Qingyu's Little Training Center

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

The background story in the Chinese statements is removed due to the translation difficulties. >_<

Little Cyan Fish has a training center on the continent of CP. In Little Cyan Fish's training center, there are m people. Little Cyan Fish has found n CP problems from his archive and hopes to select some problems from these to send to his m friends for training. However, to maximize the training effect, Little Cyan Fish wants to ensure that the problems he selects for each friend meet the following conditions:

- Each person should have just the right amount of training. Therefore, each friend receives exactly k problems for training.
- Different people should have different training methods. Therefore, any two friends must have received different sets of problems.

Of course, it is easy to see that the number of ways to choose k problems is $\binom{n}{k}$. Little Cyan Fish does not want many people solving the same problem—after all, he hopes that everyone's problem-solving abilities have a certain diversity! Therefore, if f_i represents how many people have received the i-th problem, the maximum value of f_i should be minimized as much as possible.

Formally, for each $1 \le i \le m$ and $1 \le j \le n$, if we denote $s_{i,j}$ as whether the i-th friend has received the j-th problem (if received, then the value is 1; otherwise, it is 0), then the above two conditions can be expressed as: s_i contains exactly k ones, and any two s_i and s_j are not equal ($1 \le i < j \le m$). Little Cyan Fish's goal is to minimize $\max_{1 \le j \le n} (\sum_{i=1}^{m} s_{i,j})$.

Of course, merely finding the answer is far from enough—after all, Little Cyan Fish also needs to know how to operate specifically. Therefore, you also need to provide Little Cyan Fish with a valid scheme.

Input

Each test case contains multiple sets of test data. The first line of input contains an integer T ($1 \le T \le 10^5$), indicating the number of test data sets. For each test data set:

- The input consists of a single line containing three integers n, k, m ($1 \le n \le 20, 0 \le k \le n, 0 \le m \le \binom{n}{k}$), representing the number of problems in Little Cyan Fish's possession, the number of problems each person should solve, and the number of Little Cyan Fish's close friends.

It is guaranteed that the total sum of $\binom{n}{k}$ across all test data does not exceed 2^{20}.

Output

For each test data set, output in the following format:

- The first line outputs a number representing the answer, that is, the minimum possible value of the maximum f_i.
- Next, you need to describe the scheme that Little Cyan Fish should use. You should output m lines, each line being a binary string of length n, where the j-th number in the i-th line is 1 if the i-th person should receive the j-th problem.
- These m lines represent the strings $s_1, s_2, \cdots, s_m$ as described formally in the problem.

Example

standard input	standard output
3 4 1 3 5 2 3 10 10 1	1 0100 0001 1000 2 11000 10100 01100 1 1111111111