

## b) LRU

```
#include <stdio.h>

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

int main() {
    int pages[100], frames[10], time[10], n, f, i, j, pos, faults = 0, counter = 0,
    flag;

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

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

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

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

    printf("\nPage\tFrames\t\tPage Fault\n");

    for(i = 0; i < n; i++) {
        flag = 0;

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

        if(flag == 0) {
            int empty = -1;
            for(j = 0; j < f; j++) {
```

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        if(frames[j] == -1) {
            empty = j;
            break;
        }
    }

    if(empty != -1) {
        frames[empty] = pages[i];
        time[empty] = counter++;
    } else {
        pos = findLRU(time, f);
        frames[pos] = pages[i];
        time[pos] = counter++;
    }

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

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

```

## Output

```
Enter number of pages: 5
Enter the page reference string:
5
9
8
4
6
Enter number of frames: 6
```

Page	Frames	Page Fault
5	5 - - - - -	Yes
9	5 9 - - - -	Yes
8	5 9 8 - - -	Yes
4	5 9 8 4 - -	Yes
6	5 9 8 4 6 -	Yes

Total Page Faults = 5

=== Code Execution Successful ===