Final Project Report

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Introduction

The following program is a demand paging simulator. I used java to implement this program. This program is based off of four page replacement algorithms. FIFO, First In First Out, is the first algorithm of the page replacement. Depending on how many frames there are, the first frame that receives a page value is the first frame to get its value changed. This works subsequently for each frame in a chronological order, similar to a queue data structure. LRU, Least Recently Used, is another algorithm used in page replacement. This algorithm is similar to FIFO, except that it looks at the least recently added page fault to change its value. Even if a page fault was added first, its value does not get affected if it gets a hit in the page replacement. LFU, Least Frequently Used, is the third algorithm used in page replacement. This algorithm keeps count of how many times the page fault values get hit. If there is an equal amount of frequency occurring in each frame, then the algorithm will operate as FIFO until a page value gets a hit. The page value with the most frequency does not get affected, while the page value with the least frequency is the first to get changed. Lastly, optical algorithm is used to check how farthest each page value will occur again. The page value that occurs farther than any other value will be the first to get changed.

When using this program, you can either read in a reference string of values, or let the program randomly generate a reference string for you. You may also display the reference string just in case you would like double check the reference string. An important thing I must mention before testing out my program is that when reading a reference string from your keyboard, the first value will be cut off when it is ready to be displayed. Therefore, it is important that you add a zero ‘0’ in the beginning of each reference string entry before actually typing in your reference string.

With the help of my professor, I was able to get a head start on developing my page simulator. With the FIFO method already developed, I referred to that in order to develop the optical, LRU, and LFU methods. While I did struggle at first, I was able to get assistance as to how I should go about developing each algorithm method. After testing each algorithm for a reference string, the methods worked successfully as expected.

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Tables

Table 1

[Table Title]

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| Column Head | Column Head | Column Head | Column Head | Column Head |
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| Row Head | 456 | 456 | 456 | 456 |
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