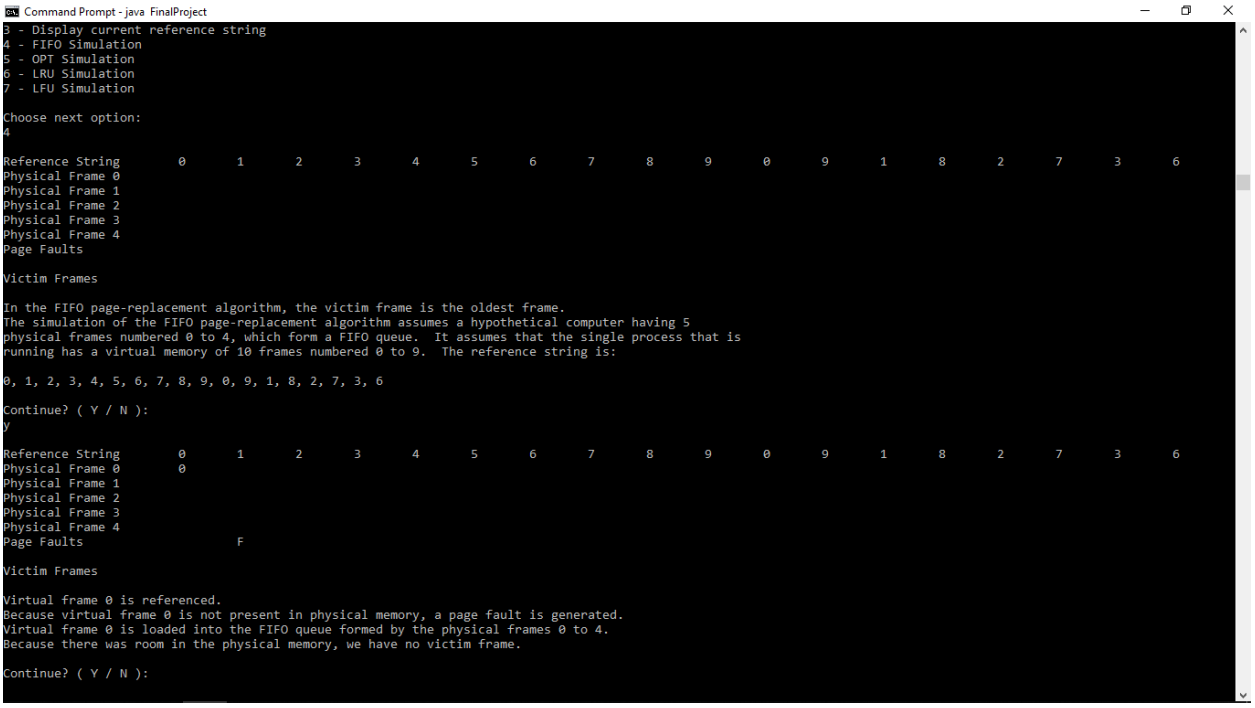
CMSC 412 Final Project

Using the reference string:

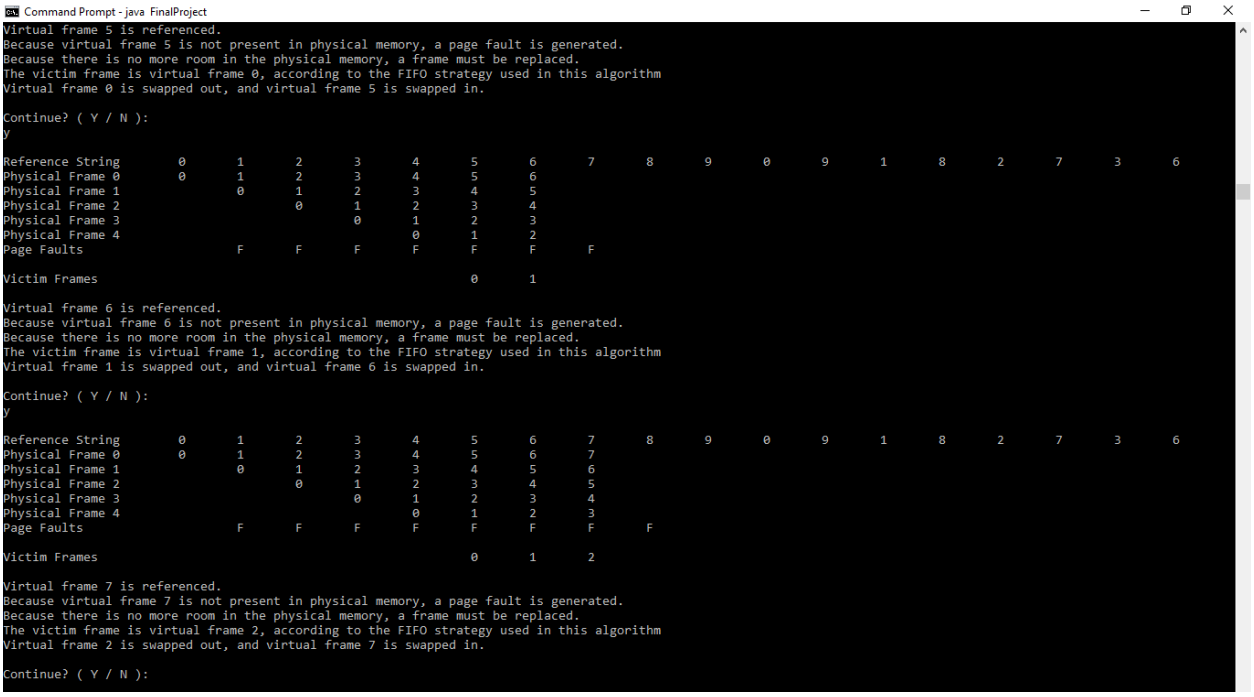
0	1	2	3	4	5	6	7	8	9	0	9	1	8	2	7	**3**	**6**	**4**	**5**
N	=	5																	

