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A case study
In partial fulfillment of the requirements
for the course Operating Systems

Implementation of the Page Replacement Algorithms (FIFO, LRU and Optimal Algorithm)

Operating Systems Case Study

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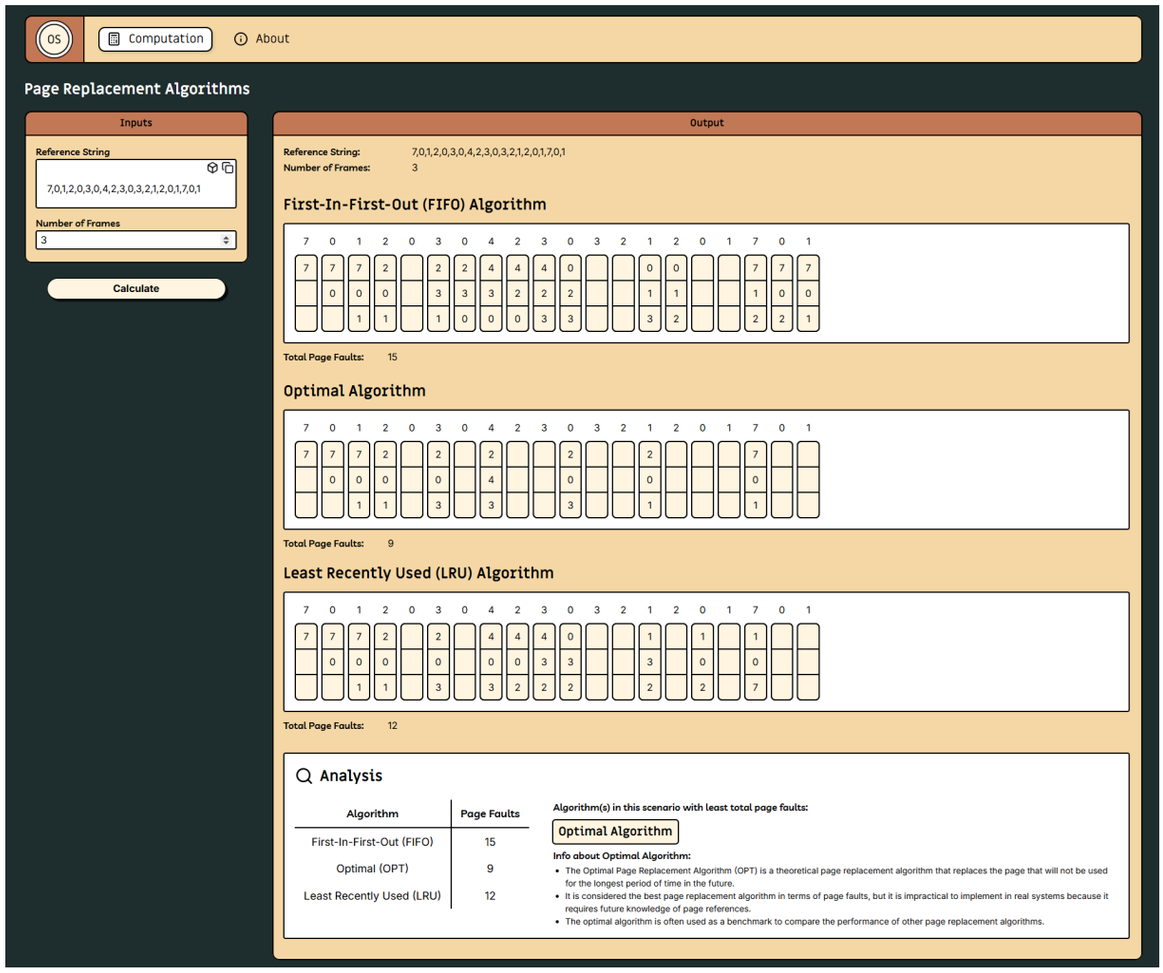
I. DOCUMENTATION

1. First Sample Input

Reference String: 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

Number of Page Frames: 3



Algorithm	Page Faults
First-In-First-Out (FIFO)	15
Optimal (OPT)	9
Least Recently Used (LRU)	12

