Environment is responsible for starting the other objects (player,arrow,balls). After it creates these objects it starts the game loop. In each loop it calls update methods of player, ball, and arrow, checks if there is a collision between player and balls or balls and arrow. If there is a collision between the player and a ball then it is a loss, if all the balls are destroyed before the time is up it is a win. Environment is also responsible for displaying the restart and finish options for the user. Balls make projectile motion as it is shown in lab4. Since environment function is responsible for fundamental parts of the game main function is just used for starting an environment object and starting its loop.

Time bar visualise the remaining time to the user. As the time passes the bar is shrinking linearly.

To detect arrow and ball collision, it is needed to check arrow's height. İf arrow is already higher than the ball's height then their contact is just a line from center of the ball to the arrow at the level of center of the ball. If this distance is less than the radius of the ball, it is a contact and destroy the ball and arrow. If the level of the destroyed ball is bigger than 0, create 2 balls with 1 smaller level.

To detect player and ball collision, draw a line from players center to the circles center. Find the intersection point of this line with player's rectangle. If the distance between the ball and the player is less than the sum of ball's radius and line length from player's center to this intersection point, than we have an intersection.

Update methods of the player and ball is responsible for calculating their x and y position with respect to time and calling draw function with these values. Player listen for user key presses in update method to move and shoot.

https://www.youtube.com/watch?v=nNDh2M-tbCY