Problem 9: Coin Collector

(Medium-Hard)

(Adapted from UVa 11264)

Our dear Sultan is visiting a country where there are n different types of coins. He wants to collect as many different types of coins as you can. Now if he wants to withdraw X amount of money from the Bank, the Bank will give him this money using the following algorithm.

```
withdraw(X){
    if (X == 0) return;
    Let Y be the highest valued coin that does not exceed X.
    Give the customer Y valued coin.
    withdraw(X-Y);
}
```

Now Sultan can withdraw any amount of money from the Bank. He should maximize the number of different coins that he can collect in a single withdrawal.

Input Format

The first line of the input contains T, the number of test cases. Each of the test cases starts with n, the number of different types of coins. The next line contains n integers, $C_1, C_2, \ldots, C_n$, which represents the value of each coin type.

Constraints

- $1 \leq T \leq 7$
- $1 \leq n \leq 1000$
- C_1 equals to 1
- $C_1 < C_2 < C_3 < \cdots < C_n < 10^9$
- Our dear Sultan can withdraw an infinite amount of money from the Bank

The time limit for this problem is 2 seconds.

Output Format

For each test case output one line denoting the maximum number of different coins that our dear Sultan can collect in a single withdrawal.

Sample Input

```
2
6
1 2 4 8 16 32
6
1 3 6 8 15 20
```

Sample Output

```
6
4
```

Explanation

For the first test case, it is possible for our dear Sultan to get all 6 different types of coin if he attempts to withdraw $1 + 2 + 4 + 8 + 16 + 32 = 63$ from the Bank.

For the second test case, it is possible for our dear Sultan to get a maximum of 4 different types of coins if he withdraws $1 + 3 + 8 + 20 = 32$ from the bank.