ASSIGNMENT 2

Write a program in Java using Binary Search Tree data structure to manage information about persons. Variables used to store information about a person are:

- name - the name of a person (character String) , which is **the key of the tree**.
- age - the age of a person (integer value).

Person information is stored in the input file "person.txt", each person information in one line as format: **name | age**

For example:

A6 | 1
A2 | 5
B6 | 1
A1 | 2
A5 | 5
A4 | 7
A3 | 7
B8 | 3
A7 | 3
A9 | 6
A8 | 4
A91 | 2

You should write the BSTree class, which is a binary search tree data structure to store person information.

Question 1. Read each person information from file "person.txt", if the name contains 'B', or age > 10, do nothing, otherwirse insert that person information to the tree.

Question 2. Save all elements having age < the average age of the tree in format (name, age) to the file "q2.out" by post-order traverse.

For example, the content of file "q2.out" must be:

(A1,2) (A8,4) (A91,2) (A7,3) (A6,1)

Question 3. Perform breadth-first traverse from the root and delete by copying the second node having age >= the average age, write the tree to file “q3.txt”.

For example, the file “q3.txt” must be:

(A6, 1) (A2, 5) (A7, 3) (A1, 2) (A4, 7) (A9, 6) (A3, 7) (A8, 4) (A91, 2)

Question 4. Perform pre-order traverse from the root and rotate the third node having non-empty right-son then rotate it to left about its right-son and display the tree to the output screen by pre-order traverse.

For example, the output must be:

(A6, 1) (A2, 5) (A1, 2) (A4, 7) (A3, 7) (A9, 6) (A7, 3) (A8, 4) (A91, 2)