13162 - The Digit Board Problem

Description

This is a normal judge problem.

Given an empty board with ***L*** empty vertical slot numbered from ***0*** to ***L-1***. There are totally ***R*** rounds in this game. At each round, arbitrary number of digits, denoted by d_1, d_2, ..., d_N will be inserted into slot l_i. After ***R*** rounds, if there exist some rows consisting of both empty space(s) and digit(s), replace all empty space(s) in the same row with ***0***.

Finally, you need to sum up the number in each row in base-10.

In this problem, each test case contains multiple cases. Each case is independent. You need to output one answer per each case.

Input

The first line contains an integer ***T***, representing the number of cases.

The first line of each case contains two integer ***L*** and ***R***, representing the number of vertical slots on the board and the number of rounds.

The following ***R*** lines contains ***N+1*** integer l_i, d_1, d_2, ..., d_N, representing the inserting slot, and the ***N*** digit(s) inserted.

It is guaranteed that:

- **$1 \le T \le 10$**
- **$0 <$** L, R
- **$0 \le l_i \le L-1$**
- **$0 \le d_i \le 9$**
- **$0 <$** N
- **Test case #1 ~ #3:** $L \le 5$, $R = L$, $N = L$
- **Test case #4:** $L \le 10$, $R = L$, $N = L$
- **Test case #5:** $L \le 10$, $R \le 10^2$, $N \le 10^3$

Output

For each case, output the sum of the number in each row in base-10 with a new line symbol.

Sample Input and Output Explanation

Sample Input Case 1:

In the 1-st round, you insert 0, 0, and 3 into slot ***0***.

In the 2-nd round, you insert 0, 2, and 0 into slot ***1***.

In the 3-rd round, you insert 1, 0, and 0 into slot ***2***.

After 3 rounds, replace all empty spaces with ***0***. In this case, because each row only consists of empty digits (row 1 to row 3) or empty spaces (row 4 and above), there is no need to insert extra ***0*** into the board.

The status of the board after insertion in shown below. The answer will be 300 + 20 + 1 = 321

row 3	**3**	**0**	**0**
row 2	**0**	**2**	**0**
row 1	**0**	**0**	**1**
slot number	*0*	*1*	*2*

Sample Input Case 2:

In the 1-st round, you insert 0, 0, and 0 into slot ***0***.

In the 2-nd round, you insert 1, 2, and 3 into slot ***2***.

After 2 rounds, replace all empty spaces with ***0***.

The status of the board after insertion in shown below. The answer will be 3 + 2 + 1 = 6

row 3	**0**	*0*	**3**
row 2	**0**	*0*	**2**
row 1	**0**	*0*	**1**
slot number	*0*	*1*	*2*

Sample Input Case 3:

In the 1-st round, you insert 1 and 1 into slot ***1***.

In the 2-nd round, you insert 1, 1 and 1 into slot ***2***.

In the 3-rd round, you insert 1, 1, 1, and 1 into slot ***3***.

After 3 rounds, replace all empty spaces with ***0***.

The status of the board after insertion in shown below. The answer will be 1 + 11 + 111 + 111 = 234

row 4	*0*	*0*	*0*	**1**
row 3	*0*	*0*	**1**	**1**
row 2	*0*	**1**	**1**	**1**
row 1	*0*	**1**	**1**	**1**
slot number	*0*	*1*	*2*	*3*

Hint

1. What is the maximum number of inserted digits in a slot? That is, what is the maximum number of rows on the board? You may need to refer to the input constraints.

2. Do you really need to insert ***0*** after ***R*** rounds finish?

3. For test case #5, because the number of inserted digits ***N*** is unknown, you can use "stringstream" library to handle this kind of input.