Overview: Find subtrees whose elements have the maximum average

Description: Hiro is still full of despair over the tragic fire at San Fransokyo Tech, and Baymax is trying his best to cheer him up. In his wanderings about town, Baymax found a magnificent cherry tree completely laden with ripe fruit. Knowing Hiro's love for cherries, Baymax wants to bring as many home as possible. However, though he's strong enough to take the entire tree home, receiving an entire tree may be rather overwhelming, so Baymax would much prefer to find the most fruit-laden branch and bring that home (which could be the entire tree in some cases). Can you help him?

We can model the cherry tree as a tree of integers where each integer describes how many cherries live on each particular twig. Our goal, then, is to find the subtree whose nodes have the maximum integer average (which represents the maximum average density of cherries).

Filename: tree.{java, cpp, c, cc, py}

Input: The input will contain n+1 lines
The first line contains the number of nodes n
The next n lines will contain two integers; on the (i+1)th line, the first integer is the parent of node i, and the second integer is the value of node i. The parent of node 1 is always 0.

Output: Output a single real number, the maximum average. It should be rounded to three digits after the decimal point.

Assumptions: $1 \le n \le 100$. The value of each node is a positive integer less than 1000.

Sample Input #1:
```
3
0 3
1 1
1 1
```

Sample Output #1:
```
1.667
```

Sample Input #2:
```
5
0 5
1 5
2 5
3 6
4 5
```

Sample Output #2:
```
5.500
```