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Project Details: This is an implementation-oriented project done on simplecpp graphics. A starter code was given for the game, and we had to build on it.

 This project is done on Ubuntu 18.04, and compilation is done using the following command on the Ubuntu terminal:

s++ -o lasso lasso.cpp coin.cpp main.cpp MovingObject.cpp bomb.cpp booster.cpp

 This results in an executable lasso, which can be run by

./lasso

assuming that we are in the same working directory throughout.

The help document for instructions on playing the game can be found in the document instructions.pdf

Enhancements

The major enhancements in this project over the starter code are:

1. The trajectory of the coin is changed to a parabolic one over the linear one in the starter code.

2. Minor bug fix: In starter code, after the player collects a single coin, yanking the lasso (control y) constantly increases the number of coins, irrespective of whether he caught the coin or not. This issue has been fixed.

3. A concept of game levels has been introduced. There are 4 levels - Lev 0, Lev 1, Lev 2, Lev 3. These are based on our current score, that is the current number of coins. The game increases in difficulty level by level.
    * Lev 0 - (From coins 0-2) An introductory level, coins and boosters spawn from the same fixed location.
    * Lev 1 - (From coins 3-5) The spawning of coins and boosters is from a random location within a limited region.
    * Lev 2 - (From coins 6-7) Bombs are introduced from this level, and they must not be caught.
    * Lev 3 - (From coins 8 and above) Coins and Boosters now spawn randomly from a more larger region now.

4. Introduction of Bombs, which are coins that should not be collected have been added. They are red in colour and catching them results in a decrease in the score, 1 Point per bomb will be decreased.

5. Introduction of Booster: The starter code had keyboard controls to increase or decrease the speed of the lasso easily. In this project, two types of boosters are added, which is the only way to control speed of lasso. Speed will be controlled by the type of booster the lasso catches.

   > Type 1: These are blue in colour. On collecting this, we get a bonus of 2 coins and an extra life. However, this also leads to a decrease in the speed of the lasso.

   > Type 2: These are purple in colour. On collecting these, we lose 2 coins. However, the speed of the lasso increases if we collect this.

Collecting boosters should be done strategically based on the priority of Lives or Lasso speed at runtime.

6. Spawning of coins are made random: In starter code, spawning of coins was from a fixed point. In this project, the coins spawn from random points from Level 1 onwards.

7. The concept of lives added: In the starter code, the game could go on indefinitely. In the project, the player starts with a certain number of lives. On missing to catch a coin, lives are reduced, and the game will end when the lives are over. Lives can be gained by collecting blue booster at the cost of reduction in speed.

8. The high score of the player is stored in a file now. If the player scores more than the current value, then the high score is also updated in the file.