

Lab No : 11  
Name of the Lab : Implementation of FIFO page replacement Algorithm  
ID : IT-17005

**Objectives:**

- i) What is FIFO page replacement Algorithm?
- ii) How to implementation in C?

**Answer no (i):**

**FIFO page replacement Algorithm:**

Consider the following reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2.  
Assume demand paging with three frames.

Using FIFO page replacement algorithm –

7	0	1	2	0	3	0	4	2	3	0	3	2
7	7	7	2	2	2	2	4	4	4	0	0	0
	0	0	0	0	3	3	3	2	2	2	2	2
		1	1	1	0	0	0	3	3	3	3	3

**Answer no (ii):**

The implementation of FIFO page replacement algorithm in C is given below:

**Code:**

```
//implementation of FIFO page replacement in c++  
  
#include<bits/stdc++.h>  
  
using namespace std;  
  
int pageFaults(int pages[], int n, int capacity)  
{  
    unordered_set<int> s;  
    queue<int> indexes;
```

```

int page_faults = 0;
for (int i=0; i<n; i++)
{
    if (s.size() < capacity)
    {
        if (s.find(pages[i])==s.end())
        {
            s.insert(pages[i]);
            page_faults++;
            indexes.push(pages[i]);
        }
    }
    else
    {

        if (s.find(pages[i]) == s.end())
        {
            int val = indexes.front();
            indexes.pop();
            s.erase(val);
            s.insert(pages[i]);
            indexes.push(pages[i]);
            page_faults++;

```

```

        }
    }
}

return page_faults;
}

int main()
{
    int pages[] = {7, 0, 1, 2, 0, 3, 0, 4,
                  2, 3, 0, 3, 2};

    int n = sizeof(pages)/sizeof(pages[0]);

    int capacity = 3;

    cout <<"The total no. of page faults: "<< pageFaults(pages, n,
capacity)<<endl;

    return 0;
}

```

### **Output:**

```

The total no. of page faults: 10
Process returned 0 (0x0)   execution time : 0.275 s
Press any key to continue.

```