Problem D
Sherlock Holmes

Input File: D.IN
Output File: standard output
Program Source File: D.C, D.CPP, D.JAVA

Sherlock Holmes, the well known detective, must solve a puzzling situation. He has n boxes B_1, B_2, .., B_n , where n is even, each containing m balls. The balls are white and black. Let B_i = (W_i, B_i) denote a box with W_i white balls and B_i black balls. He must partition the boxes into two sets, each consisting of $n/2$ boxes, such that either the white balls or the black balls hold a majority in both sets. If there is such a majority, let m_1 and m_2 denote the percentage of the majority balls in each set. Holmes must find very quickly the **maximum** possible value of $min(m_1, m_2)$. Can you help Holmes?

The program input is from a text file. Each data set in the file stands for a particular set of boxes. A data set starts with the number n (n < 10000) of boxes. Follows the number m (m < 10000) of balls, and for each box the number (< 10000) of white and black balls in this specific order. The program prints the color (**W** or **B**) of the balls that hold the majority followed by the **maximum** value - if there is such a majority, or **No solution** if no majority can be obtained.

White spaces can occur freely in the input. The input data are correct and terminate with an end of file. For each set of data the program prints the result to the standard output from the beginning of a line. An input/output sample is in the table below. There is a single data set that contains **4** boxes each containing **30** balls. The first box, for example, contains **17** white balls and **13** black balls. There is only one possible partition of the boxes **(B1, B4), (B2, B3),** the white balls holding majority. The result for the data set is the identifier **W** and the maximum value.

Input	Output
4	W 51.67
30	
17 13	
12 18	
20 10	
14 16	