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package A7;

import java.util.Arrays;


/**
 *
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 */

class ArrayList{
    private static String arr[];
    private static int n=0;

    public ArrayList(){
        arr=new String[20];
    }

    public void addItem(String item){
        arr[n++]=item;
    }

    public void insertItem(int index, String item){
        for(int i=n-1;i>=index;i--)
            arr[i+1]=arr[i];
        arr[index]=item;
        n++;
    }

    public int containsItem(String item, int start){
        for(int i=start;i<n;i++)
            if(arr[i].equalsIgnoreCase(item))
                return i;
        return -1;
    }

    public void startsWithChar(char ch){
        int freq=0;
        System.out.print("\nStrings starting with "+ch+": ");
        for(int i=0;i<n;i++){
            if(arr[i].charAt(0)==ch){
                System.out.print(arr[i]+"\t");
                freq++;
            }
        }

        if(freq==0)
            System.out.println("\nNo matches found!!");
        else
            System.out.println("\n"+freq+" matches found!!");

    }

    public void strWithSubstr(String substr){
        int flag=0;
        System.out.print("\nItems with substring "+substr+": ");
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        for(int i=0;i<n;i++){
            if(arr[i].indexOf(substr)!=-1){
                System.out.print(arr[i]+"\t");
                flag++;
            }
        }
        System.out.println("\n"+flag+" items found!!");
    }

    public void replaceItem(String str, String repstr){
        int i=0;
        for(i=0;i<n;i++){
            if(arr[i].equalsIgnoreCase(str)){
                arr[i]=repstr;
                System.out.println("\n"+str+" replaced with
"+repstr);
                break;
            }
        }
        if(i==n)
            System.out.println("\n"+str+" not found in list!");
    }

    void removeItem(String item){
        int index=containsItem(item,0);
        if(index==-1){
            System.out.println("\nItem "+item+" does not exist in
the list!");
            return;
        }

        else{
            for(int i=index;i<n;i++)
                arr[i]=arr[i+1];
            n--;
        }
    }

    public void removeDuplicateItem(){
        int i, j, index;
        for(i=0;i<n;i++){
            index=containsItem(arr[i], i+1);
            if(index!=-1){
                for(j=index;j<n;j++)
                    arr[j]=arr[j+1];
                n--;
                removeDuplicateItem();
            }
        }
    }

    public void display(){
        System.out.println("\nItems in array list: \n");
        for(int i=0;i<n;i++)
            System.out.println(i+". "+arr[i]);
        System.out.println();
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    }
}

public class TestArrayList {
    public static void main(String[] args) {
        ArrayList alist=new ArrayList();
        System.out.println("Adding 10 items to list...");
        alist.addItem("red");
        alist.addItem("blue");
        alist.addItem("green");
        alist.addItem("yellow");
        alist.addItem("pink");
        alist.addItem("purple");
        alist.addItem("black");
        alist.addItem("white");
        alist.addItem("violet");
        alist.addItem("grey");
        alist.display();

        System.out.println("Inserting item orange at 3rd
position...");
        alist.insertItem(3,"orange");
        alist.display();

        String item="grey";
        int index=alist.containsItem("grey",0);

        if(index==-1)
            System.out.println("\nList does not contains specified
element!");
        else
            System.out.println("\nList contains specified element
"+item+" at index: "+index);


        alist.startsWithChar('b');
        alist.startsWithChar('z');

        String substr="le";
        alist.strWithSubstr(substr);


        alist.replaceItem("Grey","light black");
        alist.replaceItem("cyan", "light blue");
        alist.display();

        alist.removeItem("light Black");
        alist.display();

        System.out.println("Array with duplicate items...");
        alist.addItem("purple");
        alist.addItem("purple");
        alist.addItem("purple");
        alist.display();
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        System.out.println("Array after removing duplicate
items...");
        alist.removeDuplicateItem();
        alist.display();
    }

}
```