Department of Computer Science & CINSAM
NKU Summer Programming
Workshop 2015

Project 15: Keyboard projects

Implement one or both of the Maze and MissileLauncher games.

Maze: the user moves through the maze using 4 keys (you can use the arrow keys or keys like a, w, d, x). Your program must make sure that the user does not move out of the maze (this would cause an exception) or into a wall. You need to implement the following:

1. Initialize x and y in the constructor and count to 0
2. In keyTyped, based on the key entered, see if the associated move will keep the user in the maze and in the path and if so, change x or y accordingly otherwise do nothing. Then, call repaint.
3. In paintComponent, add the code to draw the maze and to output the number of moves taken so far (count).

MissileLauncher: we will together implement the launch of a missile. You must then:

1. Add an enemy to shoot at using ex, ey and edx, edy.
2. In actionPerformed, after moving the launcher and any missile on the screen, check to see if it the missile hits the enemy. If so, add 1 to score and reset the enemy to be somewhere else. Otherwise, move the enemy based on edx, edy. Don't forget to handle how the enemy ship moves when it hits a border.
3. Add to the graphics display the current score.

Here are two enhancements:

4. Change the program to allow for an array of missiles so that you can launch multiple missiles at a time. actionPerformed will have to move all missiles (using a for loop), check to see if any have gone off the screen (if so, set mx[i]=-1 and my[i]=-1) or have hit the enemy. Also, make sure numMissiles does not reach the size of the array (for instance, if mx and my are int[1000], then once numMissiles=1000, you can't fire any more).
5. Have the enemy drop bombs at random intervals (1 bomb at a time). Use ebx, eby, for the bomb location where ebx and eby start at ex, ey when the bomb is launched. Bombs will drop straight down but will drop at a faster speed than missiles (perhaps at a speed of 6 or 8 pixels for each actionPerformed). Implement collision detection with your missile launcher. If you are hit, you lose a life. Give yourself 3 lives.