```
package Assignment8;
import java.util.Scanner;
import java.util.ArrayList;
public class PageR
{
      static void fifo()
      {
             Scanner sc=new Scanner(System.in);
            int frames, pointer = 0,hit = 0,fault = 0,refl;
            int buffer[];
            int reference[];
            int mem_layout[][];

              System.out.println("\nEnter the number of frames:");
              frames=sc.nextInt();
              System.out.println("\nEnter the number of pages in the reference
string:");
              refl =sc.nextInt();

              reference = new int[refl];
            mem_layout = new int[refl][frames];
            buffer = new int[frames];
            for(int j = 0; j < frames; j++)
                    buffer[j] = -1;

              System.out.println("\nEnter the reference string:");
              for(int i=0;i<refl;i++)
              reference[i]=sc.nextInt();

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

```
      {
       int search = -1;
       for(int j = 0; j < frames; j++)
       {
        if(buffer[j] == reference[i])
        {
         search = j;
         hit++;
         break;
        }
       }
       if(search == -1)
       {
        buffer[pointer] = reference[i];
        fault++;
        pointer++;
        if(pointer == frames)
         pointer = 0;
       }
           for(int j = 0; j < frames; j++)
                mem_layout[i][j] = buffer[j];
      }



for(int i = 0; i < frames; i++)
{
    for(int j = 0; j < refl; j++)
    {
          if(mem_layout[j][i]==-1)
          {
```

```
            System.out.print("   "+" - ");
            continue;
              }
              if(mem_layout[j][i]<100)
                    System.out.print("   "+mem_layout[j][i]+" ");
              else
              System.out.print("   "+mem_layout[j][i]);
        }
         System.out.println();
  }

  System.out.println("The number of Hits: " + hit);
  System.out.println("The number of Page Faults: " + fault);
}
static void LRU()
{
      Scanner sc=new Scanner(System.in);
      int frames2,pointer2 = 0, hit2 = 0, fault2 = 0,ref;
  Boolean isFull = false;
  int buffer[];
  ArrayList<Integer> stack = new ArrayList<Integer>();
  int reference[];
  int mem_layout[][];

  System.out.println("Please enter the number of Frames: ");
  frames2=sc.nextInt();

  System.out.println("Please enter the length of the Reference string: ");
  ref =sc.nextInt();
```

```
reference = new int[ref];
mem_layout = new int[ref][frames2];
buffer = new int[frames2];
for(int j = 0; j < frames2; j++)
        buffer[j] = -1;

System.out.println("Please enter the reference string: ");
for(int i = 0; i < ref; i++)
{
    reference[i] = sc.nextInt();
}
System.out.println();
for(int i = 0; i < ref; i++)
{
    if(stack.contains(reference[i]))
    {
     stack.remove(stack.indexOf(reference[i]));
    }
    stack.add(reference[i]);
    int search = -1;
    for(int j = 0; j < frames2; j++)
    {
        if(buffer[j] == reference[i])
        {
            search = j;
            hit2++;
            break;
        }
    }
```

```
if(search == -1)
{
 if(isFull)
 {
  int min_loc = ref;
        for(int j = 0; j < frames2; j++)
        {
         if(stack.contains(buffer[j]))
            {
                int temp = stack.indexOf(buffer[j]);
                if(temp < min_loc)
                {
                    min_loc = temp;
                    pointer2 = j;
                }
            }
        }
 }
    buffer[pointer2] = reference[i];
    fault2++;
    pointer2++;
    if(pointer2 == frames2)
    {
     pointer2 = 0;
     isFull = true;
    }
}
for(int j = 0; j < frames2; j++)
    mem_layout[i][j] = buffer[j];
```

```
        }

        for(int i = 0; i < frames2; i++)
        {
            for(int j = 0; j < ref; j++)
            {
                  if(mem_layout[j][i]==-1)
                  {
               System.out.print("   "+" - ");
                 continue;
                  }
                  if(mem_layout[j][i]<100)
                        System.out.print("   "+mem_layout[j][i]+" ");
                  else
                  System.out.print("   "+mem_layout[j][i]);
            }
         System.out.println();
        }
        System.out.println("The number of Hits: " + hit2);
        System.out.println("The number of Page Faults: " + fault2);
    }


public static void main(String args[])
{
     Scanner sc=new Scanner(System.in);
     int choice;

     do
     {
```

```
        System.out.println("\nMenu:");
        System.out.println("1.FIFO");
        System.out.println("2.LRU");
        System.out.println("3.Exit");
        System.out.println("Enter your choice :");
        choice=sc.nextInt();

        switch(choice)
        {
        case 1:fifo();
                 break;
        case 2:LRU();
                 break;
        case 3:System.out.println("Termination of Program!!!");
                 break;
        }

        }while(choice!=3);



}
}
/*
Menu:
1.FIFO
2.LRU
3.Exit
Enter your choice :
1
```

```
Enter the number of frames:
3

Enter the number of pages in the reference string:
12

Enter the reference string:
144
11
144
236
144
168
144
11
179
11
12
263
   144   144   144   144   144   168   168   168   179   179   179   179
    -    11    11    11    11    11    144   144   144   144   12    12
    -     -     -    236   236   236   236   11    11    11    11    263
The number of Hits: 3
The number of Page Faults: 9

Menu:
1.FIFO
2.LRU
3.Exit
```

```
Enter your choice :
2
Please enter the number of Frames:
3
Please enter the length of the Reference string:
12
Please enter the reference string:
144
11
144
236
144
168
144
11
179
11
12
263

   144   144   144   144   144   144   144   144   144   144   12    12
    -    11    11    11    11    168   168   168   179   179   179   263
    -     -     -    236   236   236   236   11    11    11    11    11
The number of Hits: 4
The number of Page Faults: 8

Menu:
1.FIFO
2.LRU
```

```
3.Exit

Enter your choice :

3

Termination of Program!!!

*/
```