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

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		ut, and v	/irtual	rrame 5.	is swapp	ea in.										
ntinue? (Y / N):																
ference String																
sical Frame 0																
sical Frame 1																
sical Frame 2																
sical Frame 3																
sical Frame 4																
Faults																
im Frames																
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ause virtual fram ause there is no victim frame is	me 6 is n more roo virtual wapped o	ot preser m in the frame 1,	physical	nemory	, a fram e FIFO s	e must be trategy i	e replac	ed.								
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FIFO #3

				0				4					8	8		0		
sical Frame 4 e Faults		F			0 F				4 F		6 F	6 F				9 F	0 F	
e raults																		
tim Frames																		
tual frame 3 is r ause virtual fram ause there is no victim frame is tual frame 9 is s	e 3 is no more room virtual	ot prese m in the frame 9,	physica accordi	l memory, ng to the	a fram	e must b trategy	e replac	ed.										
tinue? (Y / N):																		
erence String	0	1	2		4		6		8	9	0	9	1	8	2		3	6
sical Frame 0	0	ī	2				6		8		0	ē	1		2			6
sical Frame 1		0	1	2	3		5	6		8	9	9	ē	ē	1	2		3
ical Frame 2			0		2				6		8	8		9	0		2	
ical Frame 3				ø	1	2	3	4	5	6			8	8	9	ē	1	2
ical Frame 4					0	1	2	3	4	5	6	6			8	9	0	1
e Faults																		
tim Frames																		
tual frame 6 is r ause virtual fram ause there is no victim frame is tual frame 0 is s	e 6 is no more room virtual wapped on	ot present of in the frame 0, ut, and	physica accordi virtual	l memory, ng to the frame 6 i	a fram FIFO s s swapp	page fa e must b trategy ed in.	ult is g e replac used in	enerated										
tim Frames tual frame 6 is r ause virtual fram ause there is no victim frame is tual frame 0 is s the end, a total 0 Simulation comp	e 6 is no more room virtual of wapped on of 16 pag	ot present of in the frame 0, ut, and	physica accordi virtual	l memory, ng to the frame 6 i	a fram FIFO s s swapp	page fa e must b trategy ed in.	ult is g e replac used in	enerated										

Test OPT #1

```
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6

Physical Frame 0

Physical Frame 1

Physical Frame 2

Physical Frame 3

Physical Frame 4

Page Faults

The optimal page-replacement algorithm is an idealized algorithm in which the victim frame is the one that will not be accessed for the longest period of time.

This simulation assumes a hypothetical computer having 5 physical frames numbered 0 to 4. It assumes that the single process that is running has a virtual memory of 10 frames numbered 0 to 9. The reference string is:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, 9, 1, 8, 2, 7, 3, 6

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

Physical Frame 0 0

Physical Frame 4

Page Faults Frame 4

Page Faults Frame 5 s neferenced.

Victual Frame 0 is not prosent in physical memory, a page fault is generated.

Victual Frame 0 is not one is loaded short physical frame 0.

Because there was room in the physical memory, we have no victim frame.

Continue? (Y / N ):
```

Test OPT #2

Test OPT #3



Test LRU #1

```
Reference String 0 1 2 3 4 5 6 7 8 9 0 9 1 8 2 7 3 6
Physical Frame 0
Physical Frame 1
Physical Frame 2
Physical Frame 2
Physical Frame 3
Physical Frame 8
Physical Frame 8
Physical Frame 8
Physical Frame 9
Phys
```

Test LRU #2

Command Prompt - java	FinalProject															-	- 0	×
/irtual frame 6 is r																		
ecause virtual fram ecause there is no																		
he victim frame is				1 memory	, a tram	e must b	e repiac	ea.										
irtual frame 5 is s				frame 6	is swapp	ed in.												
ontinue? (Y / N):																		
eference String	0	1	2		4		6		8	9	0	9	1	8	2	3	6	
nysical Frame 0																		
ysical Frame 1																		
nysical Frame 2																		
nysical Frame 3																		
nysical Frame 4					4	4	4	4										
ige Faults																		
ctim Frames						0		6										
irtual frame 6 is s ontinue? (Y / N):		ut, and	virtual ·	frame 7 :	is swapp	ed in.												
eference String	0								8		0			8				
hysical Frame 0																		
ysical Frame 1																		
ysical Frame 2																		
ysical Frame 3																		
nysical Frame 4					4		4	4	4									
age Faults																		
ictim Frames																		
irtual frame 8 is r																		
ecause virtual fram	ne 8 is n	ot prese	nt in ph	ysical m	emory, a	page fa	ult is g	enerated										
ecause there is no	more roo	m in the	physica	1 memory	, a fram	e must b	e replac	ed.										
he victim frame is				C 0		- 4 - 4 -												
irtual frame 7 is s	wapped o	ut, and	virtual	rrame 8	is swapp	ed in.												
ontinue? (Y / N):																		
oneinue: (1 / N).																		

