

Ex. No.: 11(b)

Date: 15/04/25

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LRU

Aim:

To write a c program to implement LRU page replacement algorithm.

Algorithm:

- 1: Start the process
 - 2: Declare the size
 - 3: Get the number of pages to be inserted
 - 4: Get the value
 - 5: Declare counter and stack
 - 6: Select the least recently used page by counter value 7:
 - Stack them according to the selection.
 - 8: Display the values
 - 9: Stop the process
- Program Code:**

```
#include <stdio.h>
```

```
int findLRU(int time[], int n) { int i, minimum = time[0],  
pos = 0;  
for (i = 1; i < n; ++i) { if (time[i] <  
minimum) { minimum = time[i]; pos  
= i;  
} } return pos;  
}
```

```
int main() {  
int frames[10], pages[30], time[10], counter = 0, faults = 0; int n, f, i, j, flag1,  
flag2, pos;
```

```
printf("Enter number of frames: "); scanf("%d", &f);
```

```
printf("Enter number of pages: "); scanf("%d", &n);
```

```
printf("Enter reference string: "); for (i = 0; i < n; ++i)  
{ scanf("%d", &pages[i]);  
}
```

```
for (i = 0; i < f; ++i) { frames[i] = -1;  
time[i] = 0;
```

```

}
printf("\n");

for (i = 0; i < n; ++i) {
    flag1 = flag2 = 0;

    for (j = 0; j < f; ++j) { if (frames[j] == pages[i]) {
        counter++; time[j] = counter; flag1 = flag2 = 1;
        break; }
    }

    if (flag1 == 0) { for (j = 0; j < f; ++j) { if
        (frames[j] == -1) { counter++; faults++; frames[j]
        = pages[i]; time[j] = counter; flag2 = 1; break;
        }
        }
    }

    if (flag2 == 0) { pos = findLRU(time, f); counter++;
        faults++; frames[pos] = pages[i];
        time[pos] = counter;
    }

    for (j = 0; j < f; ++j) { if (frames[j] != -1) printf("%d
    ", frames[j]);
    else printf("-1 "); } printf("\n");
}

printf("\nTotal Page Faults = %d\n", faults);
return 0; }

```

Sample Output :

```

Enter number of frames: 3
Enter number of pages: 6
Enter reference string: 5 7 5 6 7 3
5 -1 -1
5 7 -1
5 7 -1
5 7 6
5 7 6 3 7 6
Total Page Faults = 4

```

Result:

Thus the algorithm is executed successfully.