Applying it to the algorithm:

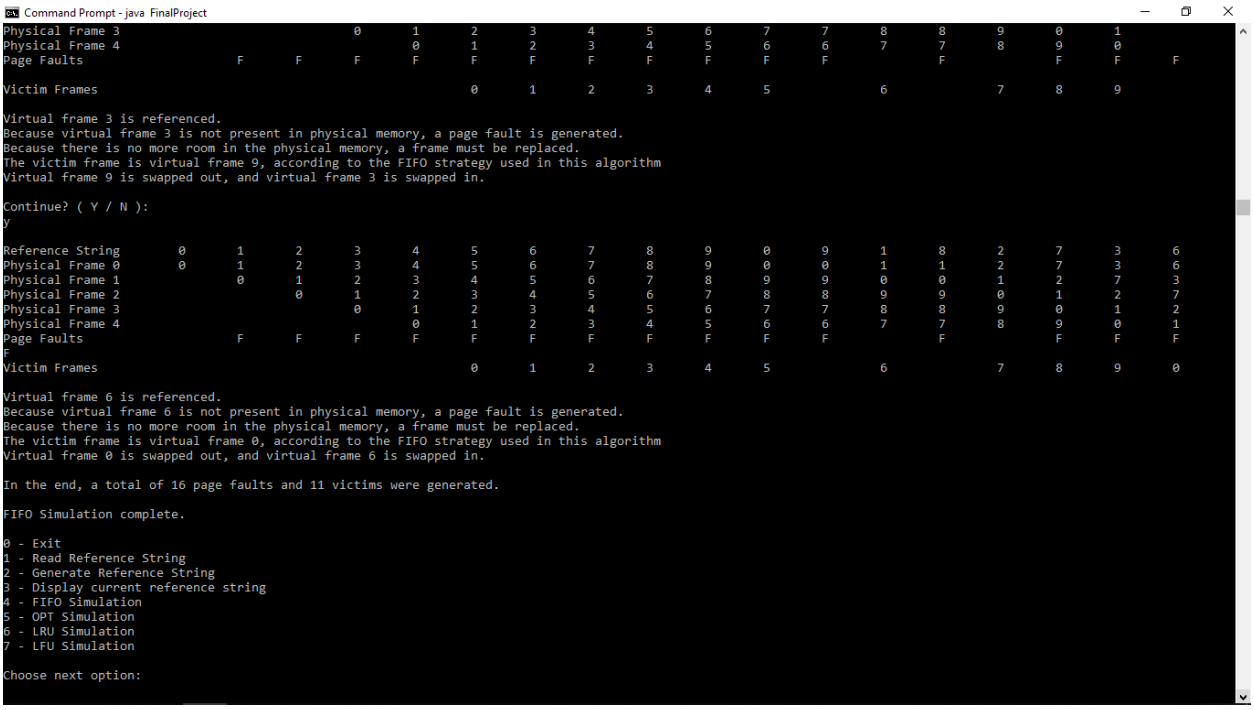
Test FIFO #1



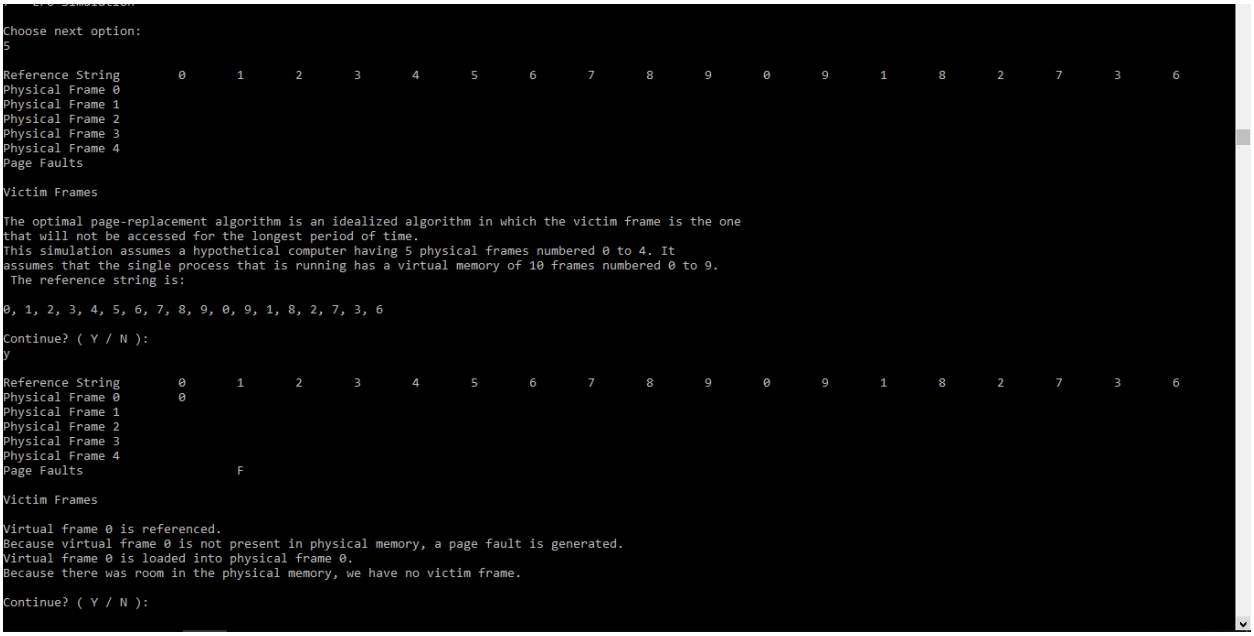
FIFO #2


Command Prompt - java FinalProject
Virtual frame 5 is referenced.
Because virtual frame 5 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 0, according to the FIFO strategy used in this algorithm
Virtual frame 0 is swapped out, and virtual frame 5 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 1 2 3 4 5 6
Physical Frame 1 0 1 2 3 4 5
Physical Frame 2 0 1 2 3 4
Physical Frame 3 0 1 2 3
Physical Frame 4 0 1 2
Page Faults F F F F F F F
Victim Frames 0 1
Virtual frame 6 is referenced.
Because virtual frame 6 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 1, according to the FIFO strategy used in this algorithm
Virtual frame 1 is swapped out, and virtual frame 6 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 1 2 3 4 5 6 7
Physical Frame 1 0 1 2 3 4 5 6
Physical Frame 2 0 1 2 3 4 5
Physical Frame 3 0 1 2 3 4
Physical Frame 4 0 1 2 3
Page Faults F F F F F F F F
Victim Frames 0 1 2
Virtual frame 7 is referenced.
Because virtual frame 7 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 2, according to the FIFO strategy used in this algorithm
Virtual frame 2 is swapped out, and virtual frame 7 is swapped in.
Continue? (Y / N):

