**pr78 - The Matrix**

**Problem:** Write a program that will determine if a word appears in a matrix of characters. The word may appear vertically, horizontally, or diagonally and either forwards or backwards.

**Input:** The matrix is square and contains no more than 20 characters. Following the matrix is a list of words.

**data file:** pr78.dat

**Output:** For each word that follows the matrix, output the word followed by APPEARS IN THE MATRIX or the word followed by DOES NOT APPEAR IN THE MATRIX.

**Assumptions:** All letters are uppercase.

**Sample Input:**

APPLEXY

PXLHJKE

EDEGGLL

XXCGFPD

GOGNMYN

TAHUUPU

QDGBTSB

APPLE

AXE

APEX

CAT

HEX

CAR

HAT

COMPUTER

GUM

BUNDLE

TUG

ELF

**Sample Output:**

APPLE APPEARS IN THE MATRIX

AXE APPEARS IN THE MATRIX

APEX APPEARS IN THE MATRIX

CAT DOES NOT APPEAR IN THE MATRIX

HEX APPEARS IN THE MATRIX

CAR DOES NOT APPEAR IN THE MATRIX

HAT APPEARS IN THE MATRIX

COMPUTER DOES NOT APPEAR IN THE MATRIX

GUM APPEARS IN THE MATRIX

BUNDLE APPEARS IN THE MATRIX

TUG APPEARS IN THE MATRIX

ELF APPEARS IN THE MATRIX