

Department of Computer Science and Engineering - Cyber Security B.Tech. 4th Semester, Session: 2023-2024

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Practical No:	7
Aim:	Write C programs to simulate Page Replacement Algorithms: FIFO, LRU. Page Replacement Algorithms:

A)To Simulate FIFO page replacement algorithms.

```
#include <stdio.h>
int main()
  int a[5], b[20], n, p = 0, q = 0, m = 0, h, k, i, q1 = 1;
  char f = 'F';
  printf("Enter the Number of Pages:");
  scanf("%d", &n);
  printf("Enter %d Page Numbers:", n);
  for (i = 0; i < n; i++)
     scanf("%d", &b[i]);
  for (i = 0; i < n; i++)
  {
     if (p == 0)
     {
       if (q >= 3)
          q = 0;
       a[q] = b[i];
       q++;
       if (q1 < 3)
        {
          q1 = q;
        }
     printf("\n\%d", b[i]);
     printf("\t");
     for (h = 0; h < q1; h++)
       printf("%d", a[h]);
     if ((p == 0) && (q <= 3))
```



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```
printf("-->%c", f);
    m++;
}

p = 0;
for (k = 0; k < q1; k++)
{
    if (b[i + 1] == a[k])
        p = 1;
}
printf("\nNo of faults:%d", m);</pre>
```

OUTPUT: (All the test cases are included):

}

```
–(kali⊕kali)-[~/C27/lab8]
└─$ vi lab8.c
   -(kali®kali)-[~/C27/lab8]
 -$ gcc lab8.c
  —(kali⊛kali)-[~/C27/lab8]
Enter the Number of Pages:12
Enter 12 Page Numbers: 2 3 2 1 5 2 4 5 3 2 5 2
         2 \longrightarrow F
3
         23 → F
         23
         231→F
5
2
4
         531 → F
         521 → F
         524 → F
5
3
2
         524
         324 -→ F
         324
         354 → F
         352 → F
2
No of faults:9
   -(kali⊕kali)-[~/C27/lab8]
```

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B)To Simulate LRU page replacement algorithms.

```
#include <stdio.h>
int main()
{
  int a[5], b[20], p = 0, q = 0, m = 0, h, k, i, q1 = 1, j, u, n;
  char f = 'F';
  printf("Enter the number of pages:");
  scanf("%d", &n);
  printf("Enter %d Page Numbers:", n);
  for (i = 0; i < n; i++)
     scanf("%d", &b[i]);
  for (i = 0; i < n; i++)
  {
     if (p == 0)
       if (q >= 3)
          q = 0;
       a[q] = b[i];
       q++;
       if (q1 < 3)
        {
          q1 = q;
        }
     printf("\n%d", b[i]);
     printf("\t");
     for (h = 0; h < q1; h++)
       printf("%d", a[h]);
     if ((p == 0) & (q <= 3))
       printf("-->%c", f);
       m++;
     }
     p = 0;
```



}

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```
if (q1 == 3)
     for (k = 0; k < q1; k++)
     {
       if (b[i + 1] == a[k])
          p = 1;
     }
     for (j = 0; j < q1; j++)
        u = 0;
       k = i;
       while (k \ge (i - 1) \&\& (k \ge 0))
        {
          if (b[k] == a[j])
             u++;
          k--;
        }
       if (u == 0)
          q = j;
     }
  }
  else
     for (k = 0; k < q; k++)
     {
       if (b[i + 1] == a[k])
          p = 1;
     }
  }
printf("\nNo of faults:%d", m);
```



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OUTPUT: (All the test cases are included):

```
-(kali⊛kali)-[~/C27/lab8]
└─$ vi lab8b.c
  -(kali⊛kali)-[~/C27/lab8]
gcc lab8b.c
  —(kali⊛kali)-[~/C27/lab8]
_$ ./a.out
Enter the number of pages:12
Enter 12 Page Numbers: 2 3 2 1 5 2 4 5 3 2 5 2
         23 \longrightarrow F
         251 → F
         251
         254→F
         254
         354 \longrightarrow F
352 \longrightarrow F
         352
2
         352
No of faults:7
  -(kali⊗kali)-[~/C27/lab8]
```

Result: Thus the program was executed and verified successfully.