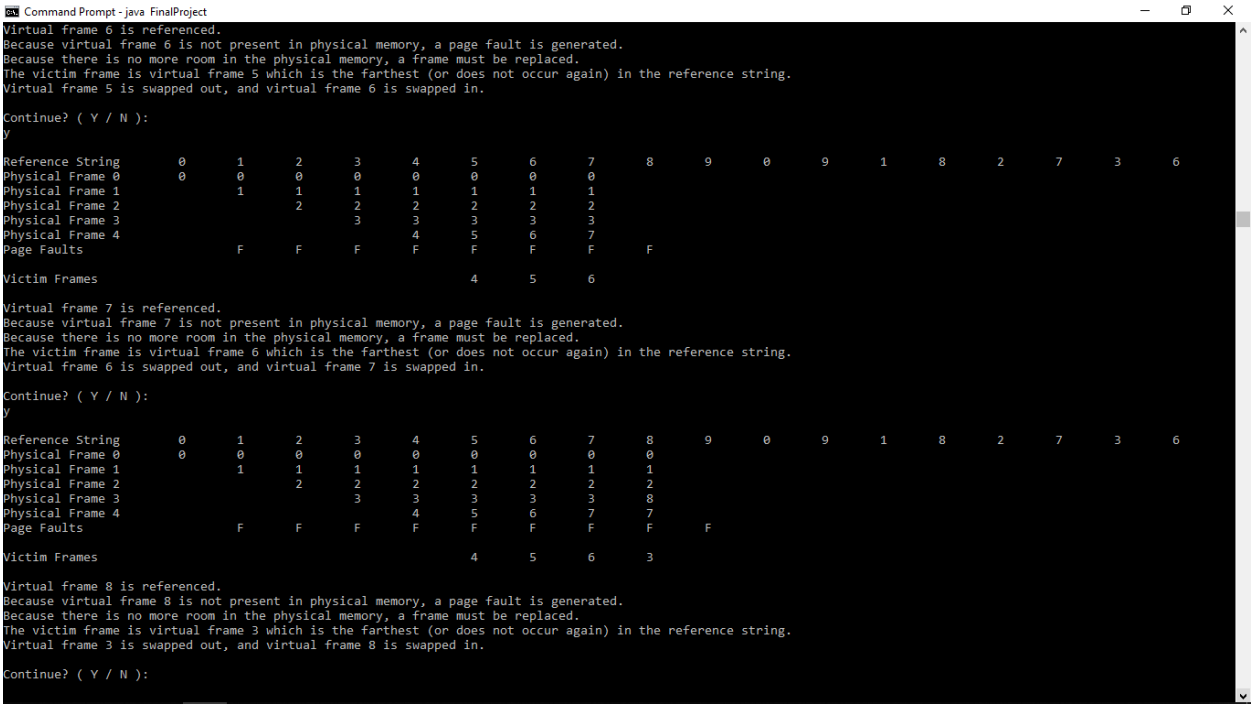
FIFO #3


Command Prompt - java FinalProject
Physical Frame 3 0 1 2 3 4 5 6 7 7 8 8 9 0 1
Physical Frame 4 0 1 2 3 4 5 6 6 7 7 8 9 0
Page Faults F F F F F F F F F F F F F F F
Victim Frames 0 1 2 3 4 5 6 7 8 9
Virtual frame 3 is referenced.
Because virtual frame 3 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 9, according to the FIFO strategy used in this algorithm
Virtual frame 9 is swapped out, and virtual frame 3 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 1 2 3 4 5 6 7 8 9 0 0 1 1 2 7 3 6
Physical Frame 1 0 1 2 3 4 5 6 7 8 9 9 0 0 1 2 7 3
Physical Frame 2 0 1 2 3 4 5 6 7 8 8 9 9 0 1 2 7
Physical Frame 3 0 1 2 3 4 5 6 7 7 8 8 9 0 1 2
Physical Frame 4 0 1 2 3 4 5 6 6 7 7 8 9 0 1
Page Faults F F F F F F F F F F F F F F F F
Victim Frames 0 1 2 3 4 5 6 7 8 9 0
Virtual frame 6 is referenced.
Because virtual frame 6 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 0, according to the FIFO strategy used in this algorithm
Virtual frame 0 is swapped out, and virtual frame 6 is swapped in.
In the end, a total of 16 page faults and 11 victims were generated.
FIFO Simulation complete.
0 - Exit
1 - Read Reference String
2 - Generate Reference String
3 - Display current reference string
4 - FIFO Simulation
5 - OPT Simulation
6 - LRU Simulation
7 - LFU Simulation
Choose next option:

