**EXPERIMENT – 31**

31. Construct a C program to simulate the First in First Out paging technique of memory

management.

#include <stdio.h>

#define MAX\_FRAMES 10

#define MAX\_REFERENCES 100

int isInFrame(int frames[], int frameCount, int page) {

for (int i = 0; i < frameCount; i++) {

if (frames[i] == page)

return 1;

}

return 0;

}

void simulateFIFO(int pages[], int n, int frameCount) {

int frames[MAX\_FRAMES];

int pageFaults = 0;

int index = 0;

for (int i = 0; i < frameCount; i++)

frames[i] = -1;

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

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

int page = pages[i];

int fault = 0;

if (!isInFrame(frames, frameCount, page)) {

frames[index] = page;

index = (index + 1) % frameCount;

pageFaults++;

fault = 1;

}

printf("%d\t", page);

for (int j = 0; j < frameCount; j++) {

if (frames[j] == -1)

printf("- ");

else

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

}

printf("\t%s\n", fault ? "Yes" : "No");

}

printf("\nTotal Page Faults: %d\n", pageFaults);

}

int main() {

int pages[MAX\_REFERENCES], n, frameCount;

printf("Enter number of pages: ");

scanf("%d", &n);

printf("Enter the page reference string:\n");

for (int i = 0; i < n; i++)

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

printf("Enter number of frames: ");

scanf("%d", &frameCount);

simulateFIFO(pages, n, frameCount);

return 0;

}

SAMPLE INPUT:

Enter number of pages: 12

Enter the page reference string:

1 2 3 4 1 2 5 1 2 3 4 5

Enter number of frames: 3

SAMPLE OUTPUT:

Page Frames Page Fault

1 1 - - Yes

2 1 2 - Yes

3 1 2 3 Yes

4 4 2 3 Yes

1 4 1 3 Yes

2 4 1 2 Yes

5 5 1 2 Yes

1 5 1 2 No

2 5 1 2 No

3 3 1 2 Yes

4 3 4 2 Yes

5 3 4 5 Yes

Total Page Faults: 9