Computer Science 161

Third Hour Exam

Name ______________________
I. Some definitions and basic questions (5 pts. each)

a. What is a key?

b. What is software engineering?

c. What is unit testing?
II. Arrays.

a. (10 pts.) Suppose that the integer array x has been initialized with 100 random integers from x[0] through x[99]. Write the statements necessary to sort the array into ascending order.

b. (10 pts.) Suppose that an array of names

BROWN / CADFAEL / DREW / FANSLER / MARPLE / POIROT / WOLF

has been placed in ascending order into an array Names with BROWN at Names[0] and WOLF at Names[6]. List the names in the order in which they would be accessed in a search for DREW in

A **sequential** search

A **binary** search
III. HashMap

a. (10 pts.) Describe some of the differences between the HashMap collection structure and the ArrayList collection structure.

Suppose now that we are writing a multi-player game, and that we want to store details of the players in a HashMap. Suppose further that we have a Player class, with fields playerName, playerEmail, and playerPoints.

b. (10 pts.) Write the code to specify players as a HashMap of Players with playerName as the key.
c. (10 pts.) Write the code necessary to add a new player ("P013", "HOLMES", "holmes@ups.edu", 130) to the HashMap. Assume a constructor for Player which accepts these fields.

d. (10 pts.) Write the code necessary to print the names and email addresses of current players (that is, those currently in the players list).
IV. User interaction

a. (10 pts.) Write the code necessary to display a cheerful message to the user (using JOptionPane classes), and wait until the user clicks the "OK" button. A single statement suffices for this problem.

V. (15 pts.) Returning now to your established Inventory object (it does not matter whether you are using an ArrayList or a HashMap since all we are interested in for this problem is the public interface (public methods) of your Inventory class. On the next page, write a public static void main program which will do the following:

1. Create an Inventory object called myInventory.
2. Add a part to myInventory (you make up the details of the part name, etc.)
3. List the parts currently in myInventory
(space for problem V)