//Programmed By Aumrudh Lal Kumar TJ

//JAVA – INTERFACE

PGM-1

import java.util.Scanner;

import java.lang.\*;

interface Stack{

public void push(int item);

public int pop();

public void create(int size);

}

class StackTest implements Stack{

/\*\* This class is implementation of Stack interface.

\* It has push , pop methods and create method.

\*/

private int s[];

private int top;

public void create(int size){

s=new int[size];

top=0;

}

public void push(int item){

if(top==s.length-1){

System.out.println("Stack overflow");

System.out.print("Enter new size : ");

Scanner ip=new Scanner(System.in);

int si=ip.nextInt();

int s1[]=new int[si];

for(int i=0;i<s.length;i++){

s1[i]=s[i];

s=s1;

}

s[++top]=item;

}

else{

s[++top]=item;

}

}

public int pop(){

if(top<0){

System.out.println("Stack underflow");

return 0;

}

else{

//top--;

return s[top--];

}

}

}

public class Test{

/\*\* Main method is here\*/

public static void main(String args[]){

Scanner input = new Scanner(System.in);

System.out.print("Enter size of Stack : ");

int a=input.nextInt();

StackTest obj=new StackTest();

obj.create(a);

while(true){

System.out.print("1-Push\n2-Pop\nEnter your Choice : ");

int ch=input.nextInt();

if(ch==1){

System.out.print("Enter an element to be pushed : ");

int p = input.nextInt();

obj.push(p);

}

else if(ch==2){

int m=obj.pop();

if(m!=0){

System.out.println("The top element is : "+m/\*obj.pop()\*/);

}

}

else{

System.out.println("Wrong choice");

}

}

}

}

imaumrudh@Aumrudh-PC:~/java/ex4/pgm1$ java Test

Enter size of Stack : 2

1-Push

2-Pop

Enter your Choice :

1

Enter an element to be pushed : 25

1-Push

2-Pop

Enter your Choice :

1

Enter an element to be pushed : 34

Stack overflow

Enter new size : 5

1-Push

2-Pop

Enter your Choice :

1

Enter an element to be pushed : 100

1-Push

2-Pop

Enter your Choice :

2

The top element is : 100

1-Push

2-Pop

Enter your Choice :

2

The top element is : 34

PGM 2

imaumrudh@Aumrudh-PC:~/java/ex4/pgm2$ cat Test.java

import java.util.Scanner;

interface Queue{

/\*\* Queue interface . Has Methods to insert,delete and create queue

@author aumrudh

@since 2020-9-01

\*/

void insert(int element);

void create(int size);

void delete();

void check();

}

class QueueTest implements Queue{

/\*\* This class has the bussiness logic of the methods of interface\*/

private int quearr[];

private int rear;

private int front;

//method to create queue array

public void create(int size){

quearr=new int[size];

rear=front=0;

}

//method to insert element in queue

public void insert(int element){

Scanner ip=new Scanner(System.in);

int s=quearr.length;

if(rear==s-1){

System.out.print("Queue full Enter a new size : ");

int si=ip.nextInt();

int q1[]=new int[si];

for(int i=0;i<s;i++){

q1[i]=quearr[i];

}

quearr=q1;

rear++;

quearr[rear]=element;

}

else{

rear++;

quearr[rear]=element;

}

}

//method to delete and elements in queue

public void delete(){

int s=quearr.length;

if(front==(s-1) || front>rear){

System.out.print("Empty queue");

}

else{

front++;

System.out.println("Dequeued element : "+quearr[front]);

}

}

public void check(){

if(front==-1||front>rear){

System.out.println("No elements");

}

else{

System.out.println("Not empty");

}

}

}

public class Test{

/\*\* This is test class to check queue implentation\*/

public static void main(String args[]){

int ch,p;

Scanner ip=new Scanner(System.in);

System.out.print("Enter size : ");

int siz=ip.nextInt();

QueueTest q=new QueueTest();

q.create(siz);

while(true){

System.out.print("1-Insert\n2-Delete\n3-Check\nEnter your choice : ");

ch=ip.nextInt();

if(ch==1){

System.out.print("Enter a element to insert : ");

p=ip.nextInt();

q.insert(p);

}

else if(ch==2){

q.delete();

}

else if(ch==3){

q.check();

}

else{

System.out.println("Invalid choice:");

}

}

}

}

imaumrudh@Aumrudh-PC:~/java/ex4/pgm2$ java Test

Enter size : 2

1-Insert

2-Delete

3-Check

Enter your choice : 1

Enter a element to insert : 25

1-Insert

2-Delete

3-Check

Enter your choice : 1

Enter a element to insert : 34

Queue full Enter a new size : 5

1-Insert

2-Delete

3-Check

Enter your choice : 1

Enter a element to insert : 34

1-Insert

2-Delete

3-Check

Enter your choice : 2

Dequeued element : 25

1-Insert

2-Delete

3-Check

Enter your choice : 2

Dequeued element : 34

1-Insert

2-Delete

3-Check

Enter your choice : 3

Not empty

PGM 3

imaumrudh@Aumrudh-PC:~/java/ex4/pgm3$ cat Test.java

import java.util.Scanner;

import java.lang.Character;

interface Reverse{

/\*\* Interface to implement string reversal.

@author aumrudh

@since 2020-01-09

\*/

void reversal(String s);

}

class StringReversal implements Reverse{

//method to reverse the string

public void reversal(String s){

String reverse="";

for(int i=s.length()-1;i>=0;i--){

reverse=reverse+s.charAt(i);

}

System.out.println(reverse);

}

}

public class Test{

/\*\* This class will get input from string \*/

public static void main(String args[]){

System.out.print("Enter a string : ");

Scanner ip=new Scanner(System.in);

String st=ip.next();

StringReversal sr=new StringReversal();

sr.reversal(st);

}

}

imaumrudh@Aumrudh-PC:~/java/ex4/pgm3$ java Test

Enter a string : aumrudh

Hdurmua

PGM – 4

imaumrudh@Aumrudh-PC:~/java/ex4/pgm4$ cat Test.java

import java.util.Scanner;

interface SalaryCompute{

/\*\* method to compute salary\*/

public double computeSalary();

}

class HourlyWorker implements SalaryCompute{

/\*\* Hourly worker class will compute salary based on hours worked.

@author aumrudh

@since 2020-01-09

\*/

private double hr;

public HourlyWorker(double h){ //constructor

hr=h;

}

//getter method for cpsalary

public double computeSalary(){

return hr\*60;

}

//getter method for salary

public double gethoursalary(){

return computeSalary();

}

}

class DailyWorkers implements SalaryCompute{

/\*\* This class will compute on daily wages.\*/

private double da;

public DailyWorkers(double d){

da=d;

}

//getter methods for computing salary

public double computeSalary(){

return da\*150;

}

public double getdaysalary(){

return computeSalary();

}

}

public class Test{

/\*\* Test class to check the emplyee class working.\*/

public static void main(String args[]){

Scanner ip=new Scanner(System.in);

System.out.print("Enter hour Worked:");

double hw=ip.nextDouble();

HourlyWorker h=new HourlyWorker(hw);

System.out.println("Hour Salary:"+h.gethoursalary());

System.out.print("Enter day Worked:");

double dw=ip.nextDouble();

DailyWorkers d=new DailyWorkers(dw);

System.out.println("Day Salary:"+d.getdaysalary());

}

}

imaumrudh@Aumrudh-PC:~/java/ex4/pgm4$ java Test

Enter hour Worked:10

Hour Salary:600.0

Enter day Worked:25

Day Salary:3750.0