

PROGRAM CODE

```
#include<stdio.h>
#include<stdlib.h>

int mutex=1;
int full=0;
int empty=4;
int x=0;

int wait(int a)
{
    a--;
    return a;
}
int signal(int a)
{
    a++;
    return a;
}
void producer()
{
    mutex=wait(mutex);
    full=signal(full);
    empty=wait(empty);
    x++;
    printf("\nproducer produce the item:%d\n",x);
    mutex=signal(mutex);
}
void consumer()
{
    mutex=wait(mutex);
    full=wait(full);
    empty=signal(empty);
    printf("\nconsumer consume the item:%d\n",x);
    x--;
    mutex=signal(mutex);
}

void main()
{
    int n;
    L1:
    printf("\nenter the
choice:=\n1:producer\n2:consumer\n3:exit\n");
    scanf("%d",&n);
    switch(n)
```

```

{
    case 1:
    if ((mutex==1) && (empty!=0))
    {
        producer();
    }
    else
    {
        printf("\nbuffer is full\n");
    }
    goto L1;
    case 2:
    if ((mutex==1) && (full!=0))
    {
        consumer();
    }
    else
    {
        printf("\nbuffer is empty\n");
    }
    goto L1;
    case 3:
    exit(0);
}
}

```

OUTPUT

sahal@kali:~/bash_script\$./a.out

enter the number of page reference string:-
10

enter the page reference string

4
7
6
1
7
6
1
2
7
2

enter the number of frames
3

FIFO page replacement:-

page fault for FIFO=6

LRU page replacement:-

page fault for LRU=6

LFU page replacement:-

page fault for LFU=5

```
sahal@kali:~/bash_script$ gedit consumer.c
```

```
sahal@kali:~/bash_script$ gcc consumer.c
```

```
sahal@kali:~/bash_script$ ./a.out
```

enter the choice:=

1:producer

2:consumer

3:exit

1

producer produce the item:1

enter the choice:=

1:producer

2:consumer

3:exit

1

producer produce the item:2

enter the choice:=

1:producer

2:consumer

3:exit

1

producer produce the item:3

enter the choice:=

1:producer

2:consumer

3:exit

2

consumer consume the item:3

enter the choice:=
1:producer
2:consumer
3:exit
2

consumer consume the item:2

enter the choice:=
1:producer
2:consumer
3:exit
2

consumer consume the item:1

enter the choice:=
1:producer
2:consumer
3:exit
2

buffer is empty

enter the choice:=
1:producer
2:consumer
3:exit
1

producer produce the item:1

enter the choice:=
1:producer
2:consumer
3:exit
2

consumer consume the item:1

enter the choice:=
1:producer
2:consumer
3:exit
2

buffer is empty

enter the choice:=

1:producer

2:consumer

3:exit

3