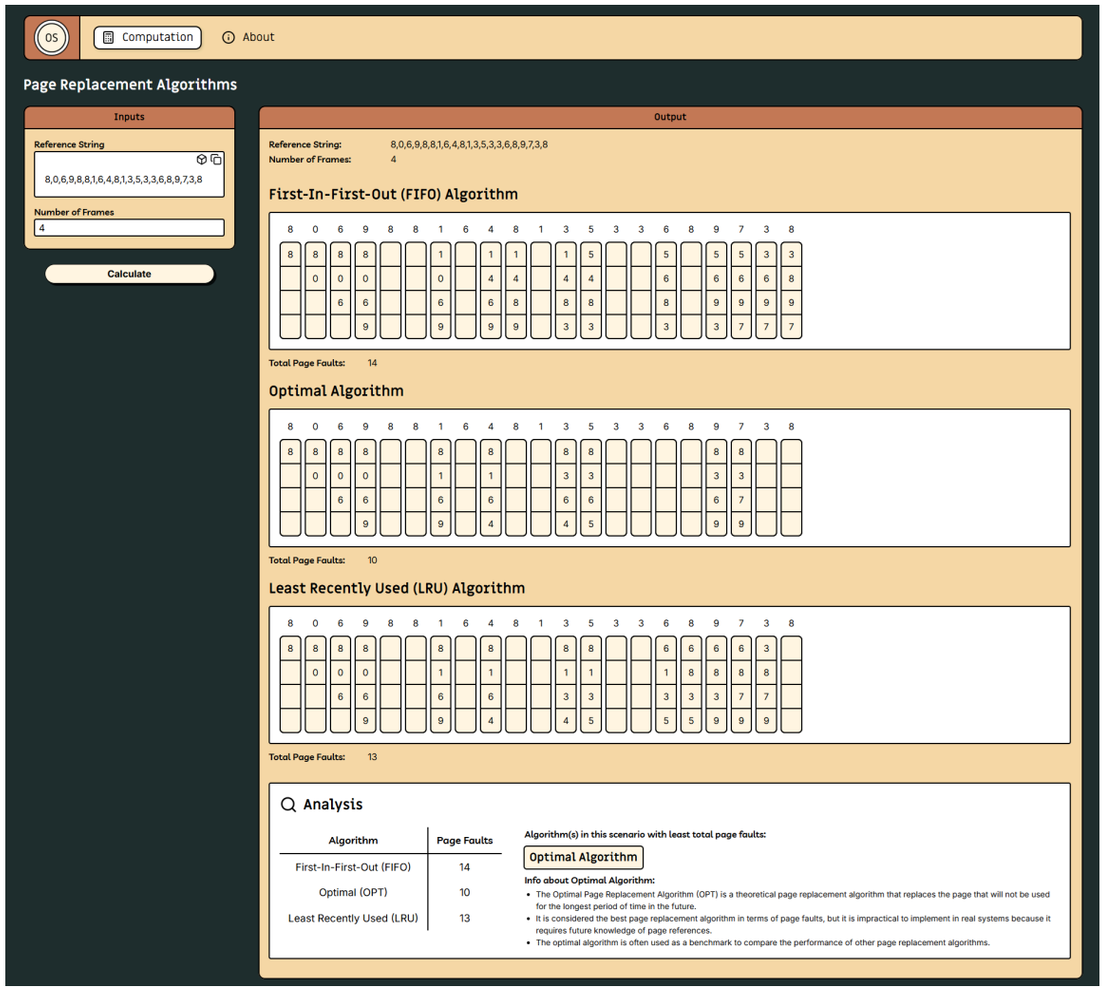
Table 1: First Input Results

In this scenario, the Optimal Algorithm had the least page faults. The Least Recently Used (LRU) Algorithm had slightly more page faults, while the First-In-First-Out (FIFO) Algorithm ended up with the most page faults overall.

