**Experimental Findings CMPT 225 Assignment 2 - raw data**

Gurveen Nanua
301546459

Test 1

Size = 100 000 //not big enough
Node capacity = 10 (unrolled linked)

Traversing the lists and printing every single value

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.195043 | 0.0707048 | 0.100552 |
| 2 | 0.163368 | 0.0814627 | 0.0790927 |
| 3 | 0.163851 | 0.0628719 | 0.0768618 |
| | | | |

Test 2

CACHE_SIZE = 131072
INT_SIZE = sizeof(int) = 4
SIZE = CACHE_SIZE / INT_SIZE * 10 (approx 327,680)
Node capacity = 100 (unrolled linked)

Traversing the lists and finding a value at the end of the list

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.000669 | 0.000822334 | 0.000000375 |
| 2 | 0.000672 | 0.000861084 | 0.0000005 |
| 3 | 0.000789083 | 0.000951833 | 0.000000542 |

Traversing the lists and printing all values

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.589411 | 0.26856 | 0.274065 |
| 2 | 0.544837 | 0.248703 | 0.234991 |
| 3 | 0.563423 | 0.276534 | 0.285063 |

Items are not big enough.

Test 3

CACHE_SIZE = 131072
INT_SIZE = sizeof(int) = 4
SIZE = CACHE_SIZE / INT_SIZE * 10 (approx 327,680)
Node capacity = 10 (unrolled linked)

Traversing the lists and finding a value

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.000671042 | 0.000817958 | 0.000000375 |
| 2 | 0.000931458 | 0.000825125 | 0.00000025 |

Traversing the lists and printing all values

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.549847 | 0.246068 | 0.247652 |

List size not big enough

Test 4

CACHE_SIZE = 196608
INT_SIZE = sizeof(int) = 4

SIZE = CACHE_SIZE / INT_SIZE * 10 (approx 491,520)
Node capacity = 100 (unrolled linked)

Inserting values

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.00265292 | 308.198 (5 min) | 0.297744 (3 sec) |
| 2 | | | |
| 3 | | | |

Traversing the lists and finding a value

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.000504708 | 0.000890459 | 0.000893416 |
| 2 | | | |
| 3 | | | |

LL still in cache

Test 5

CACHE_SIZE = 196608
INT_SIZE = sizeof(int) = 4
SIZE = CACHE_SIZE / INT_SIZE * 100 (approx 4,915,200)
Node capacity = 100 (unrolled linked)

Inserting values

| Number of times program ran | array | LL | ULL |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1 | 0.00265292 | 308.198 (5 min) | 0.297744 (3 sec) |
| 2 | | | |
| 3 | | | |

Traversing the lists and finding a value for (SIZE-1)/2

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.000504708 | 0.000890459 | 0.000893416 |
| 2 | | | |
| 3 | | | |

Test 6

CACHE_SIZE = 196608
INT_SIZE = sizeof(int) = 4
SIZE = CACHE_SIZE / INT_SIZE * 10 (approx 491,520)
Node capacity = 10 (unrolled linked)

Inserting values

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.00264212 | 311.365 | 0.056979 |
| 2 | 0.00232313 | 315.842 | 0.0574911 |
| 3 | | | |

Traversing the lists and finding a value

| Number of times program ran | array | LL | ULL |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 1 | 0.00633488 | 0.00121433 | 0.000000375 |
| 2 | 0.00154492 | 0.00126692 | 0.000000333 |
| 3 | 0.00102383 | 0.00138233 | 3.75e-07 |

Printing the list traversal:

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | 1.00369 | 0.390495 | 0.46972 |

Test 7

CACHE_SIZE = 196608
INT_SIZE = sizeof(int) = 4
SIZE = CACHE_SIZE / INT_SIZE * 10 (approx 491,520)
Node capacity = 100 (unrolled linked)

Inserting values

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | | | |
| 2 | 0.00268112 | 309.993 | 0.297091 |
| 3 | | | |

Traversing the lists and finding a value

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | 0.00115938 | 0.00165879 | 0.000000542 |
| 2 | 0.00134779 | 0.00118671 | 0.000000375 |
| 3 | 0.00100304 | 0.00123512 | 0.000000417 |

Printing the list traversal:

| Number of times program ran | array | LL | ULL |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | 0.941013 | 0.433216 | 0.380787 |