Computer Science 161

Third Hour Exam

Name _____

Friday, Nov. 17, 2006
90 Pts. (will be normalized to 100 pts.)

I. Arrays.

a. (10 pts.) Write the code necessary to specify an array of 100 integers and fill it with random numbers. Include any import statements necessary.

b. (10 pts.) Write the code necessary to add up the elements of the array (created in part (a)) and print the sum.

c. (10 pts.) Write the code necessary to find the location of the smallest element in the array specified in part (a).

d. (15 pts.) Write the code necessary to sort the array specified in part (a)

e. (5 pts.) Write the code necessary to specify an array of 100 Student objects.

f. (5 pts.) Write the code necessary to print out the names of the students in the array just defined in part (e).

II. Inheritance

1. (15 pts.) Suppose that we have a class called Shape which keeps track of the location of an object through two integer fields. It has a constructor with the signature Shape(int x, int y). We want to create a sub class called Circle which, in addition to the location of the object, has an additional field for a (double) radius. Write the class with this new field and with one constructor which has the signature Circle(int x, int y, double radius). Do not add any other methods.

2. (5 pts. each) Give brief definitions of the following:

Abstract class

Interface (as in classes and super classes)

over-riding (or redefinition)

protected

III. Testing

1. (10 pts.) Fredrick Brooks describes some rules for test coverage in unit testing. What are they?