# Ex. No.: 11B Roll no:231901002

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# LRU Page Replacement

**Aim:**

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

# Algorithm:

1. Start the process.
2. Declare the size for page frames.
3. Get the number of pages and reference string.
4. Use a stack or counter array to track recent usage.
5. For each page:
   * If it is in memory → no page fault.
   * Else → check least recently used page and replace it.
6. Count page faults.
7. Display frame contents after each operation.
8. Stop the process.

# C Program:

#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[50], time[10], counter = 0, pageFaults = 0;

int n, f, i, j, pos, flag1, flag2;

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;

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++;

pageFaults++;

frames[j] = pages[i]; time[j] = counter;

flag2 = 1; break;

}

}

}

if(flag2 == 0) { pos

= findLRU(time, f); counter++;

pageFaults++;

frames[pos] = pages[i]; time[pos] = counter;

}

for(j = 0; j < f; j++) { if(frames[j] != -1)

printf("%d ", frames[j]);

else printf("- ");

}

printf("\n");

}

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

}

# Sample Output:

Enter number of frames: 3 Enter number of pages: 6

Enter reference string: 5 7 5 6 7 3

5 - - 5

7 -

5 7 - 5

7 6

5 7 6

3 7 6

Total Page Faults = 4

# Result:

Thus, the C program for LRU page replacement algorithm was written and executed successfully. The number of page faults was calculated and verified.