Project Summary Pearl Catch, Team 10

Group Members: Niharika Misal, Redwood High School, San Francisco
Annelise Kezdy, Sacred Heart Academy, Louisville
Owen Greybill, Brother Rice High School, Chicago

Our team, Team 10, created a computer game called Pearl Catch using the coding language Python. After learning some basic coding, our group was ready to begin brainstorming ideas for our project. Initially, we intended to create a spin-off of the classic game Snake, in which a player guides a snake depicted by a single box to "eat" food, which adds segments onto the end of the snake. Our team wanted to use an ocean theme and change the game by adding new obstacles to the game, such as plastic water bottles, which a player would have to avoid. This theme also connects to our group's goal of spreading awareness about the deplorable state of the world's oceans. As we began the process of coding for our game, we realized the code necessary to produce a similar game to Snake would be too difficult to replicate given our time constraints. After consideration, we decided to create an action game with a similar ocean theme.

Pearl Catch was the new game we decided upon. We started the process by naming our classes, a template definition of the methods and variables in a particular kind of object, and defining their functions. We decided to change the main character from an eel to a starfish because eels have a definitive direction in which they travel while a starfish image can travel easily in any direction without changing the direction orientation of the image. The starfish became our first class. Next, we added the class for water bottles, which would be spread across the screen as obstacles for the starfish to avoid. We then added the pearl class, which would allow the game to have an objective. The player's goal is to move the starfish around the water bottles to collect pearls to add points to the score. Upon completing this part of the code, we

realized that our game was stationary and lacking complexity. We decided to add flare by introducing moving soda cans with random speeds and movements to give the game an unpredictable nature. A problem arose when we played our game and watched our soda cans move forward and off the screen, never to return. Upon recognizing this problem, we faced the challenge of solving this while maintaining the linear path of the soda cans. We decided to imitate a feature in Pac Man by allowing the soda cans to go off the screen and reappear with the same linear motion on the opposite side of the screen. This solution was then applied to the starfish itself to allow for more interesting maneuvers.

Upon completing this portion, we created the base of the game. We began to enhance the game by creating sounds for impact, adding a timer to allow the player to see how much time he or she has left, and displaying a "You win" screen if the player survives the 30 second game and a "You lose" screen if the player comes into contact with any obstacles. On Tuesday afternoon of the final week, the Computer Science project groups tested each other's games and gave tips for improvement. One suggested idea was to add power pearls, a pearl that would appear rarely, but allow a special occurrence for a short amount of time. We decided to give power pearls the ability to freeze all soda cans for five seconds upon being collected by the player.

Throughout this process, we learned how to effectively communicate and listen as members of a team. We also realized the importance of compromising. The process of creating our project was made easier as we stated our goals for the day before we began coding. This project also taught us the basics of computer programming with Python, which some of us had never encountered before. The project encouraged us to grow as members of a team in order to create the most advanced project possible with what we learned.