Farey's Series

Write a program for outputting for a given N the ascending sequence of all reduced fractions from [0,1] having the denominator not greater than N. A fraction is reduced if its numerator and denominator are relative primes.
The program will read its input from the file "farey.txt", and for each integer in that file it will produced the sequence in the form described below.
Input File :
7
Output
N=7
1/7
1/6
1/5
1/4
2/7
1/3
2/5
3/7
1/2
4/7
3/5
2/3
5/7
3/4
4/5
5/6
6/7
1/1