

U18CO018
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OS Practical Exam

Write a program to implement the most recently used page replacement Algorithm. Process has been allocated 4-page frames. Assume that none of the pages of the process are available in the memory initially.

The process makes the following sequence of page references

(Reference's string) 1, 2, 1, 3, 7, 4, 5, 6, 3, 1

How Many Page faults occur for the above reference String?

Code: -

```
#include <bits/stdc++.h>
using namespace std;

const int NoPage = 4;
int main() {
    int n;
    cout << "Enter the Length of sequence\n";
    cin >> n;
    int a[n];
    cout << "Enter the sequence one by one\n";
    for (int i = 0; i < n; i++) {
        cin >> a[i];
    }
    set<int> pageFrame;
    int pageFault = 0;
    for (int i = 0; i < n; i++) {
        int x = a[i];
        bool flag = false;
        if (pageFrame.size() < NoPage) {
            if (pageFrame.find(x) == pageFrame.end()) {
                pageFrame.insert(x);
                pageFault++;
                flag = true;
            }
        } else if (pageFrame.find(x) == pageFrame.end()) {
            pageFrame.erase(a[i - 1]);
            pageFrame.insert(a[i]);
            pageFault++;
            flag = true;
        }
    }
}
```

```

        cout << "Page Frame --> ";
        for (int it:pageFrame)
            cout << it << " ";

        if (flag)
            cout << "Page Fault";
        else
            cout << "No Page Fault";
        cout << endl;
    }
    cout<<"\n\ntotal Number of page Fault :- " << pageFault << endl;
    return 0;
}

```

Output: -

The screenshot shows a C++ program running in a terminal window. The program prompts the user to enter the length of a sequence (10) and then the sequence elements (1 2 1 3 7 4 5 6 3 1). It then iterates through the sequence, printing the current page frame and whether a page fault occurred. The final output shows a total of 7 page faults.

```

Run: CodeForC_ x
D:\CodeForC++\cmake-build-debug\CodeForC_\.exe
Enter the Length of sequence
10
Enter the sequence one by one
1 2 1 3 7 4 5 6 3 1
Page Frame --> 1 Page Fault
Page Frame --> 1 2 Page Fault
Page Frame --> 1 2 No Page Fault
Page Frame --> 1 2 3 Page Fault
Page Frame --> 1 2 3 7 Page Fault
Page Frame --> 1 2 3 4 Page Fault
Page Frame --> 1 2 3 5 Page Fault
Page Frame --> 1 2 3 6 Page Fault
Page Frame --> 1 2 3 6 No Page Fault
Page Frame --> 1 2 3 6 No Page Fault

total Number of page Fault :- 7

Process finished with exit code 0
|

```