In the beginning, my purpose is to write a game code like bubble trouble. In the game, a gamer has some abilities such as moving the player and creating an arrow. The gamer should explode all balls until the time is up. Therefore, I created five additional classes to split all codes into their related class. One of them called Environment is the most important class because I assign all variables and wrote the main game method there. The objects in the game are a player, balls, an arrow, and a time bar. I will introduce how my code works. Firstly, I set the canvas and its scale. Also, I put the background behind all things. Secondly, I created the player and put it on the canvas. However, it can be controlled by using a keyboard. I calculate the speed with the given information to move the player and changed the coordinates of the player by using the speed, and the player cannot go outside the canvas, so I define this condition. After that, I created three balls, and their levels are different from each other. The levels determine the characteristics of the balls such as radius and velocity. Balls should move while the game is playing. They should make an elastic collision with the base point and walls and a projectile motion. I use the physical formula to make the balls move like so. Also, Balls should be explosive because when a ball hits by the arrow, it should split into two smaller balls moving opposite ways or disappear. For example, when a level 2 ball hits, it should split not two level 1 balls moving opposite ways. I store all balls in a list and makeover the list continuously. However, if the list becomes empty, the game should finish, and the gamer wins. Next, I created an arrow to use to hits the balls. It acts like a plant and grows continuously by using time difference to calculate the amount of growing until it reaches the top of the canvas. I changed the size of the picture and the y coordinate of the arrow to grow it. If an arrow hits the balls, it should disappear. Also, there cannot exist two arrows at the same time. Furthermore, I created a time bar to show how much remaining time the gamer has. I used a rectangle to create it and I also changed the color of the time bar to take attention. I use a time difference and a speed determined from the given information to make all of them, and I change the x coordinate of the rectangle to make it smaller. Moreover, I also created a method to control whether one of the balls collides with the player because if so, the game should be finished. I considered the player as a rectangle to control it. The game finishes when all balls explode, time is up, or one of the balls collides with the player. After the game finishes, all balls should disappear, and a sign should be created to give information about what a gamer can do now. If the gamer presses the “Y” button, the game should start again. I make a method to reset all variables to the initial situation, and I call the main game method to start the game. Briefly, it works recursively. Otherwise, If the gamer presses the “N” button, the game screen should close. In conclusion, the game has 6 classes. All of them have their related methods to create the game. I call all of them in the main game method, and the game plays.

Video Link:
https://drive.google.com/drive/folders/1x9jDywNTFoc5QkLNp3aYZjB-RDm_YKvV?usp=sharing