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Exp:11a   **FIFO PAGE REPLACEMENT**

Aim:

To find out the number of page faults that occur using First-in First-out (FIFO) page replacement technique.

CODE:

```c
#include <stdio.h>

#define MAX 50

int main() {
    int page[MAX], frame[MAX];
    int n, m, i, j, k, f = -1;
    int page_faults = 0, flag;

    printf("Enter the size of reference string: ");
    scanf("%d", &n);

    printf("Enter the reference string:\n");
    for(i = 0; i < n; i++) {
        printf("Enter [%2d]: ", i + 1);
        scanf("%d", &page[i]);
    }

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

    // Initialize frames with -1
    for(i = 0; i < m; i++) {
        frame[i] = -1;
    }

    printf("\nFIFO Page Replacement:\n");

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

        // Check if page is already in frame
        for(j = 0; j < m; j++) {
            if(frame[j] == page[i]) {
                flag = 1;
                break;
            }
        }

        // If page not found (page fault)
        if(flag == 0) {
            f = (f + 1) % m;
            frame[f] = page[i];
            page_faults++;

            printf("\n%d -> ", page[i]);
            for(k = 0; k < m; k++) {
                if(frame[k] != -1)
"fifo.c" 61L, 1352C
```

```c
            printf("\n%d -> ", page[i]);
            for(k = 0; k < m; k++) {
                if(frame[k] != -1)
                    printf("%d ", frame[k]);
                else
                    printf("- ");
            }
        } else {
            printf("\n%d -> No Page Fault", page[i]);
        }
    }

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

    return 0;
}
```

OUTPUT:

```
Enter the size of reference string: 20
Enter the reference string:
Enter [ 1]: 7
Enter [ 2]: 0
Enter [ 3]: 1
Enter [ 4]: 2
Enter [ 5]: 0
Enter [ 6]: 3
Enter [ 7]: 0
Enter [ 8]: 4
Enter [ 9]: 2
Enter [10]: 3
Enter [11]: 0
Enter [12]: 3
Enter [13]: 2
Enter [14]: 1
Enter [15]: 2
Enter [16]: 0
Enter [17]: 1
Enter [18]: 7
Enter [19]: 0
Enter [20]: 1
Enter number of page frames: 3

FIFO Page Replacement:

7 -> 7 - -
0 -> 7 0 -
1 -> 7 0 1
2 -> 2 0 1
0 -> No Page Fault
3 -> 2 3 1
0 -> 2 3 0
4 -> 4 3 0
2 -> 4 2 0
3 -> 4 2 3
0 -> 0 2 3
3 -> No Page Fault
2 -> No Page Fault
1 -> 0 1 3
2 -> 0 1 2
0 -> No Page Fault
1 -> No Page Fault
7 -> 7 1 2
0 -> 7 0 2
1 -> 7 0 1

Total Page Faults: 15
```