**7. 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 restaurants 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:

R – Restaurants

. – Sidewalk

D – Yourself

H – Hamlet 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 Hamlet before he becomes invincible. You cannot go through restaurants and Hamlet will never move. There will always be a valid path. Note that you must actually move into Hamlet’s grid coordinates to capture him and Hamlet will not move.

**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

4 5

D...R

RR..R

.RR.R

...H.

3 7

.......

.DRRR..

RRR.H..

4 4

.D.R

.R..

R...

..RH

**Example Output to Screen**

BACON

PIG ON THE RUN

BACON