EECS 560

Lab6-Summary

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Performance(Open Hashing):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| n | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 |
| Build | 0.0197434 | 0.0376292 | 0.0581348 | 0.0790846 | 0.0861796 |
| Found | 3.38e-05 | 0.0001412 | 0.0003566 | 0.0002064 | 0.0010242 |
| Not Found | 0.0013394 | 0.0023824 | 0.0037832 | 0.0015106 | 0.0067578 |

Performance(Quadratic Probing):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| n | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 |
| Build | 0.01193 | 0.0231596 | 0.031032 | 0.039835 | 0.0511936 |
| Found | 2.26e-05 | 8.32e-05 | 0.0001828 | 9.46e-05 | 0.000425 |
| Not Found | 0.001035 | 0.0017248 | 0.0025678 | 0.0011786 | 0.0043022 |

Performance(Double Hashing):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| n | 100,000 | 200,000 | 300,000 | 400,000 | 500,000 |
| Build | 0.0138172 | 0.026135 | 0.0379184 | 0.0466708 | 0.0608552 |
| Found | 2.52e-05 | 8.72e-05 | 0.0001808 | 0.0001092 | 0.000502 |
| Not Found | 0.0011936 | 0.0019864 | 0.0029406 | 0.0014864 | 0.005129 |

Summary:

1. Open Hashing is the lowest one for insertion, searching successfully and searching unsuccessfully.

Quadratic Probing is the most efficient one for insertion, searching successfully and searching unsuccessfully.

1. Found successfully is faster than found unsuccessfully for Open Hashing, Quadratic Probing, and Double Hashing.
2. With the increasing of the number of elements, the CPU time of three hash tables is increasing linearly for insertion method.