

PageReplacement.java

```
import java.io.*;
import java.util.Scanner;
```

```
class PageReplacement
```

```
{
    public static void main(String args[])throws IOException
    {
        BufferedReader obj=new BufferedReader(new
InputStreamReader(System.in));
        int f,page=0,ch,pgf=0,n,chn=0;
        boolean flag;
        int pages[];          //pgf-page fault
        do{
            System.out.println("Menu");
            System.out.println("1.FIFO");
            System.out.println("2.Optimal Page Replacement");
            System.out.println("3.EXIT");
            System.out.println("ENTER YOUR CHOICE: ");
            ch=Integer.parseInt(obj.readLine());
            switch(ch)
            {
                case 1:
                    int pt=0;

                    System.out.println("enter no. of frames: ");
                    f=Integer.parseInt(obj.readLine());
                    int frame[]=new int[f];
                    for(int i=0;i<f;i++)
                    {
                        frame[i]=-1;
                    }
                    System.out.println("enter the no of pages ");
                    n=Integer.parseInt(obj.readLine());
                    pages=new int[n];
                    System.out.println("enter the page no ");
                    for(int j=0;j<n;j++)
                        pages[j]=Integer.parseInt(obj.readLine());
                    do{
                        int pg=0;
                        for(pg=0;pg<n;pg++)
                        {

                            page=pages[pg];
                            flag=true;
                            for(int j=0;j<f;j++)
                            {
                                if(page==frame[j])
                                {
                                    flag=false;
                                    break;
                                }
                            }
                        }
                    }
                }
            }
        }
    }
}
```

```

        if(flag)
        {
            frame[pt]=page;
            pt++;
            if(pt==f)
                pt=0;
            System.out.print("frame :");
            for(int j=0;j<f;j++)
                System.out.print(frame[j]+" ");

            System.out.println();
            pgf++;
        }
        else
        {
            System.out.print("frame :");
            for(int j=0;j<f;j++)
                System.out.print(frame[j]+" ");

            System.out.println();
        }

        chn++;
    }
}while(chn!=n);
System.out.println("Page fault:"+pgf);
break;

case 2:
    Scanner in = new Scanner(System.in);
    int frames = 0;
    int pointer = 0;
    int numFault = 0;
    int ref_len;
    boolean isFull = false;
    int buffer[];
    boolean hit[];
    int fault[];
    int reference[];
    int mem_layout[][];

    System.out.println("Please enter the number of
frames: ");

    frames = Integer.parseInt(in.nextLine());

    System.out.println("Please enter the length of the
reference string: ");
    ref_len = Integer.parseInt(in.nextLine());

    reference = new int[ref_len];
    mem_layout = new int[ref_len][frames];
    buffer = new int[frames];
    hit = new boolean[ref_len];
    fault = new int[ref_len];

```



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        {
            if(index[j] == 0)
            {
                index[j] = 200;
            }

            if(index[j] > max)
            {
                max = index[j];
                pointer = j;
            }
        }
        buffer[pointer] = reference[i];
        numFault++;
        fault[i] = numFault;
        if(!isFull)
        {
            pointer++;
            if(pointer == frames)
            {
                pointer = 0;
                isFull = true;
            }
        }
    }

    for(int j = 0; j < frames; j++)
    {
        mem_layout[i][j] = buffer[j];
    }
}

for(int i = 0; i < ref_len; i++)
{
    System.out.print(reference[i] + ": Memory is: ");
    for(int j = 0; j < frames; j++)
    {
        if (mem_layout[i][j] == -1)
        {
            System.out.printf("%3s ", "*");
        } else
        {
            System.out.printf("%3d ",
mem_layout[i][j]);
        }
    }
    System.out.print(": ");
    if (hit[i]) {
        System.out.print("Hit");
    } else
    {
        System.out.print("Page Fault");
    }
}

```

```

        System.out.print(": (Number of Page Faults: " +
fault[i] + ")");
        System.out.println();
    }
    System.out.println("Total Number of Page Faults: " +
numFault);
    break;

    case 3:
        break;
    }
    while(ch!=3);
}
}

```