MATLAB Project: Fruit Ninja

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Summary: This is a game of cutting fruits. Random fruits are launched, and they have to be cut by moving mouse pointer. The mouse pointer is thus a knife. Scoring is done on the basis of number of fruits cut. If a fruit is not cut, and it crosses the boundary, score is reduced. Also, there are bombs in the game, which on cutting explode and reduce score. The game has Campaign and Casual Modes. In Campaign Mode, you have to cut a specific number of fruits to win, and in Casual Mode, you can cut as many fruits as you like.

Usage: The game should be started by opening the m-file,’runme.m’. The figure window will show the main menu of the game. You can start the game by clicking, ‘New Game’. The window will then show you the Game Modes and Options (below).

Game Modes and Options: The ‘Casual Mode’ will have one level whose difficulty would be asked for as you click its button. Difficulty Options will yield 2 categories ,’Easy’ and ‘Hard’. The ‘Campaign Mode’ will have 5 levels with increasing difficulty.

Features: The following additional features have been implemented.

1. If you cut a fruit, the fruit is shown to cut and its parts fall down.
2. If you hit a bomb, an explosion is shown which rises up.
3. Score and Lives are shown on the top left and right corners.
4. Mouse pointer is shown as a knife.

Theory: My project is basically based on Projectile Motion, as fruits are Projectiles which have to be launched into the game.

Programming:

Main Menu and Modes:The main program is started by ‘runme.m’. ‘runme.m’ contains the code for the Main Menu of the game. ’WindowButtonDownfcn’ is set into the position of the button ,’New Game’. Condition is applied so that if Mouse Button is pressed at ‘New Game’, another script ,’Game Modes’ is called. In ‘Game Modes’ are 2 buttons ,’Campaign Mode’ and ‘Casual Mode’. In the same way ’WindowButtonDownfcn’ is set again , and respective m-files of the game modes are called. Now the main game m-file,’FruitNinja.m’ is executed whose name changes with the modes.

FruitNinja.m: After defining the axis,figure,and basic variables, the main while loop is initiated. In the main loop ,Random Position(xLoc and yLoc) and motion constants(dx and dy) are set. Random Integers are then selected and conditions are applied so that these random integers correspond to the images of random fruits that are launched. The Second Loop (Nested While) is then initiated that is responsible for the motion of the projectile. Motion constants(dx and dy) are added to Position(xLoc and yLoc), and the image’s ‘xData’ and ‘yData’ is set so that the fruit starts moving in Parabolic Manner. After this, boundary conditions are defined . Function ‘decreaselife.m’ are used in these conditions so that if the fruit is uncut the score decreases. The condition and function for ‘Bomb’ differs from other fruits.After the boundary conditions, ‘WindowMotionButtonfcn’ is defined outside the Main Loop(in the initial phase of code) and its conditions are set in the Nested While so that when the mouse pointer touches the fruit, score increases and for the bomb, it decreases. Further animation is shown such as ‘Bomb Explosion’, and ‘Cutting of Fruits’. ‘Bomb Explosion’ is shown by the setting the ‘Fill’ command whereas ‘Cutting of Fruits’ is shown by importing 2 different halves of the image and moving them in opposite direction. Different winning conditions are also applied for different Game Modes and Levels.