The HIP-PATTIE HOP-PATTIE Frog Game

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Project Proposal
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I. **Project Description**

I will create a game that requires the player to travel to a goal from a starting position in a limited amount of time. The player can control the motion of the main character, which is a frog, by changing the direction and speed of frog’s motion (Increase/Decrease). The starting position is the frog’s house and the goal position is his girlfriend’s house.

In the game, there are two types of obstacles. One of them is a brick wall, these are located in the various locations around the game board much like a maze. The frog cannot walk on and/or pass through the brick, so the player must maneuver the frog around each wall in order to avoid them. Other is a monster; there are three monsters hiding at the somewhere on the screen. During his travels he may encounter the monster, if the frog collides with the monster he will become smaller; thus, resulting in the increase in the number of steps needed to reach the goal. Therefore, avoiding the monsters allows the player more time to maneuver through the game to the goal.

There are two windows: the world and viewpoint windows. The World Window allows the player an overhead view of the entire game, and the Viewpoint Window allows the player to follow the frog’s motion. However, the player can zoom in or out of the WW, so the player can see more or less of the world whenever the player likes.
II. Functionality

The player can select the difficulty level of the game, from easy, normal, or hard, by selecting the option buttons on the GUI – pressing the ‘tab key’ on the keyboard (kb), the user can traverse the option buttons. Also the player can turn off/on the sound by unselect/select the sound check box (GUI).

The player can change the direction of travel by pressing the appropriate arrow keys (kb) and arrow buttons (GUI). By pressing the spacebar key (kb)/move button (GUI), the player can move the frog. Also, by pressing the ‘a’ key (kb)/Speed Slider (GUI), the player can change the speed of the frog’s motion. The player cannot control the motion of any obstacle objects.

To zoom in or out of the WW window, the player presses <, in, or >, out (kb)/Zoom slider (GUI). The player can also use the mouse (by right click and drag) to zoom in, dragging to the left, or out, dragging to the right.

The player cannot pause the game, but he/she is able to terminate the current game by pressing the ‘e’ key (kb)/End button (GUI) and play a new game by pressing the ‘enter’ key (kb)/Start button (GUI). Also he/she can immediately end the game and terminate the program by pressing ‘escape’ key (kb)/Exit button (GUI).

When the frog reaches at the goal, the GUI message box will display the time for the current game and tell the player.
III. Screen Appearance

The main window consists of three sections: World window, Viewpoint window, and GUI window. These are always visible, and the player can change the size of the main window by pressing the resize icons or dragging the window.

1. Viewpoint Window
   This window always the player to follow the frog’s motion and to see what obstacles are around the frog -- the player can choose how far around the frog he/she wants to see by zooming in/out.

2. World Window
   This window always shows the entire worldview. The left bottom corner is the starting position and the right top corner is the goal position of the game.

3. GUI (under construction)
   This window allows the player to control and select options of the game.
   a. Direction buttons
      Choose the direction to travel. Note: The player cannot only travel to the N/S/W/E, but can also travel to the NE/NW/SE/SW.
      - Right: Rotate the direction toward East
      - Left: rotate the direction toward West
      - UP: rotate the direction toward North
      - Down: rotate the direction toward South
   b. Speed Slider
      Increases or decreases the speed of the frog’s movement.
GUI continued

c. **Zoom slider**
Changes the amount of area the player can view of the WW

d. **Exit button**
Terminates the program

e. **Play button**
Starts a new game

f. **End button**
Ends the current game

g. **Game level option buttons**
Changes the games level of difficulty
- Easy: the brick occupied the 20% of the world
- Normal: the brick occupied the 40% of the world
- Hard: the brick occupied the 60% of the world

h. **Sound check button**
  
  Turns the sound effect of the game on/off

i. **Message box**
Displays messages to the player

j. **Message picture**
Displays the final message to the player when the game ends.
IV. The game characters

In this game, there are three characters: The Frog is the main character, the Brick walls are the obstacles, and the third character the monsters are the villains.

1. Frog

   ![Frog Image]

   The frog can move in any direction or at any speed. This is the only character that the player can control. The player cannot control the size of the frog, but the size of it is minimized when the frog collides with a monster.

2. Brick

   ![Brick Image]

   This object cannot be moved. It is the obstacle that prevents the frog from reaching the goal in a straight line. The level of difficulty the player chooses determines the number of bricks that appears in the game. The number of bricks and the location of them do not change during the game.

3. Monster (the picture below is not my final design)

   ![Monster Image]

   This object can move, but is not under the player’s control -- when this collides with the frog, it disappears, and appears in a different location. There are always 3 monsters in every game.