

Name: <i>(as it would appear on official course roster)</i>		
Umail address:	@umail.ucsb.edu	section 4, 5, or 6
Optional: name you wish to be called if different from name above.		
Optional: name of "homework buddy" (leaving this blank signifies "I worked alone")		

You may collaborate on this homework with AT MOST one person, an optional "homework buddy".

1

H03

CS56 W16

H03: Due Monday, 01.11 in Lecture

plain old Java arrays vs. ArrayList, initialization of instance variables, foreach style loop (HFJ 4,5,6)

Assigned: Wed 01.06 Total Points: 50

MAY ONLY BE TURNED IN IN THE LECTURE/LAB LISTED ABOVE AS THE DUE DATE,
OR IF APPLICABLE, SUBMITTED ON GRADESCOPE. There is NO MAKEUP for missed assignments;
in place of that, we drop the five lowest scores (if you have zeros, those are the five lowest scores.)

- Read HFJ:Chapter_6 pp. 125-164. Using the Java Library
- Some of these questions also come from HFJ chapters 4 and 5

1. (6 pts) Fill in the homework header properly—this helps us keep the grading pipeline flowing so that you get credit for your work and get feedback more quickly.

- writing **either 4, 5, or 6** to indicate your **discussion section (lab)** meeting time
- entering **BOTH** your name **AND** your uemail address **EVERY** time.

Paper submissions: One sheet of 8.5x11 paper double sided, or two DISCONNECTED SHEETS with your name on EACH. Please: **NO STAPLES, NO PAPERCLIPS, NO TAPE, NO ATTACHMENT OF ANY KIND.** These damage the document scanner.

Scanned submission: When submitting by PDF upload: scan your pages legibly and **SCAN IN THE CORRECT ORDER.** Page 1 first, then Page 2, in the correct orientation. Failure to scan properly may result in zero credit, meaning you "use up" one of your five "drop the lowest grade" slots.

Reminder:

- **Dark black pen or heavy dark pencil** scans best. Light pencil scans badly. If we can't read your answer, you might not get credit for it.
- **Short precise answers.** Don't Ramble.

2. Review the difference between plain old java arrays (as in Chapter 4) and the ArrayList type (as in Chapter 6). Assume that a class called Student exists.

a. (8 pts) write a line of java that makes a plain old Java array (Chapter 4 style) of Student references of size 5. (Don't allocate the Student objects, just the array of references, initially null).

b. (8 pts) Now, write a line of java that makes an ArrayList of Student references (Chapter 6 style). Capacity is unimportant---choose 5, or take the default, whatever you like. (Don't allocate the Student objects, just the ArrayList, initially empty).

3. (8 pts) Based on your reading in HFJ Chapter 5: Java 1.5 introduced a new (to Java) kind of for loop sometimes called a "foreach" loop (even though foreach is not a keyword in Java)—your textbook calls it the "enhanced for loop". HFJ provides an overview of this kind of loop on p. 105 and 116. Write a few lines of code that declare an array of five integers, initializing them to the first five prime numbers (you can use a literal array initializer here—you don't need to write code to compute the prime numbers), and then write a foreach type loop that iterates through that array printing out the values, one on each line.

Contents of TestCode.java

4. (10 pts) Based on your reading in HFJ Chapter 4, consider the Java code in the box at right, and these three questions in the space provided. For full credit, answer part (a), then answer parts (b) and (c) or leave them blank as appropriate.

```
public class TestCode {
    public static void main (String[] args) {
        String name;
        int perm;
        System.out.println("Student's perm is " + perm) ;
        System.out.println("Student's name is " + name ) ;
    }
}
```

- Will this code produce an error message, when compiled with `javac TestCode.java` and if so what? (I don't need a detailed character by character account of the error message—just a general description of what the error is will be sufficient.)
- IF IT DOES COMPILE: will this code produce an error message, when run with `java TestCode` and if so what? (same as the previous question—just a general description of the error is sufficient.) (It it doesn't compile, leave this and the next question blank.)
- IF IT DOES COMPILE AND RUN WITHOUT AN ERROR, what will be the resulting output when this code is run? (If it will not run without error, leave this question blank.)

SPACE FOR answer for 4a, 4b, 4c:

5. (10 pts) Based on your reading in HFJ Chapter 4, consider the Java code in the box at right, and then answer the three questions in the space provided. For full credit, answer part (a), then answer parts (b) and (c) or leave them blank as appropriate.

Contents of Student.java

```
class Student {
    private int perm;
    private String name;

    public int getPerm() {
        return perm;
    }
    public String getName() {
        return name;
    }
}
```

- Will this code produce an error message, when compiled with `javac *.java` and if so what? (I don't need a detailed character by character account of the error message—just a general description of what the error is will be sufficient.)
- IF IT DOES COMPILE: will this code produce an error message, when run with `java StudentTestDrive` and if so what? (same as the previous question—just a general description of the error is sufficient.) (It it doesn't compile, leave this and the next question blank.)
- IF IT DOES COMPILE AND RUN WITHOUT AN ERROR, what will be the resulting output when this code is run? (If it will not run without error, leave this question blank.)

Contents of StudentTestDrive.java

```
public class StudentTestDrive {
    public static void main (String[] args) {
        Student s = new Student() ;
        System.out.println("Student's perm is " + s.getPerm() ) ;
        System.out.println("Student's name is " + s.getName() ) ;
    }
}
```

SPACE FOR answer for 5a, 5b, 5c: