

# Project Euler #105: Special subset sums: testing

## Problem Statement

This problem is a programming version of [Problem 105](#) from [projecteuler.net](#)

Let  $S(A)$  represent the sum of elements in set  $A$  of size  $n$ . We shall call it a special sum set if for any two non-empty disjoint subsets,  $B$  and  $C$ , the following properties are true:

- $S(B) \neq S(C)$ ; that is, sums of subsets cannot be equal.
- If  $B$  contains more elements than  $C$  then  $S(B) > S(C)$ .

For example,  $\{81, 88, 75, 42, 87, 84, 86, 65\}$  is not a special sum set because  $65 + 87 + 88 = 75 + 81 + 84$ , whereas  $\{157, 150, 164, 119, 79, 159, 161, 139, 158\}$  satisfies both rules for all possible subset pair combinations.

Your task is to determine whether the given set is a special sum set.

## Input Format

First line contains an integer  $T$  denoting the number of test cases.

Each test case consists of two lines. First of them contains the only integer  $n$  - the size of the set. Second line contains  $n$  integers  $a_1, a_2, \dots, a_n$ .

## Constraints

$$1 \leq T \leq 10$$
$$1 \leq n \leq 100$$
$$1 \leq a_i \leq 10^6$$

## Output Format

For each of  $T$  test cases print one line containing a single word YES, if the given set is a special sum set, and NO otherwise.

## Sample Input

```
2
8
81 88 75 42 87 84 86 65
9
157 150 164 119 79 159 161 139 158
```

## Sample Output

```
NO
YES
```