

Ex. No.: 11b)

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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 the selection.
- 8: Display the values
- 9: Stop the process

Program Code:

```
#include <stdio.h>
int main() {
    int frames, pages, i, j, k, page-faults=0, least,
        count=0;
    int ref-str[100], memory[10], time[10];
    printf("Enter the no. of frames : ");
    scanf("%d", &frames);
    printf("Enter the no. of pages : ");
    scanf("%d", &pages);
    printf("Enter reference string : ");
    for(i=0; i<pages; i++) {
        scanf("%d", &ref-str[i]);
    }
    for(i=0; i<frames; i++) {
        69memory[i] = -1;
        time[i] = 0;
    }
    printf("\n");
```

```

for (i=0; i < pages; i++) {
    int flag1 = 0; flag2 = 0;
    for (j=0; j < frames; j++) {
        if (memory[j] == ref-str[i]) {
            count++;
            time[j] = count;
            flag1 = flag2;
            break;
        }
    }
    if (flag1 == 0) {
        for (i=0; i < frames; i++) {
            if (memory[i] == -1) {
                count++;
                page-faults++;
                memory[i] = ref-str[i];
                time[i] = count;
                flag2 = 1;
                break;
            }
        }
    }
    if (flag2 == 0) {
        int min = time[0];
        least = 0;
        for (j=1; j < frames; j++) {
            if (time[j] < min) {
                min = time[j];
                least = j;
            }
        }
        count++;
        page-faults++;
        memory[least] = ref-str[i];
    }
}

```

```
    time[least] = count;  
    }  
    for(j=0; j<frame; j++) {  
        if(memory[j] == -1)  
            printf("-");  
        else  
            printf("%d", memory[j]);  
    }  
    printf("\n");  
}  
printf("total page faults = %d\n", page_faults);  
return 0;  
}
```

Output:

Enter the no. of frames: 3

Enter the no. of pages: 4

Enter reference string: 1

2

3

4

1

1 2 -

1 2 3

4 2 3

Total page faults = 4



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

QH

Result:

Thus ~~the above~~
~~page replacement~~
successfully.

program to implement LRU
technique has been executed