

2. Granger wants to create a magic potion. In order to make the magic potion, she needs to mix powder A and powder B in the ratio of $M_a : M_b$. The pharmacy sells n bottles, where bottle i costs c_i , contains a_i grams of powder A , and b_i grams of powder B . Provided that Granger has to use all the powder she bought, design a dynamic programming algorithm to determine the minimum budget needed to construct the potion, or assert that no such formulation is possible, and analyze the runtime. You may assume that M_a , M_b , a_i and b_i are all integers.