Passcodes

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C++ — 2 sec — 512 MB

A new security patch protects the mainframe at M.O.T.H.E.R. with an **n** digit passcode. Due to an unsolved bug, the passcode cannot contain the digit 0. Whenever an engineer wishes to access the mainframe, they must enter an **m** digit subsequence of the passcode, called a pass-sequence.

A shady hacker, working for a group known only as I.N.F.A.M.Y., has successfully intercepted a set of **s** pass-sequences. From this, they are able to determine a list of possible passcodes.

INPUT You will be given 3 integers, **n**, **m** and **s**. This will be followed by **s** numbers of **m** digits, denoting the set of intercepted pass-sequences.

$1 \leq \mathbf{m} \leq \mathbf{n} \leq 30$
$1 \leq \mathbf{s} \leq 10$

OUTPUT Output an integer, the number of different possible passcodes. The answer will be smaller than 2^{63}. If there is only 1 possible passcode, output the passcode as well.

SAMPLE For example, suppose the passcode and the pass-sequences are 5 and 3 digits long, respectively. If the hacker intercepts the codes 123 and 245 the passcode is either 12345, 12435, or 12453.

INPUT	OUTPUT
6 3 3 987 765 854	1 987654
10 5 2 13579 24689	5222
20 11 3 73772792249 27576313224 32763692497	31048