

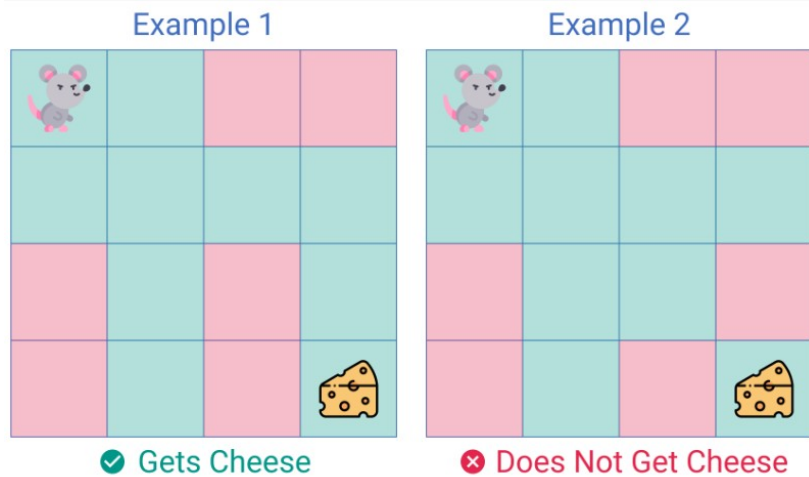
1. Rat In A Maze

Rat In A Maze | Practice Problem (workat.tech)

You are given a maze in the form of a matrix of size $n * m$. Each cell is either clear or blocked denoted by 1 and 0 respectively.

A rat sits at the top-left cell and there exists a block of cheese at the bottom-right cell. Both these cells are guaranteed to be clear.

You need to find if the rat can get the cheese if it can move only in one of the two directions - down and right. It can't move to blocked cells.



Input Format

The first line contains an integer 'T', denoting the number of test cases.

For each test case the input has the following lines:

- The first line contains two space-separated integers 'n' and 'm' denoting the number of rows and columns of the matrix respectively.
- The next n lines contain m space-separated integers which are either 0 or 1.

Output Format

For each test case, a line containing 1 or 0 based on whether the rat can get the cheese or not respectively.

Sample Input

```
4
4 4
1 1 0 0
1 1 1 1
0 1 0 1
0 1 0 1
4 4
1 1 0 0
1 1 1 1
0 1 1 0
0 1 0 1
4 5
1 0 1 1 1
1 1 1 0 1
```

```
0 1 0 0 1
0 1 1 0 1
3 4
1 0 0 0
0 0 0 0
0 0 1 1
```

Expected output

```
1
0
0
0
```

Constraint

$1 \leq T \leq 100$

$1 \leq n, m \leq 100$

$0 \leq \text{maze}[i] \leq 1$

Subsets

[Subsets - II | Practice Problem \(workat.tech\)](#)

Given an array of integers A, return all possible subsets. The array might contain duplicates.

Note: The list should not contain any duplicate subsets.

Example

A: [1, 3, 3]

Subsets: [

```
[],
[1],
[1, 3],
[1, 3, 3],
[3],
[3, 3]
]
```

Input Format

The first line contains an integer 'T', denoting the number of test cases.

For each test case, the input has two lines.

- An integer 'n' denoting the length of the array A.
- n space-separated unique integers denoting the elements of the array A.

Output Format

For each test case, the output has the following lines:

- The first line contains an integer 'm' denoting the total no of subsets.
- The next m line contains space-separated integers denoting elements in that particular subset.

Sample Input

3
1
5
2
2 4
3
1 3 3

Expected Output

2

5
4

2
2 4
4
6

1
1 3
1 3 3
3
3 3

Constraint

$1 \leq T \leq 10$

$1 \leq n \leq 10$

$1 \leq A_i \leq 100$

Combination Sum

[Combination Sum 1 | Practice Problem \(workat.tech\)](#)

Given an array of distinct integers A and a target value val, find all unique combinations of integers from A where their sum is equal to val.

Note: Each integer may be used multiple times in the combination.

Example

A: [1, 2]

val: 4

Combinations: [

[1, 1, 1, 1],
[1, 1, 2],
[2, 2]

]

Input Format

The first line contains an integer 'T', denoting the number of test cases.

For each test case the input has three lines.

- An integer 'n' denoting the length of the array A.
- n space-separated unique integers denoting the elements of the array A.
- An integer 'val' denoting the target value.

Output Format

For each test case, the output has the following lines:

- The first line contains an integer 'm' denoting the total no of distinct combinations.
- The next m line contains space-separated integers denoting elements in that particular combination.

Sample Input

```
3
2
1 2
4
5
1 3 4 5 6
4
5
1 2 3 4 8
7
```

Expected Output

```
3
1 1 1 1
1 1 2
2 2

3
1 1 1 1
1 3
4

11
1 1 1 1 1 1 1
1 1 1 1 1 2
1 1 1 1 3
1 1 1 2 2
1 1 1 4
1 1 2 3
1 2 2 2
1 2 4
1 3 3
2 2 3
```

3 4

Constraint

$1 \leq T \leq 10$

$1 \leq n \leq 30$

$1 \leq \text{target} \leq 500$

$1 \leq A_i \leq 500$