

# Problem H

## Team Matchmaking

You are organizing a tournament consisting of matches where two teams of  $N$  players compete against each other. For the best possible experience, you would like to create equally matched teams. To do this, you have assigned each player a rating, where a higher number indicates that a player is more skilled.

Define the match discrepancy as maximum difference in rating between two players on opposite teams. Given a list of players, you would like to assign them to teams so that the match discrepancy is minimized.



### Input

The first line contains a single integer  $T \leq 20$  giving the number of test cases. Each test case starts with a line with an integer  $N (1 \leq N \leq 20\,000)$ , the number of players per team. The next line contains  $2N$  integers between 1 and 10 000 inclusive, where each integer is the rating of a player.

### Output

For each test case, output a single line containing the minimum possible match discrepancy.

### Explanation of sample input

In the first test case, an optimal team selection would be as follows:

- Team 1: 2001 2001 2005 2005 2005
- Team 2: 2003 2003 2003 2003 2003

Sample Input	Sample Output
2 5 2005 2005 2005 2003 2003 2003 2003 2003 2001 2001 1 2527 3014	2 487