Problem D - Maximum Chicken Minimum Wolf

Daniel: Lucccaaaa, why are there no chicken wings???

Daniel is very happy that he passed Raunak's challenge! He's all set to become Coach Daniel and wants to celebrate. He loves chicken wings but unfortunately, Lucca did not order enough for Daniel to be satisfied. Fed up, Daniel decides to start his own chicken wings company Maximum Chicken Minimum Wolf (MCMC). He has got his first set of orders too! Can you help Daniel satisfy all the orders?

Daniel has k delivery teams. There are n orders from customers all over the city. For every order, 1 team needs to go to the customer and deliver their order. Since MCMC is a new company, it is possible that they do not have enough teams to send orders to customers all at the same time. In such a scenario, it is possible that some delivery teams will be used for delivering multiple orders. MCMC knows the cost of moving from one location in the city to another. Daniel wants to come up with a schedule for his delivery teams so that all orders can be delivered for the lowest amount of money spent. Note that a delivery team can only go to a location that it is delivering to. Daniel needs your help and he's made the task easy for you. The orders are sorted in ascending order of their order times and they are chosen in a way such that for $i < j$ there is enough time to move from the location of the ith order to the location of the jth order.

Input

The first line will contain T, the number of test cases. Each test case will start with 2 integers n ($1 \leq n \leq 100$) and k ($1 \leq k \leq 100$) which are the number of requests and the number of catering teams. Following this will be n lines where the ith line contains $n - i + 1$ integers between 0 and 1000000 inclusive. The jth number in the ith line is the cost of delivering wings from location i to location $i + j$. MCMC is at location 1 and the n requests are at location 2 to $n + 1$.

Output

For each test case, output the minimum cost to deliver all the requests.

Sample Input

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2
3 2
40 30 40
50 10
50
3 2
10 10 10
20 21
21
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Sample Output

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80
40
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