CSci 4270 and 6270
Computational Vision,
Spring Semester, 2021
Lecture 19 Exercise — mean Average Precision
Due: Wednesday, April 7 at 11:59pm EST

Your job is to implement the mean average precision computation described in the Lecture 19 notes on Monday April 5.

You are given starting code that reads the (synthetic) results from a retrievel task. Each line of input gives the results of a single retrieval query, including C, the number of correct (ground truth) retrievals possible, and b the binary result vector, where $b(i) = 0$ if the i-th retrieved image is correct. There will be M lines of input, each of the same length. The binary vectors will be stored in a 2d NumPy array. You may assume without checking that there are no more than C 1's in the associated binary vector.

Your code should output just two numbers, on separate lines, each accurate to three decimal places:

- The average precision of the 1st line of input.
- The final mean average precision.

Use only NumPy code. You may use loops as you wish, but please note that the whole computation can be done without explicit for loops.