

Ramu owns a Pan shop and he manages it in his own way. While in a normal shop, a customer is served by following the first-come, first-served rule, Ramu simply minimizes the average waiting time of his customers. So he gets to decide who is served first, regardless of how sooner or later a person comes.

Different kinds of Pans take different amounts of time to cook. Also, once he starts cooking a Pan, he cannot cook another Pan until the first Pan is completely cooked. Let's say we have three customers who come at time $t=0$, $t=1$, & $t=2$ respectively, and the time needed to cook their Pans is 3, 9, & 6 respectively. If Ramu applies first-come, first-served rule, then the waiting time of three customers is 3, 11, & 16 respectively. The average waiting time in this case is $(3 + 11 + 16) / 3 = 10$. This is not an optimized solution. After serving the first customer at time $t=3$, Ramu can choose to serve the third customer. In that case, the waiting time will be 3, 7, & 17 respectively. Hence the average waiting time is $(3 + 7 + 17) / 3 = 9$.

Help Ramu achieve the minimum average waiting time. For the sake of simplicity, just find the integer part of the minimum average waiting time.

Input Format

- The first line contains an integer N , which is the number of customers.
- In the next N lines, the i^{th} line contains two space separated numbers T_i and L_i . T_i is the time when i^{th} customer order a pan and L_i is the time required to cook that pan.
- The i^{th} customer is not the customer arriving at the i^{th} arrival time.

Output Format

- Display the integer part of the minimum average waiting time.

Note

- The waiting time is calculated as the difference between the time a customer orders pan (the time at which they enter the shop) and the time she is served.
- Cook does not know about the future orders.