

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

A. program:

```
#include <stdio.h>

#include <stdbool.h>

#define MAX_PAGES 100

#define MAX_FRAMES 10

bool isPageInMemory(int memory[], int frames, int page) {

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

        if (memory[i] == page) {

            return true;

        }

    }

    return false;

}

int main() {

    int frames;

    int pages[MAX_PAGES];

    int memory[MAX_FRAMES];

    int pageCount, pageFaults = 0;

    printf("Enter the number of frames: ");

    scanf("%d", &frames);

    printf("Enter the number of pages in the reference string: ");

    scanf("%d", &pageCount);
```

```
int total=pageCount;

printf("Enter the reference string: ");

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

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

}


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

    memory[i] = -1;

}


int front = 0;


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

    int currentPage = pages[i];

    if (!isPageInMemory(memory, frames, currentPage)) {

        pageFaults++;

        memory[front] = currentPage;

        front = (front + 1) % frames;

    }

    printf("Step %d: Memory: ", i + 1);

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

        if (memory[j] == -1)

            printf(" - ");

        else

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

    }

}
```

```

        printf("\n");
    }

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

    printf("Total Page Hit: %d\n", (total-pageFaults));

    return 0;
}

```

Output:

```

Enter the number of frames: 4
Enter the number of pages in the reference string: 9
Enter the reference string: 1
2
3
1
5
6
2
3
5
Step 1: Memory:  1  -  -  -
Step 2: Memory:  1  2  -  -
Step 3: Memory:  1  2  3  -
Step 4: Memory:  1  2  3  -
Step 5: Memory:  1  2  3  5
Step 6: Memory:  6  2  3  5
Step 7: Memory:  6  2  3  5
Step 8: Memory:  6  2  3  5
Step 9: Memory:  6  2  3  5
Total Page Faults: 5
Total Page Hit: 4
-----

```