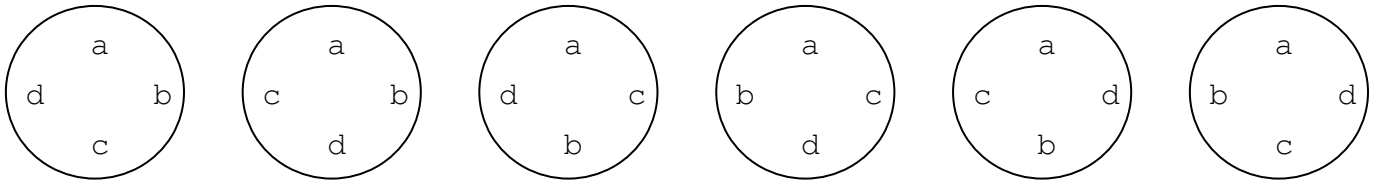
SIENA COLLEGE
30th Annual High School Programming Contest
March 24, 2017

Gold Problem #4: Total Cyclic Orders!

Background Information: A cyclic order is a way to arrange a set of objects in a circle. A cyclic order is not a binary relation (a, b) which means that we cannot say that a < b. A cyclic order is a type of ternary relation (a, b, c) where we say that after a, we reach b before reaching c. The cyclic order is a total cyclic order if the ternary relation (a, b, c) holds for all values in the set of values. For example, the days of the week are usually considered a total cyclic order. So are the months of the year and the notes on a chromatic scale. There are N! cyclic orders for N + 1 objects. For example, the four objects a, b, c, and d can be arranged in six unique cycles: abcd, abdc, acbd, acdb, adbc, and adcb. All others are cycles of these six. See below for the geometric representation of the six cycles.



Programming Problem:

Input: Two lines, each with between 1 and 15 unique 2-digit positive integers.
The value 999 will indicate there are no more input values on the line.

Output: CYCLE (if the second list is a cycle of the first list otherwise NOCYCLE

Example 1: Input:
```
11 44 85 93 36 28 71 29 59 64 999
36 28 71 29 59 64 11 44 85 93 999
```
Output: `CYCLE`

Example 2: Input:
```
11 44 85 93 36 28 71 29 59 64 999
36 93 85 44 11 64 59 29 71 28 999
```
Output: `NOCYCLE`

Example 3: Input:
```
11 44 85 999
11 434 85 26 72 999
```
Output: `NOCYCLE`

Example 4: Input:
```
11 22 33 999
33 11 22 999
```
Output: `CYCLE`

Example 5: Input:
```
11 22 33 44 999
11 44 33 22 999
```
Output: `NOCYCLE`