

PS5 Game Description

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1. How to use my program

Name: Ball & Ball Big Battle

- (1) The whole game windows should be 800*600 pixels size (1m=10pixels). And the player can close the game if they want by ESC at any time.
- (2) When the game begins, player will be born as a small ball which radius size is 3 m and player's ball will be born as a random color.
- (3) If the player's ball touches the smaller ball, it can eat it (add the smaller ball's radius's 1/10 length to the player's one). And then, they will change their color to the smaller ball's color. If the player's ball touches the bigger one, their ball will die, and the game is over. (If both ball's radiuses are same, they will not die and not eat, just through it).
- (4) The player should control their ball to avoid the bigger one by their mouse. And Be Careful!!! They can't touch the edge of the screen and they also can't touch the obstacle rectangular, and these rectangular obstacles will appear randomly. The size of these will also be random (The range of the size is 50-100 pixels).
- (5) The obstacle ball will appear random position at the screen, and they will move by the gravity. If they touch the edge of the window, they will be bounded back. If two obstacle ball touch each other, they will bound to opposite forwards. The color of the obstacle ball will appear randomly (when born) but fix at the game process. The whole count of the obstacle ball is 30 at the biggening of the game and they will appear from the top of the window gradually. The min size of the ball is 10 pixels. The max size of the ball is 70 pixels radius.
- (6) Some special condition like if the player's ball was surrounded by bigger one or limited to a corner position, they can't move. The player can use the key-space control to resolve half of own size out to survive (they can pass through the narrow gap between the big ball). But that mean they will eat the ball to become bigger again.
- (7) The ball has another special skill which can be used only 1 time in once game. (Even though you press it 2 times, it will not work). The skill is to let the ball become invincible in a time period. In this period, if the player's ball touches the bigger one, it will not die but keep moving through it and it can keep eating the smaller one. The whole process last until the player's ball eat two smaller balls then the skill will be disable.
- (8) The whole time of the game is 0.5 min and the player need control the ball and don't let it die. Another thing is the player's ball must eat to let the size of the ball larger than 100 pixels radius finally, they can win.

BE CAREFUL!!! When you start the game, please move your mouse to the bottom of the window as soon as possible before the window appear. You don't want to die for touching the edge or the falling ball at first!!!

2. The features I used for satisfying the above requirements

- (1) Use the double buffering to realize the OpenGL animation
- (2) Use the FsInKey to realize press ESC to end the game. Or the player may end the game if they touch the bigger ball (terminate the program through an if language). Or the player can wait for the 30s time to end the game (set a t and add 0.05s every FsSleep until the game is over).

- (3) Use the for loop to realize the obstacle ball run and use the `FsGetMouseEvent` to realize the player's ball move by player's mouse. And the player needs to manipulate the ball to win the game. So, it is an interactive program.
- (4) I use color gradation to show the player's ball and obstacle ball's color randomly and change.
- (5) I use `GL_QUADS` to draw the obstacle rectangular and use `GL_POLYGON` to draw the ball.
- (6) I use the math library function to draw the ball and write the detect hit function. I use the shuffling to set the ball color randomly. I use the state transition to change the ball size and set the terminate game conditions.