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Trader Profit



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Mike is a stock trader and makes a profit by buying and selling stocks. He buys a stock at a lower price and sells it at a higher price to book a profit. He has come to know the stock prices of a particular stock for n upcoming days in future and wants to calculate the maximum profit by doing the right transactions (single transaction = buying + selling). Can you help him maximize his profit?

Note: A transaction starts after the previous transaction has ended. Two transactions can't overlap or run in parallel.

The stock prices are given in the form of an array \boldsymbol{A} for \boldsymbol{n} days.

Given the stock prices and a positive integer k, find and print the maximum profit Mike can make in at most k transactions.

For example, 5 - day stock prices are given as 12, 5, 10, 7, 17, and k = 1. For one transaction, maximum profit is 12 when stock is purchased on day 2 and sold on day 5.

Input Format

The first line of input contains an integer q denoting the number of queries.

The first line of each test case contains a positive integer k, denoting the number of transactions.

The second line of each test case contains a positive integer n, denoting the length of the array A.

The third line of each test case contains n space-separated positive integers, denoting the prices of each day in the array A.

Constraints

- $1 \le q \le 100$
- 0 < k < 10
- $2 \le n \le 30$
- $0 \le \text{ elements of array } A \le 1000$

Output Format

For each query print the maximum profit earned by Mike on a new line.

Sample Input 0

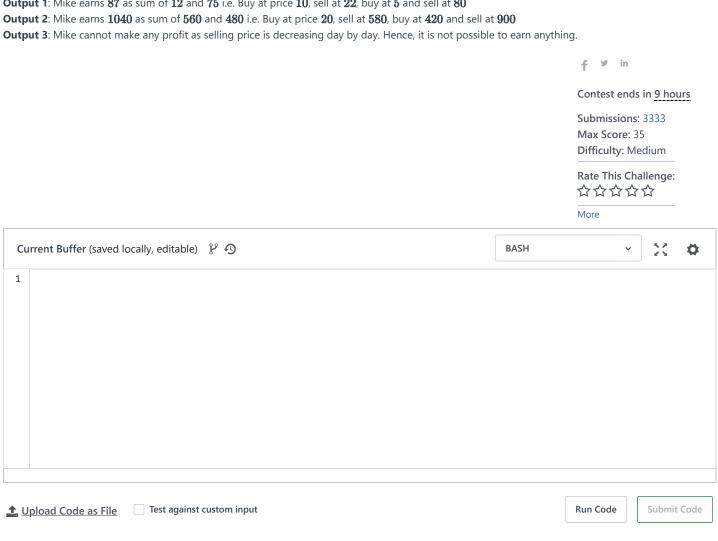
```
3 2 6 10 22 5 75 65 80 3 4 20 580 420 900 1 5 100 90 80 50 25
```

Sample Output 0

87	
1040	
а	

Explanation 0

Output 1: Mike earns 87 as sum of 12 and 75 i.e. Buy at price 10, sell at 22, buy at 5 and sell at 80



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