//JAVA ASSIGNMENT – GENERICS

//1)

class Generic{

public static <T extends Comparable<T>> T max(T... elements){

T max = elements[0];

for(T element : elements){

if(element.compareTo(max) > 0){

max=element;

}

}

return max;

}

public static void main(String[] args){

System.out.println("Integer max: "+max(Integer.valueOf(32), Integer.valueOf(456), Integer.valueOf(897)));

System.out.println("Double max: "+max(Double.valueOf(5.6), Double.valueOf(147.8), Double.valueOf(18.7301)));

System.out.println("Boolean max: "+max(Boolean.TRUE, Boolean.FALSE));

System.out.println("String max: "+max("Hello","Heyya","Congrats","Vaibhav"));

System.out.println("Byte max: "+max(Byte.MIN\_VALUE,Byte.MAX\_VALUE));

}

}

/\*

cs1200@u1:~/Desktop$ java Generic

Integer max: 897

Double max: 147.8

Boolean max: true

String max: Utkarsh

Byte max: 127

\*/

//2)

import java.io.\*;

import java.util.\*;

public class GenericStack <T> {

private ArrayList<T> stack = new ArrayList<T> ();

private int top = 0;

public int size () { return top; }

public void push (T item) {

stack.add (top++, item);

}

public T pop () {

return stack.remove (--top);

}

public static void main (String[] args)throws IOException {

BufferedReader in =new BufferedReader(new InputStreamReader(System.in));

int i;

System.out.println("1.INTEGER\n2.DOUBLE\n3.STRING");

System.out.println("ENTER YOUR OPTION:");

int ch=Integer.parseInt(in.readLine());

switch(ch)

{

case 1:

{

GenericStack<Integer> s = new GenericStack<Integer> ();

System.out.println("ENTER THE NUMBER OF ELEMENTS TO BE PUSHED: ");

int n=Integer.parseInt(in.readLine());

System.out.println("ENTER "+n+" INTEGERS");

for(i=0;i<n;i++)

{

//System.out.println("ENTER THE INTEGER:");

int x=Integer.parseInt(in.readLine());

s.push(x);

}

System.out.println("Enter 1 to pop & display or any other number to end:");

int c=Integer.parseInt(in.readLine());

if(c==1)

{

int k = s.pop ();

System.out.format ("%4d%n", k);

}

break;

}

case 2:

{

GenericStack<Double> s = new GenericStack<Double> ();

System.out.println("ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:");

int n=Integer.parseInt(in.readLine());

System.out.println("ENTER "+n+" DOUBLE");

for(i=0;i<n;i++)

{

//System.out.println("ENTER THE DOUBLE:");

double x=Double.parseDouble(in.readLine());

s.push(x);

}

System.out.println("Enter 1 to pop & display or any other number to end:");

int c=Integer.parseInt(in.readLine());

if(c==1)

{

double k = s.pop ();

System.out.format ("%4f%n", k);

}

break;

}

case 3:

{

GenericStack<String> s = new GenericStack<String> ();

System.out.println("ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:");

int n=Integer.parseInt(in.readLine());

for(i=0;i<n;i++)

{

String x=in.readLine();

s.push(x);

}

System.out.println("Enter 1 to pop & display or any other number to end:");

int c=Integer.parseInt(in.readLine());

if(c==1)

{

String k = s.pop ();

System.out.format ("%4s%n", k);

}

break;

}

}

}

}

/\*

FOR INTEGER

cs1200@u1:~/Desktop$ java GenericStack

1.INTEGER

2.DOUBLE

3.STRING

ENTER YOUR OPTION:

1

ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:

5

ENTER 5 INTEGERS:

5

9

4

2

1

Enter 1 to pop and any other number to end:

1

1

FOR DOUBLE

a)

cs1200@u1:~/Desktop$ java GenericStack

1.INTEGER

2.DOUBLE

3.STRING

ENTER YOUR OPTION:

2

ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:

4

ENTER 4 DOUBLE

1

2

3

4

Enter 1 to pop & display or any other number to end:

1

4.000000

b)

cs1200@u1:~/Desktop$ java GenericStack

1.INTEGER

2.DOUBLE

3.STRING

ENTER YOUR OPTION:

2

ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:

4

ENTER 4 DOUBLE

4.0

6.0

18.22

11.67

Enter 1 to pop & display or any other number to end:

1

11.670000

FOR STRING

cs1200@u1:~/Desktop$ java GenericStack

1.INTEGER

2.DOUBLE

3.STRING

3

ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:

4

ENTER 4 STRINGS:

Utkarsh

SSN

Dehradun

India

Enter 1 to pop & display or any other number to end:

1

India

TO TEST EXIT

cs1200@u1:~/Desktop$ java GenericStack

1.INTEGER

2.DOUBLE

3.STRING

ENTER YOUR OPTION:

1

ENTER THE NUMBER OF ELEMENTS TO BE PUSHED:

1

ENTER 1 INTEGERS

4

Enter 1 to pop & display or any other number to end:

6

\*/