Problem 2: La-Di-La

An alternating binary sequence is a binary string in which the digits alternate between 1 and 0, *i.e.*, 0, 1010, 010101, 101010101010101. Note that such a sequence can start on a 0 or 1 and end on a 0 or 1 as long as the adjacent symbols alternate. Given two strings, a subsequence of those strings is any sequence of symbols that occurs in the same order (not necessarily adjacent) in both of these strings. For example, ``bad'', ``bcd'', and ``ad'' are subsequences of ``abacd'' and ``bbcade'' but ``cae'' and ``bac'' are not. Given two binary strings s_1 and s_2, the **alternaticity** $alt(s_1, s_2)$ of these strings is the length of the longest alternating binary sequence that is a subsequence of both s_1 and s_2 divided by the length of the shorter of s_1 and s_2. For example, the longest alternating subsequence of ``01010110'' and ``111000101'' is ``10101'' with length 5, which yields an alternaticity of $5/min(len(s_1), len(s_2)) = 5/min(8, 9) = 5/8 = 0.625$.

Write a program which, given $n \geq 2$ binary strings, computes and outputs the alternaticity of each distinct pair of these strings, along with the length of the longest alternating binary sequence for each pair. Your input will be an $(n + 1)$-line textfile, in which the first line contains the value of n and each of the subsequent n lines contains a binary string. You may assume that all input files are formatted correctly.

Sample input #1 (available as file "test2a.dat"):

```
4
10101
10101
1101
01101100
```

Sample output #1:

```
Alt(s[1],s[2]) = Alt("10101","10101") =   1.00 [5]
Alt(s[1],s[3]) = Alt("10101","1101") =   0.75 [3]
Alt(s[1],s[4]) = Alt("10101","01101100") =   0.80 [4]
Alt(s[2],s[3]) = Alt("10101","1101") =   0.75 [3]
Alt(s[2],s[4]) = Alt("10101","01101100") =   0.80 [4]
Alt(s[3],s[4]) = Alt("1101","01101100") =   0.75 [3]
```

Sample input #2 (available as file "test2b.dat"):

```
5
1111
10101
1101
01101100
0000000000
```

Sample output #2:

```
Alt(s[1],s[2]) = Alt("1111","10101") =   0.25 [1]
Alt(s[1],s[3]) = Alt("1111","1101") =   0.25 [1]
Alt(s[1],s[4]) = Alt("1111","01101100") =   0.25 [1]
Alt(s[1],s[5]) = Alt("1111","0000000000") =   0.00 [0]
Alt(s[2],s[3]) = Alt("10101","1101") =   0.75 [3]
Alt(s[2],s[4]) = Alt("10101","01101100") =   0.80 [4]
Alt(s[2],s[5]) = Alt("10101","0000000000") =   0.20 [1]
Alt(s[3],s[4]) = Alt("1101","01101100") =   0.75 [3]
Alt(s[3],s[5]) = Alt("1101","0000000000") =   0.25 [1]
Alt(s[4],s[5]) = Alt("01101100","0000000000") =   0.12 [1]
```