2. Second Sample Input

Reference String: 8,0,6,9,8,8,1,6,4,8,1,3,5,3,3,6,8,9,7,3,8

Number of Page Frames: 4



Algorithm	Page Faults
First-In-First-Out (FIFO)	14
Optimal (OPT)	10
Least Recently Used (LRU)	13

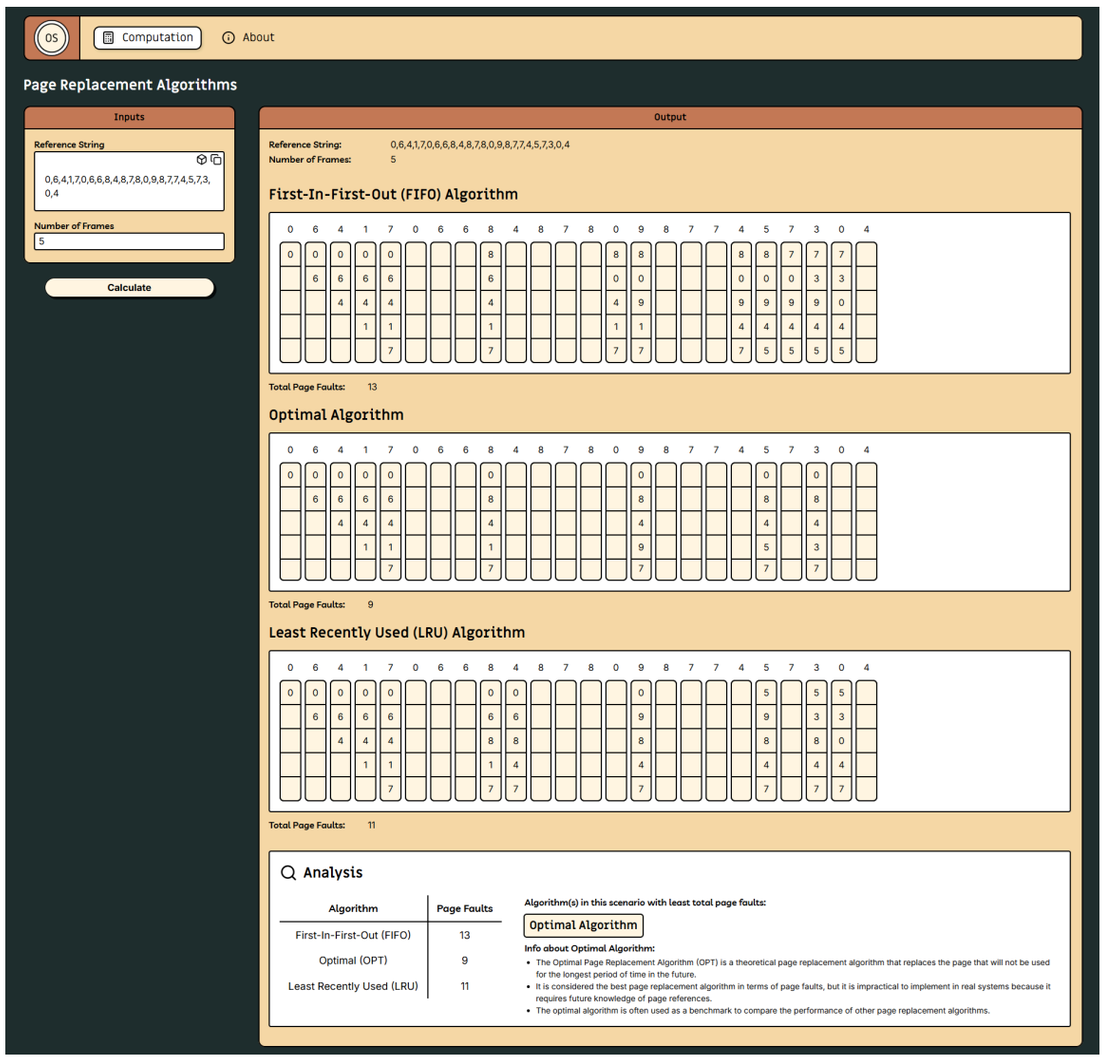
Table 2: Second Input Results

In this scenario, the Optimal Algorithm had the least page faults again. The Least Recently Used (LRU) Algorithm comes in second, and the First-In-First-Out (FIFO) Algorithm had the largest total of page faults.

3. Third Sample Input

Reference String: 0,6,4,1,7,0,6,6,8,4,8,7,8,0,9,8,7,7,4,5,7,3,0,4

Number of Page Frames: 5



Algorithm	Page Faults
First-In-First-Out (FIFO)	13
Optimal (OPT)	9
Least Recently Used (LRU)	11

Table 3: Third Input Results

In the third scenario, the Optimal Algorithm wins with the least number of page faults (9). The Least Recently Used (LRU) Algorithm comes next with 11 total page faults, and the First-In-First-Out (FIFO) Algorithm comes in last with 13 total page faults.