**XX. Catch the Pig**

# Program Name: pig.java Input File: pig.dat

Watch out! Hamlet, a slightly devious pig, has been terrorizing Cypress by breaking into houses and eating copious amounts of smoked ham. As the local deputy, you must find him within 1 week because after consuming so much of his own species, he becomes unstoppable in his rampage. Given a 2D character grid which is a map of a certain area in Cypress, the following symbols represent:

H – Houses

. – Sidewalk

D – Yourself

O – Oscar the pig

Travelling 1 tile in the grid requires one day, and you can only travel in the 4 cardinal directions. Your goal is to print out if you can successfully capture Oscar before he becomes invincible. There will always be a valid path. Note that you must actually move into Oscar’s grid coordinates to capture him.

**Input**

The first line of input will contain a single integer n that indicates the number of simulations to follow. The next N sets each start with two integers, R and C, which are the number of rows and columns in the grid. The next R lines contain C characters that create your map, with only the characters listed in the description. There will be an empty line between each of the matrices.

**Output**

For each line of input, you will print out BACON if you capture the pig in time or PIG ON THE RUN if you cannot.

**Example Input File**

3

5 5

D...H

HH..H

.HH.H

...O.

3 7

.......

.DHHH..

HHH.O..

4 4

.D.H

.H..

H...

..HO

**Example Output to Screen**

BACON

PIG ON THE RUN

BACON