

OS LAB MANUAL (CS23431)

Roll No:230701263

EX.NO:11(B)

LRU

Aim: To write a c program to implement LRU page replacement algorithm.

```
Program: #include <stdio.h> int
findLRU(int time[], int n) { int i,
minimum = time[0], pos = 0;
    for (i = 1; i < n; ++i) {
        if (time[i] < minimum) {
            minimum = time[i];
            pos = i;
        }
    }
    return pos;
}
int main() {
    int no_of_frames, no_of_pages, frames[10], pages[30];
    int counter = 0, time[10], flag1, flag2, i, j, pos, faults = 0;
    printf("Enter number of frames: "); scanf("%d",
    &no_of_frames); printf("Enter number of pages: ");
    scanf("%d", &no_of_pages); printf("Enter reference
    string: "); for (i = 0; i < no_of_pages; ++i) { scanf("%d",
    &pages[i]);
    }
    for (i = 0; i < no_of_frames; ++i) {
        frames[i] = -1;
```

```

}

for (i = 0; i < no_of_pages; ++i) {
    flag1 = flag2 = 0; for (j = 0; j <
        no_of_frames; ++j) { if (frames[j]
            == pages[i]) { counter++; time[j]
                = counter; flag1 = flag2 = 1;
                    break;
                        }
                            }
                                }

if (flag1 == 0) { for (j = 0; j <
    no_of_frames; ++j) { if (frames[j]
        == -1) { counter++;
            faults++; frames[j]
                = pages[i]; time[j] =
                    counter; flag2 = 1;
                        break;
                            }
                                }
                                    }

if (flag2 == 0) { pos = findLRU(time,
    no_of_frames); counter++;
    faults++; frames[pos] = pages[i];
    time[pos] = counter;

}

for (j = 0; j < no_of_frames; ++j) {
    if (frames[j] != -1) printf("%d ",
        frames[j]); else printf("-1 ");
}

printf("\n");
}

```

```
printf("Total Page Faults = %d\n", faults); return  
0;  
}
```

Input:

```
Enter number of frames: 3  
Enter number of pages: 12  
Enter reference string: 1 2 3 4 5 6 7 8 9 2 3 4
```

Output:

```
1 -1 -1  
1 2 -1  
1 2 3  
4 2 3  
4 5 3  
4 5 6  
7 5 6  
7 8 6  
7 8 9  
2 8 9  
2 3 9  
2 3 4  
Total Page Faults = 12
```