Homework 5

Brian Ackley

Cse460

1.

First fit: (a) 20K

(b) 10K

(c) 18K

Best fit: (a) 12K

(b) 10K

(c) 9K

Worst fit: (a) 20K

(b) 18K

(c) 15K

Next fit: (a) 20 KB

(b) 18K

(c) 9K

2.

LRU Faults:

1 2 3 1 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 7 #

1 Frame:

1 2 3 1 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 7 21

2 Frame:

1 1 3 3 4 4 1 1 6 6 1 3 3 6 6 2 2 2 7 19

2 2 1 1 2 2 5 5 2 2 2 7 7 3 3 1 3 3

3 Frame:

1 1 1 1 1 1 1 2 2 2 2 6 6 1 7 15

2 2 4 4 5 5 5 1 1 7 7 2 2 2

3 3 2 2 6 6 6 3 3 3 3 3 3

4 Frame:

1 1 1 1 1 1 1 1 6 6 7 11

2 2 2 2 2 2 2 2 2 2

3 3 5 5 3 3 3 3 3

4 4 6 6 7 7 1 1

5 Frame:

1 1 1 1 1 1 1 1 8

2 2 2 2 2 2 2

3 3 3 6 6 6

4 4 4 3 3

5 5 5 7

6 Frame:

1 1 1 1 1 1 1 7

2 2 2 2 2 2

3 3 3 3 3

4 4 4 4

5 5 7

6 6

7 Frame:

1 1 1 1 1 1 1 7

2 2 2 2 2 2

3 3 3 3 3

4 4 4 4

5 5 5

6 6

7

FIFO Faults:

1 2 3 1 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 7 #

1 Frame:

1 2 3 1 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 7 21

2 Frame:

1 1 3 3 4 4 1 1 6 6 1 1 7 7 3 3 1 1 7 19

2 2 1 1 2 2 5 5 2 2 3 3 6 6 2 2 3 3

3 Frame:

1 1 1 4 4 4 6 6 6 3 3 3 2 2 2 7 16

2 2 2 1 1 1 2 2 2 7 7 7 1 1 1

3 3 3 5 5 5 1 1 1 6 6 6 3 3

4 Frame

1 1 1 1 5 5 5 5 3 3 3 3 1 1 1 15

2 2 2 2 6 6 6 6 7 7 7 7 3 3

3 3 3 3 2 2 2 2 6 6 6 6 7

4 4 4 4 1 1 1 1 2 2 2 2

5 Frame

1 1 1 1 1 6 6 6 6 6 10

2 2 2 2 2 1 1 1 1

3 3 3 3 3 2 2 2

4 4 4 4 4 3 3

5 5 5 5 5 7

6 Frame

1 1 1 1 1 1 7 7 7 7 10

2 2 2 2 2 2 1 1 1

3 3 3 3 3 3 2 2

4 4 4 4 4 4 3

5 5 5 5 5 5

6 6 6 6 6

7 Frame

1 1 1 1 1 1 1 7

2 2 2 2 2 2

3 3 3 3 3

4 4 4 4

5 5 5

6 6

7

Optimal Faults

1 2 3 1 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 7 #

1 Frame:

1 2 3 1 4 2 1 5 6 2 1 2 3 7 6 3 2 1 2 3 7 21

2 Frame:

1 1 1 1 1 5 6 1 3 7 6 3 1 3 7 15

2 3 4 2 2 2 2 2 2 2 2 2 2 2

3 Frame:

1 1 1 1 1 1 7 7 7 7 10

2 2 2 2 2 2 2 2 2

3 4 5 6 6 3 1 3

4 Frame:

1 1 1 1 1 1 1 1 1 1 10

2 2 2 2 2 2 2 2 2

3 3 3 3 3 3 3 3

4 5 6 7 6 7

5 Frame:

1 1 1 1 1 1 1 7

2 2 2 2 2 2

3 3 3 3 3

4 4 4 7

5 6 6

6 Frame:

1 1 1 1 1 1 1 7

2 2 2 2 2 2

3 3 3 3 3

4 4 4 4

5 5 7

6 6

7 Frame:

1 1 1 1 1 1 1 7

2 2 2 2 2 2

3 3 3 3 3

4 4 4 4

5 5 5

6 6

7

3.

A.

contiguous : 200(read) + 201(write) = 401

linked : 1(write) = 1

indexed : 1(write) = 1

B.

contiguous : 100(read) + 101(write) = 201

linked : 100(read) + 2(write) = 102

indexed : 1(write) = 1

C.

contiguous : 1(write) = 1

linked : 1(read) + 2(write) = 3

indexed : 1(write) = 1

D.

contiguous : 199(write) + 199(read) = 398

linked : 1(write) = 1

ndexed : 0 = 0

E.

contiguous : 100(write) + 100(read) = 200

linked : 101(write) + 1(read) = 102

indexed : 0 = 0

F.

contiguous = 0

linked = 200

indexed = 0

4.

```
Sem_t sem_1;
Sem_t sem_2;
Sem_t sem_3;


Thread a ()
{
Wait (sem_1);
```

```
Wait (sem_2);
Wait (sem_3);
Pro ();
Signal (sem_1);
Signal (sem_2);
Signal (sem_3);
}
Thread b()
{
Wait (sem_3);
Wait (sem_1);
Wait (sem_2);
Pro ();
Signal (sem_1);
Signal (sem_2);
Signal (sem_3);
}
Thread c()
{
Wait (sem_2);
Wait (sem_3);
Wait (sem_1);
Pro ();
Signal (sem_1);
Signal (sem_2);
Signal (sem_3);
}
```

5.

```
Sem_Etrain;
Sem_Wtrain;

Void east ()
{
While (Wtrain == 0)
   Etrain++;

Etrain--;
}

Void west ()
{
While (Etrain == 0) && (Wtrain == 0)
    Wtrain++;
```

```
Wtrain--;
}

Main()
{
Thread first (east);
Thread second (west);

First.join();
Second.join();
}
```