

Task 1 Report:

For the below observations, the time difference values are given in Nano seconds.

Using Buffer Size of 64:

Sequential Search Timings:

new transaction: 1

recovering existing database

1385742731221 simpledb.buffer.Buffer@4d12ee4f

[file tblcat.tbl,

block 0]

Time difference :745098

1385742731234 simpledb.buffer.Buffer@26114629

[file fldcat.tbl, block

0]

Time difference :136445

Time difference :147993

Time difference :261340

Time difference :231400

transaction 1 committed

database server ready

new transaction: 2

Time difference :163391

Time difference :162536

transaction 2 committed

new transaction: 3

Time difference :192476

Time difference :200176

1385742741287 simpledb.buffer.Buffer@307c197e

[file student.tbl,

block 0]

Time difference :126606

Time difference :171946

transaction 3 committed

new transaction: 4

Time difference :140722

Time difference :133450

Time difference :128746

transaction 4 committed

new transaction: 5

Time difference :144999

Time difference :126179

Time difference :128317

transaction 5 committed

HashMap Search Timings:

new transaction: 1

recovering existing database

1385742545216 simpledb.buffer.Buffer@4d12ee4f
block 0]

[file tblcat.tbl,

Time difference : 624480

1385742545226 simpledb.buffer.Buffer@26114629
0]

[file fldcat.tbl, block

Time difference : 177510

Time difference : 183920

Time difference : 124040

Time difference : 113345

transaction 1 committed

database server ready

new transaction: 2

Time difference : 100515

Time difference : 100515

transaction 2 committed

new transaction: 3

Time difference : 100515

Time difference : 98375

1385742554757 simpledb.buffer.Buffer@5a3e03b3
block 0]

[file student.tbl,

Time difference : 143285

Time difference : 151840

transaction 3 committed

new transaction: 4

Time difference : 91960

Time difference : 100515

Time difference : 83405

transaction 4 committed

new transaction: 5

Time difference : 89820

Time difference : 87685

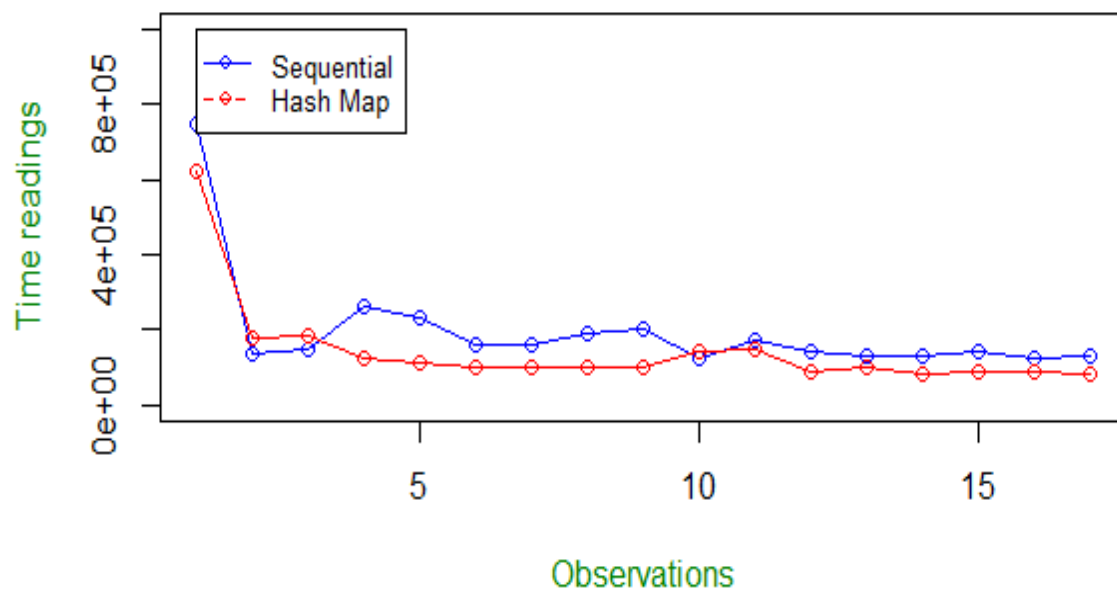
Time difference : 81265

transaction 5 committed

The comparison w.r.t to the time taken is depicted in the below table, where time difference is measured in Nano seconds.

seq_64	hash_64
745098	624480
136445	177510
147993	183920
261340	124040

231400	113345
163391	100515
162536	100515
192476	100515
200176	98375
126606	143285
171946	151840
140722	91960
133450	100515
128746	83405
144999	89820
126179	87685
128317	81265