Test LRU #3

ical Frame 3	FinalProject			3	3	3	3	3	3	3	3	3	3	8	8	8	8	
ical Frame 4																		
Faults																		
im Frames																		
ual frame 3 is use virtual fra use there is no victim frame is ual frame 7 is	me 3 is no more room virtual	ot preser m in the frame 7.	physica	1 memory	, a fram	e must b												
inue? (Y / N)																		
rence String	0	1	2		4		6		8	9	0	9	1	8	2			6
ical Frame 0																		
ical Frame 1																		
ical Frame 2																		
ical Frame 3														8	8	8	8	8
ical Frame 4					4 F	4 F	4 F	4 F	4 F	4 F	4 F	4 F	4 F	4 F			2 F	
Faults																		
im Frames																		
ual frame 6 is use virtual fram use there is no victim frame is ual frame 3 is the end, a total Simulation compexit Read Reference affects.	me 6 is no more room virtual s swapped on of 18 pag lete. String nce String reference	ot preser m in the frame 3. ut, and v ge faults	physica /irtual	l memory frame 6	, a fram is swapp	e must b ed in.	e replac	enerated ed.										
Display current FIFO Simulation																		

Test LFU #1

Test LFU #2

```
### Command Prompt - Java FinalProject

Virtual frame 6 is referenced.

Secause virtual frame 6 is not present in physical memory, a page fault is generated. Secause virtual frame is without projectal memory a frame must be replaced. The victim frame is without as not used (referenced) for the longest period of time. Virtual frame is without frame is without as not used (referenced) for the longest period of time. Virtual frame is without frame is without as not used (referenced) for the longest period of time. Virtual frame is without as not used (referenced) for the longest period of time. Virtual frame is without as not used (referenced) for the longest period of time. Virtual frame is virtu
```

Test LFU #3

nysical Frame 3 nysical Frame 4 age Faults				3	3	3	3	3	8	8	8	8	8	8	8	8	8		
ctim Enamos																			
tecim iralies																			
irtual frame 3 is r ecause virtual fram ecause there is no ne victim frame is irtual frame 9 is s	me 3 is no more room virtual	ot preser m in the frame 9 w	physica which was	l memory, s not use	a framed (refe	e must be renced)	e replac	ed.		f time.									
ontinue? (Y / N):																			
eference String																			
ysical Frame 0																			
ysical Frame 1																			
ysical Frame 2																			
/sical Frame 3					3	3	3	3	8	8	8	8	8	8	8	8	8	8	
ysical Frame 4 ge Faults					4 F	F F	F F	4 F	F F	F	F	F F	9	9 F	9	F	5 F		
ctim Frames																			
irtual frame 6 is recause virtual framecause there is no ne victim frame is irtual frame 1 is so the end, a total	me 6 is no more room virtual wapped on	ot preser m in the frame 1 w ut, and w	physica which was virtual	l memory, s not use frame 6 i	, a framed (refe is swapp	e must be renced) ed in.	e replac	ed.		f time.									
ecause virtual fram ecause there is no ne victim frame is irtual frame 1 is s	me 6 is no more room virtual wapped on of 16 pag	ot preser m in the frame 1 w ut, and w	physica which was virtual	l memory, s not use frame 6 i	, a framed (refe is swapp	e must be renced) ed in.	e replac	ed.		f time.									
ecause virtual framecause there is no ne victim frame is irtual frame 1 is s n the end, a total	me 6 is no more room virtual swapped on of 16 pagete. ete. string ace String	ot preser m in the frame 1 w ut, and w ge faults	physica which was virtual	l memory, s not use frame 6 i	, a framed (refe is swapp	e must be renced) ed in.	e replac	ed.		F time.									