

FINAL PROJECT

Final Project

Yuji Shimojo

CMSC 412

Instructor: Prof. Alin Suciu

July 27, 2014

FINAL PROJECT

Introduction

I implemented a demand paging virtual memory simulator in Java. Arrays and lists as storage area of reference strings. For instance, I used LinkedList for FIFO and queues to handle priorities.

Execution and Test Results

0 - Exit

```
nova2> java DemandPagingSimulator
Set a number of physical frames:
4
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 0
Exit!
```

1 - Read reference string (Test1)

```
nova2> java DemandPagingSimulator
Set a number of physical frames:
4
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 1
Set a reference string (less than 20 figures): 17540147365047321
```

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2 - Generate reference string

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 2
65409570412903219142
```

3 - Display current reference string

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 3
Current reference string is 17540147365047321
```

4 - Simulate FIFO (Test1)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 4

Physical frame 0: 1
Physical frame 1: 2
Physical frame 2: 3
Physical frame 3: 7
Number of page faults: 16
```

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5 - Simulate OPT (Test1)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 5

Physical frame 0: 1
Physical frame 1: 7
Physical frame 2: 0
Physical frame 3: 4
Number of page faults: 10
```

6 - Simulate LRU (Test1)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 5

Physical frame 0: 1
Physical frame 1: 7
Physical frame 2: 0
Physical frame 3: 4
Number of page faults: 10
```

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1 - Read reference string (Test2)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 1
Set a reference string (less than 20 figures): 01234567890918273645
```

4 - Simulate FIFO (Test2)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 4

Physical frame 0: 5
Physical frame 1: 4
Physical frame 2: 6
Physical frame 3: 3
Number of page faults: 18
```

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5 - Simulate OPT (Test2)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 5

Physical frame 0: 5
Physical frame 1: 1
Physical frame 2: 9
Physical frame 3: 8
Number of page faults: 15
```

6 - Simulate LRU (Test2)

```
0 - Exit
1 - Read reference string
2 - Generate reference string
3 - Display current reference string
4 - Simulate FIFO
5 - Simulate OPT
6 - Simulate LRU
7 - Simulate LFU
Select option: 6

Physical frame 0: 6
Physical frame 1: 4
Physical frame 2: 3
Physical frame 3: 5
Number of page faults: 18
```