Using Buffer Size of 32:

Sequential Search Timings:

new transaction: 1

recovering existing database

1385742819072 simpledb.buffer.Buffer@4d12ee4f

[file tblcat.tbl, block 0]

Time difference :125323

1385742819078 simpledb.buffer.Buffer@26114629

[file fldcat.tbl, block 0]

Time difference :205308

Time difference :211297
Time difference :172801
Time difference :131739
transaction 1 committed
database server ready
new transaction: 2
Time difference :183066
Time difference :158259
transaction 2 committed
new transaction: 3
Time difference :233538
Time difference :131739
1385742828333 simpledb.buffer.Buffer@58bf7b3e [file student.tbl, block 0]
Time difference :176650
Time difference :214718
transaction 3 committed
new transaction: 4
Time difference :202314
Time difference :159114
Time difference :141577
transaction 4 committed
new transaction: 5
Time difference :156548
Time difference :181783
Time difference :164247
transaction 5 committed

HashMap Search Timings:

new transaction: 1
recovering existing database
1385742445913 simpledb.buffer.Buffer@4d12ee4f [file tblcat.tbl, block 0]
Time difference : 119762
1385742445933 simpledb.buffer.Buffer@26114629 [file fldcat.tbl, block 0]
Time difference : 133448
Time difference : 147136
Time difference : 112920
Time difference : 97520
transaction 1 committed
database server ready
new transaction: 2
Time difference : 80412
Time difference : 12489
transaction 2 committed

new transaction: 3

Time difference : 119764

Time difference : 123184

1385742457065 simpledb.buffer.Buffer@236db810

[file student.tbl, block 0]

Time difference : 70148

Time difference : 82124

transaction 3 committed

new transaction: 4

Time difference : 73572

Time difference : 68436

Time difference : 68436

transaction 4 committed

new transaction: 5

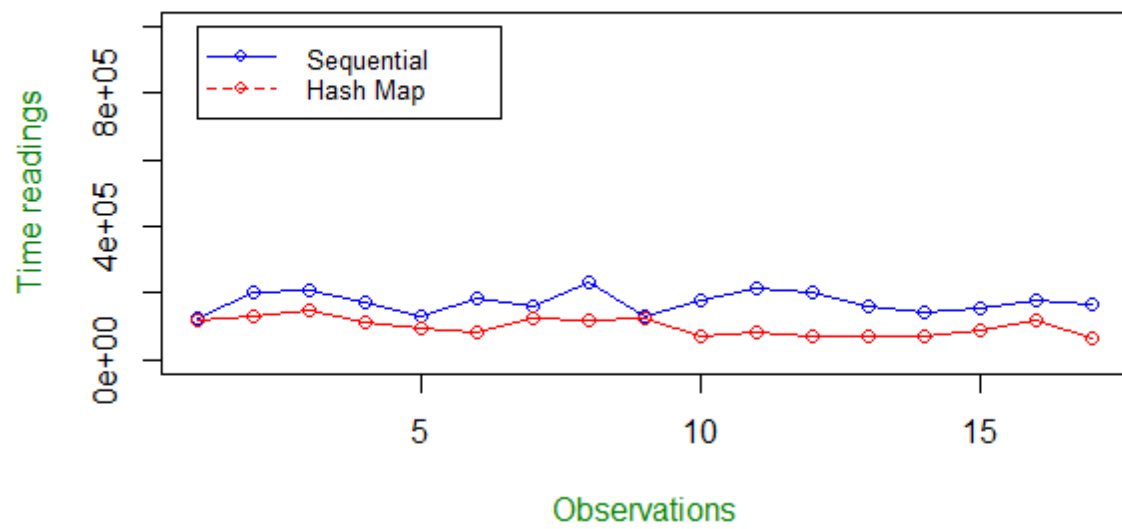
Time difference : 90680

Time difference : 118052

Time difference : 66724

transaction 5 committed

seq_32	hash_32
125323	119762
205308	133448
211297	147136
172801	112920
131739	97520
183066	80412
158259	124896
233538	119764
131739	123184
176650	70148
214718	82124
202314	73572
159114	68436
141577	68436
156548	90680
181783	118052
164247	66724



As depicted by the graphs for the buffer size 32 and 64, Hashmap performs better in comparison to sequential search as it maintains an index for all the key-value pairs and hence able to retrieve the values much faster, which is not possible in the trivial sequential search.