

## 1 Coding Question:

### Reminders

- Must be coded individually in your choice of either Python, Java, C, C++, or C#
- Submitted through Gradescope, and there are hidden test cases
- There is a class-wide runtime leaderboard on Gradescope
- We encourage the use of Piazza for debugging help
- Please do not cheat

### Problem

Suppose you are given a set of coins of predetermined values in cents – for instance, a dime has value 10 cents and a quarter has value 25 cents, but you could also be given coins with cent values 3, 7, etc. It is possible to have multiple coins of the same denomination. Your goal is to determine whether or not it is possible to divide this set of coins into two subsets  $S_1$  and  $S_2$  such that:

- Any coin in the original set is in either  $S_1$  or  $S_2$ ,
- No coin is in both  $S_1$  and  $S_2$ , and
- The total monetary values of  $S_1$  and  $S_2$  are the same.

As these questions have simple answers (true or false), the problem inputs will be divided into groups. Answering all questions in a group correctly is necessary to get credit for that group.

### Input:

- Input should be read in from stdin.
- The first line will contain the total number of coins ( $n$ ).
- $n$  lines will follow, each containing the (positive integer) value  $v$  of one coin in the set.

### Output:

- The output should be written to stdout.
- The output should be T if the set of coins can be partitioned into two subsets of equal value, and F otherwise.

**Constraints:**

- $2 \leq n \leq 100$
- $1 \leq d \leq 1000$

**Examples****Example 1**

input:

8  
5  
5  
5  
5  
25  
5  
5  
5

output:

T

**Example 2**

input:

10  
7  
7  
7  
14  
14  
14  
21  
21  
28  
5

output:

F

**Example 3**

input:

4  
1  
2  
3  
4

output:

T

**Example 4**

input:

5  
1  
1  
1  
1  
1

output:

F