**8. Write a program to implement the execution of page replacement algorithm such as LRU with suitable page request and display the number of page faults.**

#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 no\_of\_frames, no\_of\_pages, frames[10], pages[30], counter = 0, time[10], flag1, flag2, i, j, pos, faults = 0, hits = 0, total\_requests = 0;

printf("Enter number of frames: ");

scanf("%d", &no\_of\_frames);

printf("Enter number of pages: ");

scanf("%d", &no\_of\_pages);

printf("Enter reference string: ");

for(i = 0; i < no\_of\_pages; ++i){

scanf("%d", &pages[i]);

}

for(i = 0; i < no\_of\_frames; ++i){

frames[i] = -1;

}

for(i = 0; i < no\_of\_pages; ++i){

flag1 = flag2 = 0;

for(j = 0; j < no\_of\_frames; ++j)

{

if(frames[j] == pages[i])

{

counter++;

time[j] = counter;

flag1 = flag2 = 1;

hits++;

total\_requests++;

break;

}

}

if(flag1 == 0){

for(j = 0; j < no\_of\_frames; ++j){

if(frames[j] == -1){

counter++;

faults++;

frames[j] = pages[i];

time[j] = counter;

flag2 = 1;

total\_requests++;

break;

}

}

}

if(flag2 == 0){

pos = findLRU(time, no\_of\_frames);

counter++;

faults++;

frames[pos] = pages[i];

time[pos] = counter;

total\_requests++;

}

printf("\n");

for(j = 0; j < no\_of\_frames; ++j){

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

}

}

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

printf("Total Page Hits = %d\n", hits);

printf("Total Page Requests = %d\n", total\_requests);

float hit\_ratio = (float) hits / total\_requests;

float fault\_ratio = (float) faults / total\_requests;

printf("Hit Ratio = %.2f\n", hit\_ratio);

printf("Fault Ratio = %.2f\n", fault\_ratio);

return 0;

}

**Input:**

Enter number of frames: 3

Enter number of pages: 19

Enter reference string: 3 2 1 3 4 1 6 2 4 3 4 2 1 4 5 2 1 3 4

**Output:**

3 -1 -13

3 2 -1

3 2 1

3 2 1

3 4 1

3 4 1

6 4 1

6 2 1

6 2 4

3 2 4

3 2 4

3 2 4

1 2 4

1 2 4

1 5 4

2 5 4

2 5 1

2 3 1

4 3 1

Total Page Faults = 14

Total Page Hits = 5

Total Page Requests = 19

Hit Ratio = 0.26

Fault Ratio = 0.74