OPTIMAL

```
#include<stdio.h>

int main()

{

  int no_of_frames, no_of_pages, frames[10], pages[30], temp[10], flag1, flag2,

flag3, i, j, k, pos, max, faults = 0;

  printf("Enter number of frames: ");

  scanf("%d", &no_of_frames);


  printf("Enter number of pages: ");

  scanf("%d", &no_of_pages);


  printf("Enter page 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]){
flag1 = flag2 = 1;
break;
}
}

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

if(flag2 == 0){
flag3 =0;

for(j = 0; j < no_of_frames; ++j){
temp[j] = -1;

for(k = i + 1; k < no_of_pages; ++k){
```

```
if(frames[j] == pages[k]){
temp[j] = k;
break;
}
}
}

for(j = 0; j < no_of_frames; ++j){
if(temp[j] == -1){
pos = j;
flag3 = 1;
break;
}
}

if(flag3 ==0){
max = temp[0];
pos = 0;

for(j = 1; j < no_of_frames; ++j){
if(temp[j] > max){
max = temp[j];
pos = j;
}
}
```

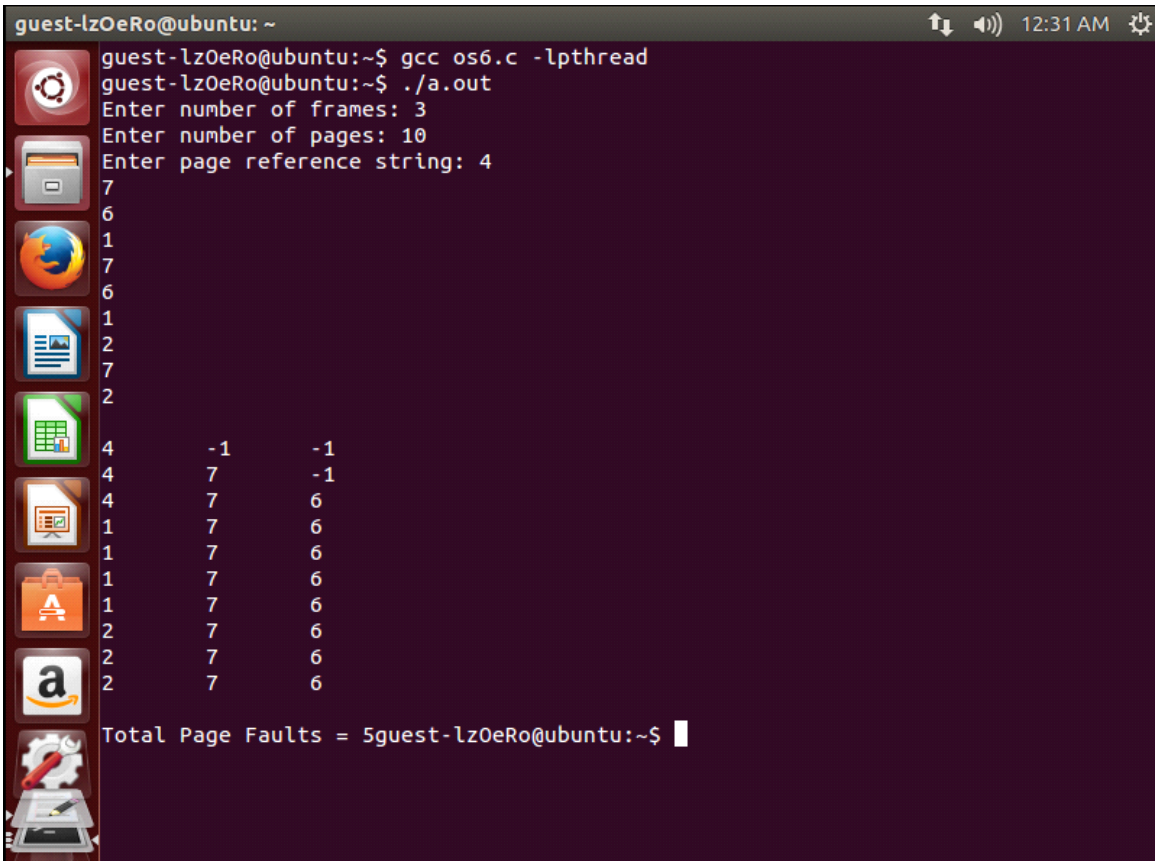
```
  }
frames[pos] = pages[i];
faults++;
  }

  printf("\n");

  for(j = 0; j < no_of_frames; ++j){
  printf("%d\t", frames[j]);
  }
  }

  printf("\n\nTotal Page Faults = %d", faults);

  return 0;
}
```
OUTPUT:


guest-lzOeRo@ubuntu: ~
12:31 AM
guest-lzOeRo@ubuntu:~$ gcc os6.c -lpthread
guest-lzOeRo@ubuntu:~$ ./a.out
Enter number of frames: 3
Enter number of pages: 10
Enter page reference string: 4
7
6
1
7
6
1
2
7
2
4 -1 -1
4 7 -1
4 7 6
1 7 6
1 7 6
1 7 6
1 7 6
2 7 6
2 7 6
2 7 6
Total Page Faults = 5guest-lzOeRo@ubuntu:~$