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Problem Statement

Write a Java program for the implementation of different data structures using JAVA collection libraries (Standard toolkit library): at least 5 data structures are used to design a suitable application.

Code:

package ads.assignments.servers;

import java.util.LinkedList;

import java.util.Stack;

import java.util.Vector;

public class Assignment14CollectionUtilities {

public static void main(String[] args) {

System.out.println("----------STACK DEMONSTRATION----------");

Stack<Integer> sObj = new Stack<Integer>();

System.out.println("ADDING ELEMENTS TO THE STACK :");

for(int i = 0; i < 20; i++)

sObj.push(i);

System.out.println("REMOVING AND DISPLAYING THE ELEMENTS OF THE STACK \n");

int temp;

for(int i = 0; i < 20; i++){

temp = sObj.pop();

System.out.print(temp +"\t");

}

System.out.println("\n----------LINKED LIST DEMONSTRATION----------");

LinkedList<Integer> lObj = new LinkedList<Integer>();

System.out.println("ADDING ELEMENTS TO THE LINKED LIST :");

for(int i = 0; i < 20; i++)

lObj.add(i); //already increments the ptr

System.out.println("REMOVING AND DISPLAYING THE ELEMENTS OF THE LINKED LIST \n");

for(int i = 0; i < 20; i++){

temp = lObj.remove(); //already increments the ptr

System.out.print(temp +"\t");

}

Vector<Integer> vObj = new Vector<Integer>();

System.out.println("\nADDING ELEMENTS TO THE QUEUE :");

for(int i = 0; i < 10; i++)

vObj.add(i);

System.out.println("REMOVING AND DISPLAYING THE ELEMENTS OF THE QUEUE \n");

for(int i = 0; i < 10; i++){

temp = vObj.remove(i);

System.out.print(temp +"\t");

}

}

}

Output:

----------STACK DEMONSTRATION----------

ADDING ELEMENTS TO THE STACK :

Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: Array index out of range: 5

REMOVING AND DISPLAYING THE ELEMENTS OF THE STACK

19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

----------LINKED LIST DEMONSTRATION----------

ADDING ELEMENTS TO THE LINKED LIST :

REMOVING AND DISPLAYING THE ELEMENTS OF THE LINKED LIST

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

ADDING ELEMENTS TO THE QUEUE :

REMOVING AND DISPLAYING THE ELEMENTS OF THE QUEUE

0 2 4 6 8