

Just implement these codes before going ahead:

|   |   |
|---|---|
| <pre>class Lab13{     static int m;     public static void f1(){         ?ln("Value in f1 was:"+m);         m=m+(int)(Math.random()*20-10);         ?ln("Value changed in f1 is:"+m);     }     public static void f2(){         ?ln("Value in f2 was:"+m);         m=m+(int)(Math.random()*20-10);         ?ln("Value changed in f2 is:"+m);     } }</pre> | <pre>public static void main(String a[]){     m=10;     ?ln("Value in main:"+m);     f1();     f2();     f1();     ?ln("Value in main:"+m); } }</pre> |
|---|---|

Note that m is not declared in any function and each function is changing value and each function has effect of that change, which clearly means each function is accessing same variable m.

**Task 1:** Complete code?

```
class Lab13{
    static String fName[]{"Cara","Diane","Zane","Lea","Patsy",
        "Lorene","Dessie","Samuel","Darwin","Maxwell"};
    static String lName[]{"Hingst","Ort","Opunui","Knighton","Rezac",
        "Taglauer","Diekrager","Monn","Howington","Lenske"};
```

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|--|--|
| <pre>PS void showAll(){     //display complete names line by line } PS void searchByFName(String fN){     //search by first name and show complete name } PS void showLongestName(){     //find the length of longest name and show     //length is length of first name + last name }  PSV showAll(){     int i;     for (i=0;i&lt;fName.length;i++)         ?ln(fName[i]+" "+lName[i]); } PSV searchByFName(String fN){     int i;     for (i=0;i&lt;fName.length;i++)         if (fN.equals(fName[i])){             ?ln(fName[i]+" "+lName[i]);             return;         }     ?ln(fN+" not found"); } }</pre> | <pre>PSVM (String a[]){     showAll();     searchByFName("Lorene");     searchByFName("Darwin");     searchByFName("abcdef");     showLongestName(); }  <b>Solution</b>  PSV showLongestName(){     int i, maxIndex=0;     int length1, length2;     length1=fName[0].length();     length1=length1+lName[0].length();     for (i=1;i&lt;fName.length;i++){         length2=fName[i].length();         length2+=lName[i].length();         if (length1&lt;length2){             maxIndex=i;             length1=length2;         }     }     ?(fName[maxIndex]+" ");     ?ln(lName[maxIndex]); } }</pre> |
|--|--|

Execute code to understand working of nested list?

```

class Lab13_2{
    PSVM (String args[]){
        ArrayList<String> names;
        names=new ArrayList<String>();
        ArrayList<Integer> marks;
        marks=new ArrayList<Integer>();
        names.add("Zahid");
        names.add("Saeed");
        names.add("Furrukh");
        marks.add(34);marks.add(29);
        marks.add(37);
        ArrayList lists=new ArrayList();
        lists.add(names);
        lists.add(marks);
        showAll(lists);
    }
    PS void showAll(ArrayList<ArrayList> ls)
    {
        ArrayList nm=lists.get(0);
        ArrayList mk=lists.get(1);
        int i;
        for (i=0;i<nm.size();i++)
            ?ln(nm.get(i)+"\t"+mk.get(i));
    }
}

```

Note: Recompile with -Xlint: unchecked for details. [Ignore this message, click on code and press ctrl+F2]

**Task 2:** Hope you have developed understanding of previous code related to nested list. Use this concept as replacement of 2D array. Take 2 lists to store height of students, one for females and other for males. Store this list into a 3<sup>rd</sup> list name heights. Pass this new list to a function to find and print average of height of male students and female students separately?

```

class Lab13_3{
    public static void main(String args[]){
        ArrayList fHeight=new ArrayList();
        ArrayList mHeight=new ArrayList();
        int fCount=(int)(Math.random()*3+4);
        int mCount=(int)(Math.random()*3+4);
        int i=0;
        for (i=0;i<fCount;i++)
            fHeight.add(Math.random()*1.2+4.5);
        for (i=0;i<mCount;i++)
            mHeight.add(Math.random()*1.2+5);
        ArrayList lists=new ArrayList();
        lists.add(fHeight);
        lists.add(mHeight);
        findAndShowAverage(lists);
    }
    public static void findAndShowAverage(ArrayList<ArrayList> lists){
        ArrayList<Double> fH=lists.get(0);
        ArrayList<Double> mH=lists.get(1);
        double sum=0;int i;
        for (i=0;i<fH.size();i++)
            sum=sum+fH.get(i);
        ?ln("Average Female Height:"+(sum/fH.size()));
        for (i=0,sum=0;i<mH.size();i++)
            sum=sum+mH.get(i);
        ?ln("Average Female Height:"+(sum/mH.size()));
    }
}

```

Again if you see message “**Note: Recompile with -Xlint: unchecked for details.**” after compilation ignore it and click on code and press ctrl+f2 to execute the code.