Algorithms, Friend Circles - Friday, September 18, 2020

There are \( N \) students in a class. Some of them are friends, while some are not. Friendship is transitive in nature, i.e., if \( A \) is a friend of \( B \) and \( B \) is a friend of \( C \), then \( A \) is also a friend of \( C \).

A friend circle is a group of students who are directly or indirectly friends.

You must write a function \texttt{friendCircles} that returns the number of friend circles in a class. Its argument, \texttt{friends}, is an \( N \times N \) matrix that comprises characters \( Y \) or \( N \). If \( \text{friends}[i][j] \) is \( Y \) then the \( i \)th and \( j \)th students are friends, otherwise they are not friends.

Constraints:
\begin{itemize}
  \item \( 1 \leq N \leq 300 \).
  \item Each element of friends will be \( Y \) or \( N \).
  \item The number of rows and columns in \texttt{friends} will be equal.
  \item \( \text{friends}[i][i] \) is \( Y \), where \( 0 \leq i < N \).
  \item \( \text{friends}[i][j] = \text{friends}[j][i] \), where \( 0 \leq i < j < N \).
\end{itemize}

Sample input 1:
\begin{verbatim}
YYNN
YYYN
NYYN
NNNY
\end{verbatim}

Sample output 1:
2

Sample input 2:
\begin{verbatim}
YNNNN
NYYNN
NNYN
NNNYN
NNNNY
\end{verbatim}

Sample output 2:
5