

# OPERATING SYSTEM - CS23431

## EX 11(C)

### OPTIMAL PAGE REPLACEMENT

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#### PROGRAM:

```
#include <stdio.h> int findreplacementindex(int n,int frame_size,int page[],int mem[],int current) {
```

```
    int ind[frame_size];
```

```
    for(int i=0;i<frame_size;i++)
```

```
    {
```

```
        ind[i]=-1;
```

```
        for(int j=current+1;j<n;j++)
```

```
        {
```

```
            if(mem[i]==page[j])
```

```
            {
```

```
                ind[i]=j;
```

```
                break;
```

```
            }
```

```
        }
```

```
    }
```

```
    int dist=-1,reqind=-1;;
```

```
    for(int i=0;i<frame_size;i++)
```

```
    {
```

```
        if(ind[i]==-1)
```

```
        {
```

```
            return i;
```

```
        }
```

```
    else if ( ind [ i ] > d i s t )
```

```

    {
        dist=ind[i];
        reqind=i;
    }
}

return reqind;
}

int main() {
    int n,frame_size,front=0,count=0,page_faults=0;

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

    int page[n];

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

    printf("Enter page frame size: ");
    scanf("%d",&frame_size);

    int mem[frame_size];

    for (int i = 0; i < n; i++) {
        int found = 0;

        for (int j = 0; j < count; j++) {
            if (mem[j] == page[i]) {
                found = 1;
                break;
            }
        }
    }
}

```

```

printf("%d -> ", page[i]);

int f=1;

if (!found) {

    if (count < frame_size) {

        mem[count++] = page[i];

    } else {

        int index=findreplacementindex(n,frame_size,page,mem,i);

        mem[index]=page[i];

    }

    p a g e _ f a u l t s + + ;

}

else

{

    f=0;

    printf("No Page Fault ");

}

if(f)

{

    for (int j = 0; j < count; j++) {

        printf("%d ", mem[j]);

    }

}

printf("\n");

}

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

return 0;

}

```

## OUTPUT:

```
Enter size of reference string: 7
Enter [1]: 7
Enter [2]: 0
Enter [3]: 1
Enter [4]: 2
Enter [5]: 0
Enter [6]: 3
Enter [7]: 0
Enter page frame size: 3
7 -> 7
0 -> 7 0
1 -> 7 0 1
2 -> 2 0 1
0 -> No Page Fault
3 -> 3 0 1
0 -> No Page Fault

Total Page Faults: 5
```