HW 2

Note:

1. For all program assignments, always use comments to explain your program.
2. No copying allowed. If it is found that students copy from each other (in the opinion of the instructor), all of these assignments will receive 0.
3. You should type all the solutions instead hand written.
4. No late submission will be received.
5. Submit only the hard-copy.

Programming

Objectives:

To gain experience with the creation of link list using JAVA programming.
To gain experience with basic link list operations using JAVA programming.

Documentation:

Explain the purpose of the program with enough detail
Give a description of how to use the program and expected input/output
Explain the purpose of each class you develop in the program.

Programming:

For each method, give the pre and post conditions and invariant, if any
Program execution results (screen shot) according to the requirements given
A hard-copy of the program and documentations

Description of Program:

Write the Java program for a linked list class. The node that forms the linked list should contain two data fields: 1. ID (unique) 2. Age. All the nodes in the linked list are sorted increasingly by the age.
Implement the following operations on the linked list.
(a) Traverse the linked list and print the ID, Age for all the nodes.
(b) Insert a new node to the list while keeping the list sorted.
(c) Delete a node from the list for a given ID.
(d) Query on the link list. Basically, there are two types of queries. One is to input the unique ID, and display the corresponding age. And the other is to input the age, then display all the IDs with that age.
(e) Change this link list to a sorted list that is ordered by the age decreasingly.
   You should also try above operations on an example with at least 3 nodes in your program and provide the screenshot for the execution results.