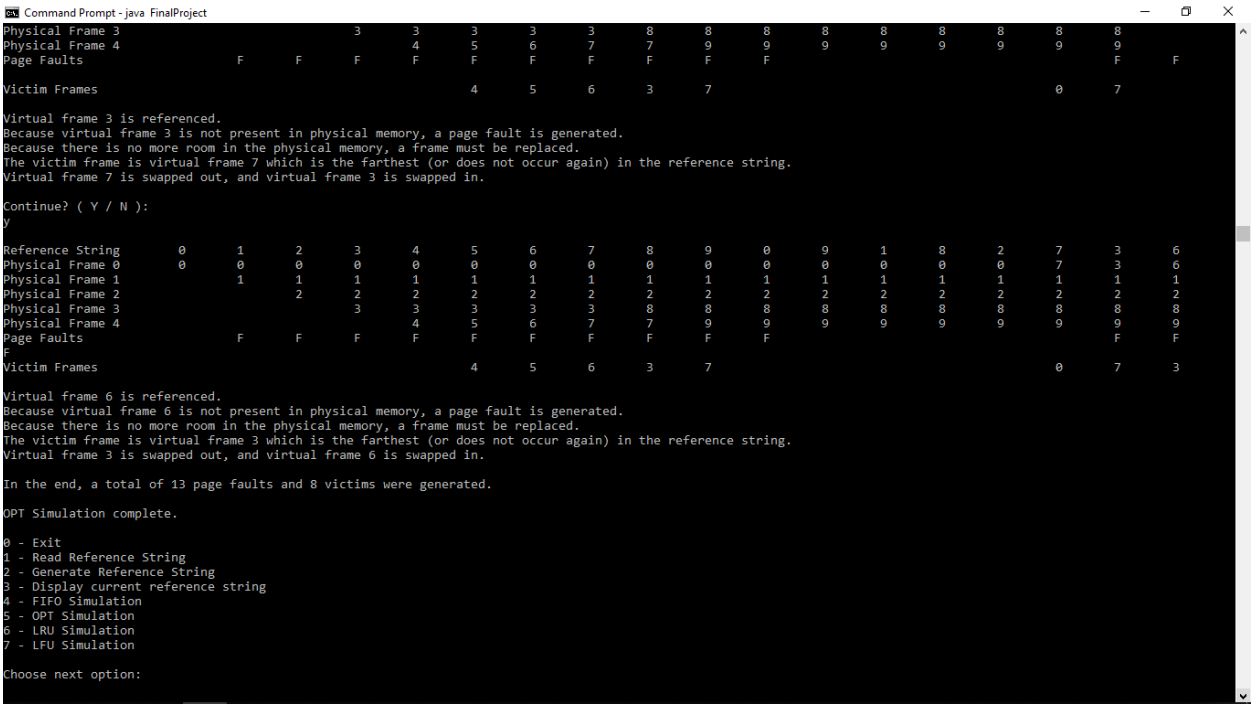
Test OPT #1



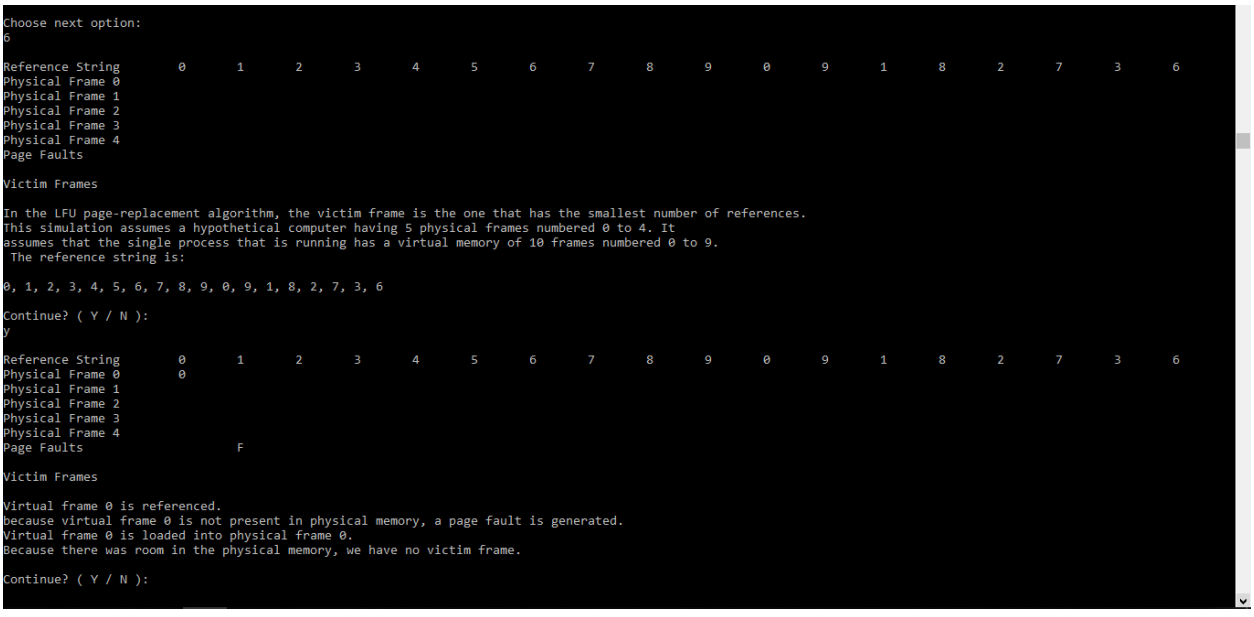
Test OPT #2



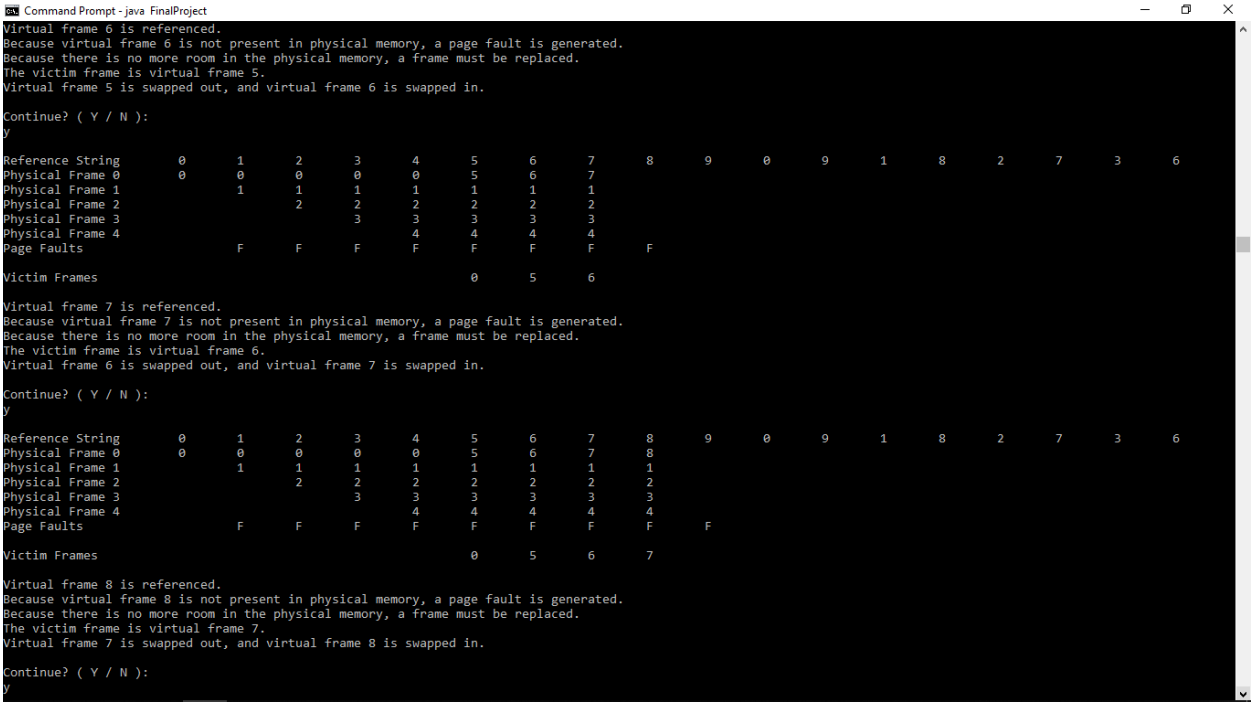
Test OPT #3



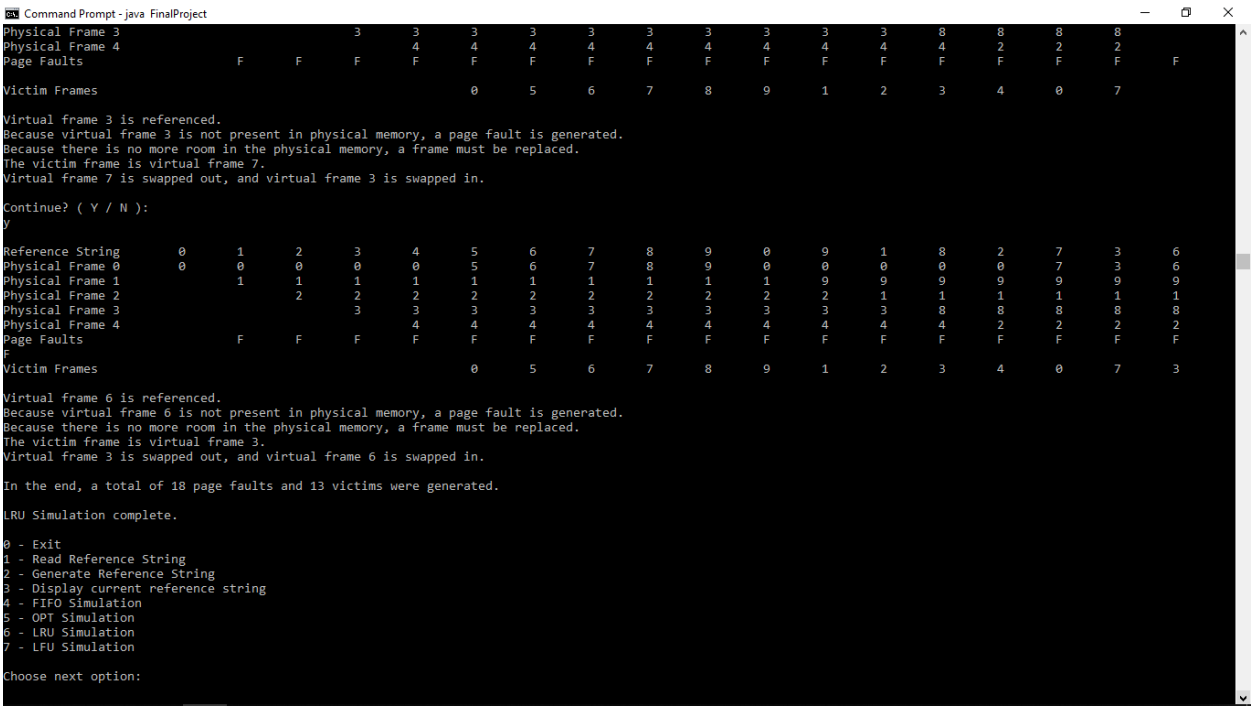
Test LRU #1



Test LRU #2

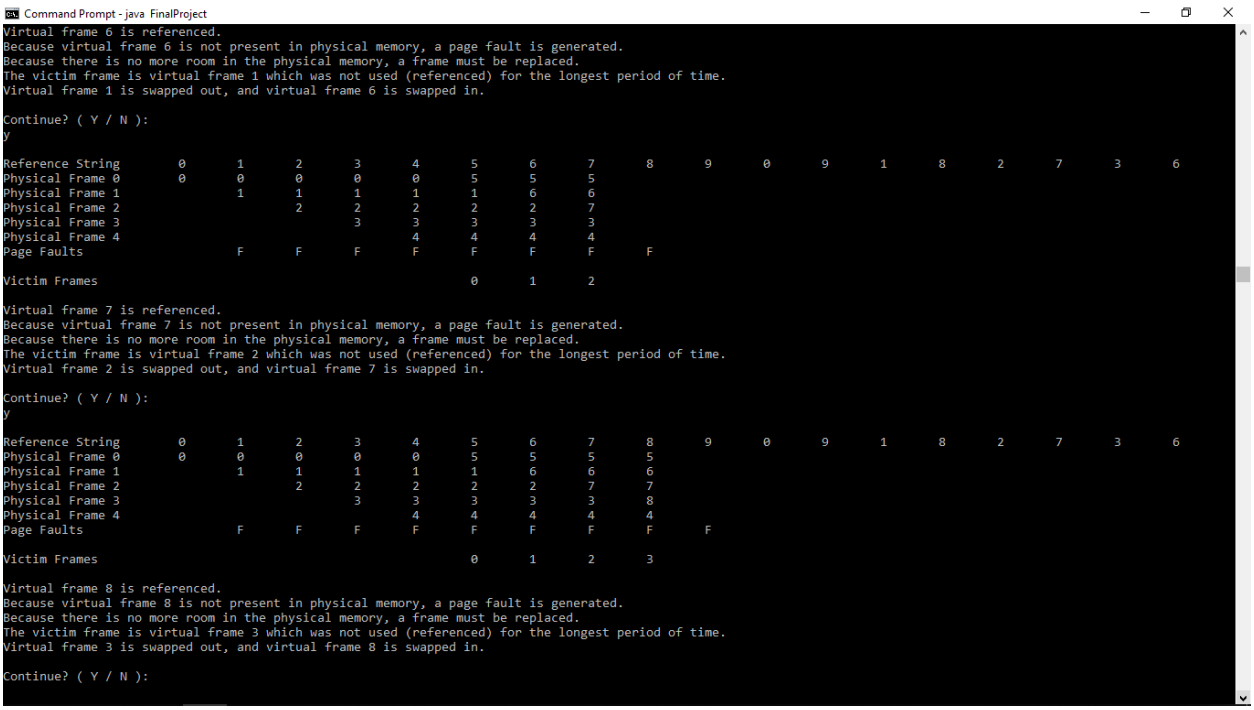

Command Prompt - java FinalProject
Virtual frame 6 is referenced.
Because virtual frame 6 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 5.
Virtual frame 5 is swapped out, and virtual frame 6 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 0 0 0 0 5 6 7
Physical Frame 1 1 1 1 1 1 1 1
Physical Frame 2 2 2 2 2 2 2
Physical Frame 3 3 3 3 3 3
Physical Frame 4 4 4 4 4
Page Faults F F F F F F F F
Victim Frames 0 5 6
Virtual frame 7 is referenced.
Because virtual frame 7 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 6.
Virtual frame 6 is swapped out, and virtual frame 7 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 0 0 0 0 5 6 7 8
Physical Frame 1 1 1 1 1 1 1 1 1
Physical Frame 2 2 2 2 2 2 2 2
Physical Frame 3 3 3 3 3 3 3
Physical Frame 4 4 4 4 4 4
Page Faults F F F F F F F F F
Victim Frames 0 5 6 7
Virtual frame 8 is referenced.
Because virtual frame 8 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 7.
Virtual frame 7 is swapped out, and virtual frame 8 is swapped in.
Continue? (Y / N):
y

