**Lab 1**

**Array**

An array is collection of items stored at contiguous memory locations. The idea is to store multiple items of same type together. This makes it easier to calculate the position of each element by simply adding an offset to a base value, i.e., the memory location of the first element of the array (generally denoted by the name of the array).

A dynamic array, grow-able array, re sizable array, dynamic table, mutable array, or array list is a random access, variable-size list data structure that allows elements to be added or removed.

**Demo:** write a java program to demonstrate a dynamic array

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\*/

package sortedarray;

import java.util.Scanner;

import java.util.ArrayList;

/\*\* class DynamicArray \*/

class DynamicArray

{

private ArrayList<String> al;

/\*\* constructor \*\*/

public DynamicArray()

{

al = new ArrayList<String>();

}

/\*\* function to clear \*\*/

public void clear()

{

al.clear();

}

/\*\* function to get size \*\*/

public int size()

{

return al.size();

}

/\*\* function to insert element \*\*/

public void insert(String key)

{

al.add(key);

}

/\*\* function to get element at index \*\*/

public String get(int index)

{

if (index >= al.size())

return "";

return al.get(index);

}

/\*\* function to remove element at index \*\*/

public void remove(int index)

{

if (index >= al.size())

return ;

al.remove(index);

}

/\*\* function to remove element \*\*/

public void remove(String key)

{

al.remove(key);

}

/\*\* function to display array \*\*/

public void display()

{

System.out.println("\nDynamic Array : "+ al);

System.out.println();

}

}

/\*\* Class DynamicArrayTest \*\*/

public class DynamicArrayTest

{

public static void main(String[] args)

{

Scanner scan = new Scanner(System.in);

System.out.println("Dynamic Array Test\n");

DynamicArray da = new DynamicArray();

char ch;

/\* Perform Dynamic Array operations \*/

do

{

System.out.println("\nDynamic Array\n");

System.out.println("1. insert ");

System.out.println("2. remove by index");

System.out.println("3. remove by val");

System.out.println("4. clear");

System.out.println("5. size");

int choice = scan.nextInt();

switch (choice)

{

case 1 :

System.out.println("Enter value to insert");

da.insert(scan.next() );

break;

case 2 :

System.out.println("Enter index");

da.remove(scan.nextInt() );

break;

case 3 :

System.out.println("Enter value");

da.remove(scan.next() );

break;

case 4 :

System.out.println("\nDynamic Array Cleared");

da.clear();

break;

case 5 :

System.out.println("\nSize = "+ da.size() );

break;

default :

System.out.println("Wrong Entry \n ");

break;

}

da.display();

System.out.println("\nDo you want to continue (Type y or n) \n");

ch = scan.next().charAt(0);

} while (ch == 'Y'|| ch == 'y');

}

}

Second

1 import java.util.Arrays;  
 2 public class SortExample{  
 3 public static void main(String[]args)  
 4 {  
 5 int[] arr = {14, 74, 6, 47, 35,67};  
 6 Arrays.sort(arr);  
 7 System.out.println("Sorted Array:");  
 8   
 9 for (int i=0; i < arr.length; i++) {  
10 System.out.println(arr[i]);  
11 };  
12 }  
13 }