELETE	—	—	—	—
TOTAL	333.333333	133.333333	66.666667	33.3333333

- in6.txt

OP./SIZE	2	5	10	20
INSERT	5.3895	2.4535	1.472	0.99
SEARCH	5.5	2.5	1.5	1
DELETE	—	—	—	—
TOTAL	5.390594	2.45396	1.472277	0.990099

- in7.txt

OP./SIZE	2	5	10	20
INSERT	1.78	0.995	0.995	0.995
SEARCH	2.1	1	0.5	0.5
DELETE	—	—	—	—
TOTAL	1.783168	0.99505	0.990099	0.990099

- in8.txt

OP./SIZE	2	5	10	20
INSERT	494.836915	198.237121	99.406925	49.932364
SEARCH	495.795675	198.619415	99.585944	50.050644
DELETE	495.560638	198.498550	99.495974	50.002577
TOTAL	495.047380	198.317670	99.440500	49.955960

- in9.txt

OP./SIZE	2	5	10	20
INSERT	25.454314	10.484455	5.492537	2.994449
SEARCH	25.307037	10.418385	5.458827	2.977119
DELETE	25.516553	10.495176	5.496382	2.996163
TOTAL	25.437850	10.475500	5.487820	2.992000

- in10.txt

OP./SIZE	2	5	10	20
INSERT	0.995902	0.995902	0.995902	0.995902
SEARCH	0.998047	0.998047	0.998047	0.998047
DELETE	—	—	—	—
TOTAL	0.997000	0.997000	0.997000	0.997000

Conclusion:

We can clearly observe that as the number of buckets increases, the number of items in each bucket decreases.

Having less number of items in each bucket reduces the number of operations as the linked list would be small.

Thus, in these examples, we have less number of operations when the number of buckets = 20.