Test LRU #3

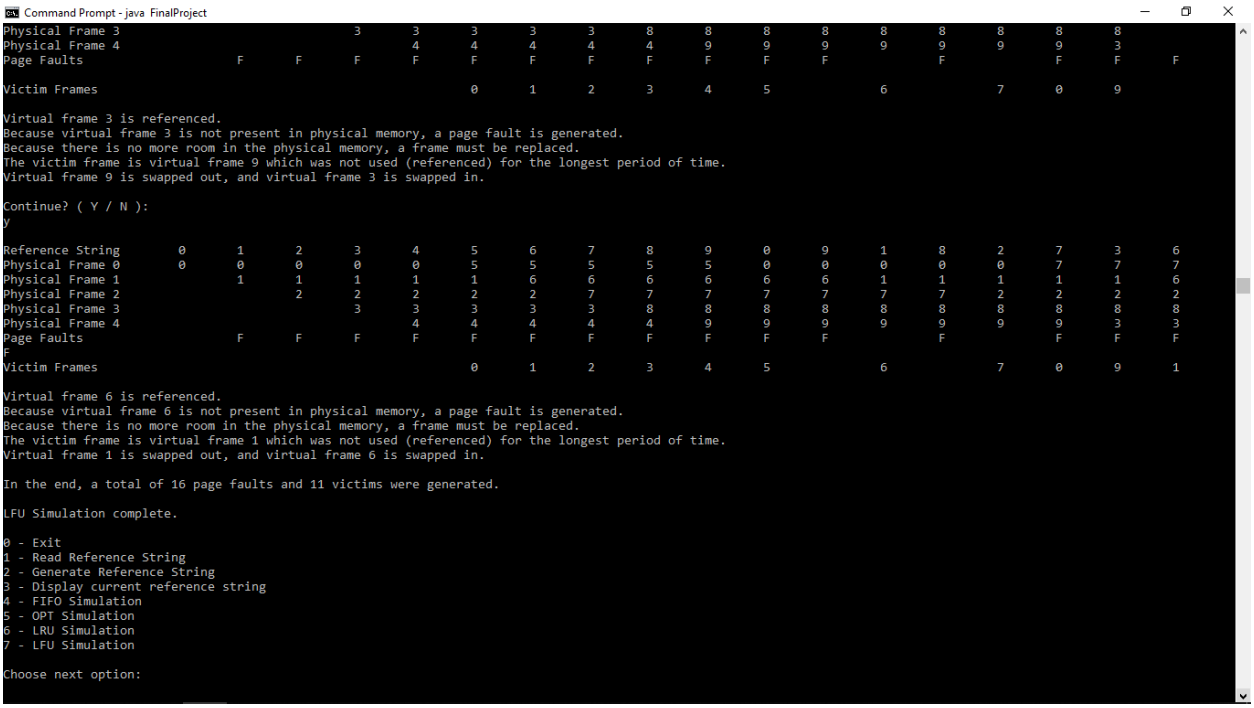

Command Prompt - java FinalProject
Physical Frame 3 3 3 3 3 3 3 3 3 3 8 8 8 8
Physical Frame 4 4 4 4 4 4 4 4 4 4 2 2 2
Page Faults F F F F F F F F F F F F F F F F
Victim Frames 0 5 6 7 8 9 1 2 3 4 0 7
Virtual frame 3 is referenced.
Because virtual frame 3 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 7.
Virtual frame 7 is swapped out, and virtual frame 3 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 0 0 0 0 5 6 7 8 9 0 0 0 0 0 7 3 6
Physical Frame 1 1 1 1 1 1 1 1 1 1 9 9 9 9 9 9 9 9
Physical Frame 2 2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1
Physical Frame 3 3 3 3 3 3 3 3 3 3 3 8 8 8 8 8 8 8
Physical Frame 4 4 4 4 4 4 4 4 4 4 4 4 2 2 2 2 2 2
Page Faults F F F F F F F F F F F F F F F F F F
F
Victim Frames 0 5 6 7 8 9 1 2 3 4 0 7 3
Virtual frame 6 is referenced.
Because virtual frame 6 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 3.
Virtual frame 3 is swapped out, and virtual frame 6 is swapped in.
In the end, a total of 18 page faults and 13 victims were generated.
LRU Simulation complete.
0 - Exit
1 - Read Reference String
2 - Generate Reference String
3 - Display current reference string
4 - FIFO Simulation
5 - OPT Simulation
6 - LRU Simulation
7 - LFU Simulation
Choose next option:

Test LFU #1

Test LFU #2



Test LFU #3


Command Prompt - java FinalProject
Physical Frame 3 3 3 3 3 3 8 8 8 8 8 8 8 8 8
Physical Frame 4 4 4 4 4 4 9 9 9 9 9 9 9 3
Page Faults F F F F F F F F F F F F F F F
Victim Frames 0 1 2 3 4 5 6 7 0 9
Virtual frame 3 is referenced.
Because virtual frame 3 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 9 which was not used (referenced) for the longest period of time.
Virtual frame 9 is swapped out, and virtual frame 3 is swapped in.
Continue? (Y / N):
y
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0 0 0 0 0 0 5 5 5 5 5 0 0 0 0 0 7 7 7
Physical Frame 1 1 1 1 1 1 6 6 6 6 6 6 1 1 1 1 1 6
Physical Frame 2 2 2 2 2 2 7 7 7 7 7 7 7 2 2 2 2
Physical Frame 3 3 3 3 3 3 8 8 8 8 8 8 8 8 8 8 8
Physical Frame 4 4 4 4 4 4 9 9 9 9 9 9 9 3 3
Page Faults F F F F F F F F F F F F F F F F
F
Victim Frames 0 1 2 3 4 5 6 7 0 9 1
Virtual frame 6 is referenced.
Because virtual frame 6 is not present in physical memory, a page fault is generated.
Because there is no more room in the physical memory, a frame must be replaced.
The victim frame is virtual frame 1 which was not used (referenced) for the longest period of time.
Virtual frame 1 is swapped out, and virtual frame 6 is swapped in.
In the end, a total of 16 page faults and 11 victims were generated.
LFU Simulation complete.
0 - Exit
1 - Read Reference String
2 - Generate Reference String
3 - Display current reference string
4 - FIFO Simulation
5 - OPT Simulation
6 - LRU Simulation
7 - LFU Simulation
Choose next option: