

Given an array $A[]$ of positive integers of size N , where each value represents the number of chocolates in a packet. Each packet can have a variable number of chocolates. There are M students, the task is to distribute chocolate packets among M students such that :

1. Each student gets exactly one packet.
2. The difference between maximum number of chocolates given to a student and minimum number of chocolates given to a student is minimum.

- Example 1:

Input:

$N = 8, M = 5$

$A = \{3, 4, 1, 9, 56, 7, 9, 12\}$

Output: 6

Explanation: The minimum difference between maximum chocolates and minimum chocolates is $9 - 3 = 6$ by choosing following M packets : $\{3, 4, 9, 7, 9\}$.

- Example 2:

Input:

$N = 7, M = 3$

$A = \{7, 3, 2, 4, 9, 12, 56\}$

Output: 2

Explanation: The minimum difference between maximum chocolates and minimum chocolates is $4 - 2 = 2$ by choosing following M packets :{3, 2, 4}.

- Your Task:

You don't need to take any input or print anything. Your task is to complete the function `findMinDiff()` which takes array `A[]`, `N` and `M` as input parameters and returns the minimum possible difference between maximum number of chocolates given to a student and minimum number of chocolates given to a student.

Expected Time Complexity: $O(N \cdot \log(N))$

Expected Auxiliary Space: $O(1)$

Constraints:

$$1 \leq T \leq 100$$

$$1 \leq N \leq 10^5$$

$$1 \leq A_i \leq 10^9$$

$$1 \leq M \leq N$$

Approach:

The code sorts the array and then iterates through it to find the minimum difference between the maximum and minimum values of any m-sized subarray.

Code:

class Solution

```
{  
    public long findMinDiff (ArrayList<Integer> a, int n, int m)  
    {  
        Collections.sort(a);  
        // Initialize answer to the maximum possible value  
        long answer = Long.MAX_VALUE;  
  
        // Loop through the array to find the minimum difference  
        for (int i = 0; i <= n - m; i++) {  
            long diff = a.get(i + m - 1) - a.get(i);  
            answer = Math.min(answer, diff);  
        }  
  
        return answer;  
        // your code here  
    }  
}
```