

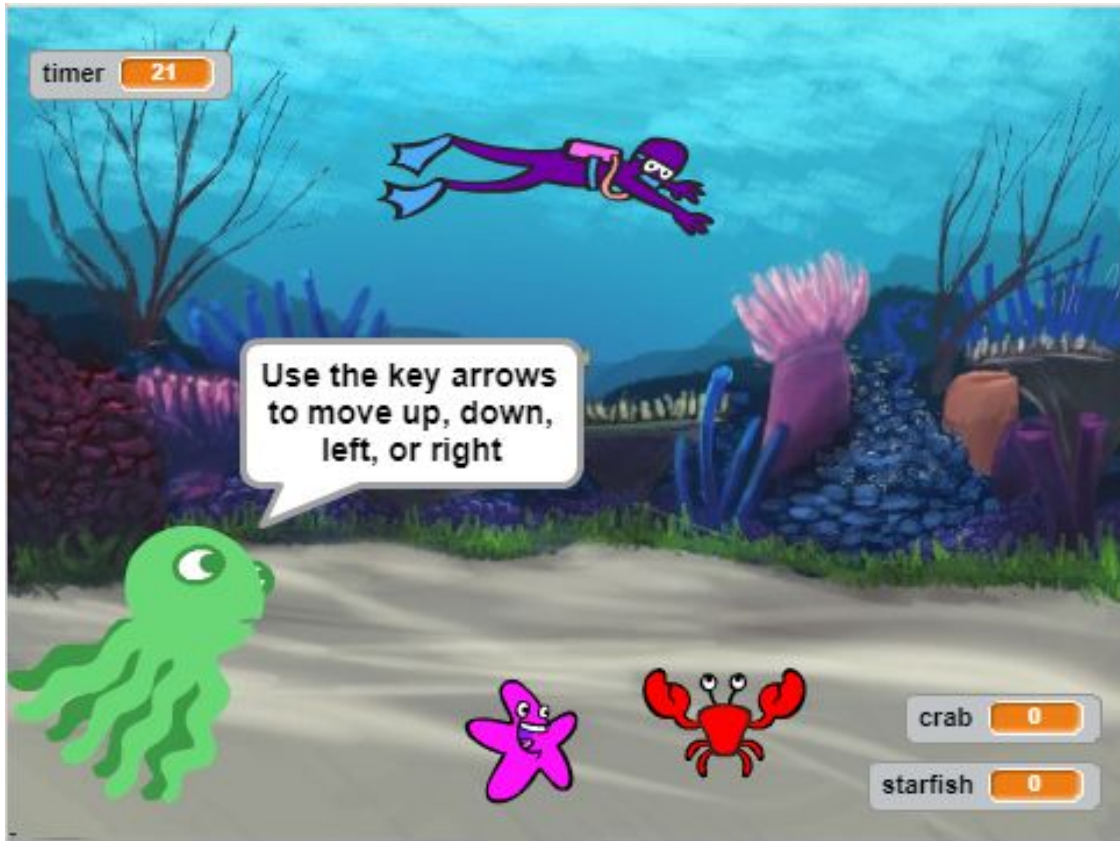
Scratch Project Design Notebook

PLTW | Computer Science

Scratch Final Project Link Saving Fishie	Level 1 developed by Stacy: https://scratch.mit.edu/projects/244026230/#editor Level 2 developed by Celine: https://scratch.mit.edu/projects/244693028/ Level 3 developed by Annabel: https://scratch.mit.edu/projects/244431429/ Remix (level 2 added to original level 1): https://scratch.mit.edu/projects/244795942/#player Remix (level 3 added to the remix of level 1 & 2): https://scratch.mit.edu/projects/244913839/ Citation: Scratch tutorial that helped us create the timers for the game: https://scratch.mit.edu/projects/23446578/
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Saving Fishie!

Developed by: Annabel Gomez, Celine Lafosse, and Anastasia Glushchenko



Brainstorming:

What we want the game to have

- Using a game overall
- Dialogue instructions
- Backstory
- Having people choose their sprite
- Levels
- Points
- The Final level can have a prize (appearing on the screen) or they find what they were looking for
- Buttons to have different options
- At the beginning of the game, they can choose the sprite
 - Maybe only choosing the name would work
- 3 overall levels
 - Collecting moving objects
 - Maze
 - throwing/shooting at target with moving obstacles

Games

- Each level is a different mini game with different backdrop and different sprites
 - Obstacle course with arrows as controls
 - Maze
 - Use walls that the sprite would not be able to get through
 - Backdrop that's already like a maze
 - The user would use all 4 arrows to move
 - The center of the maze could have a clue that leads to the overall "treasure" that's trying to be found by playing the game in general
 - Make every level of the overall game give a clue or prize to the user once they complete the level.
 - We need to have an increment by how many spaces the sprite will move every time the arrows are pressed
 - Timer to time the person on the level and once they reach a certain time, they lose the level and have to start over again?
 - We can also have a sprite be running every time the arrow is pressed (the animation of the sprite)
 - Have fruits or items collected throughout the maze
 - Or, if we were to only stick to one game, we could have the score of the player be related to the amount of points or clues they get at the end and maybe once they finish the last level, they have to use the clues and answer a question at the end to find who the culprit was or something. It could have like a row of sprites that the person has to choose from

- The clues and prizes sound like a good idea

Character chasing a target (item)

- Has a goal of what to get
- Has a timer
- The item could be fruit and the main point is to collect all of them in the provided time
- Doesn't have points
 - Have a list of items that has to be collected before the game starts
 - Has to collect all of them before the time runs out(the time depends on how many things they will collect, but I'm thinking around 20-30 secs and yes, I think there should be like a stopwatch or timer)

Throwing or shooting at a target

- The target could be moving
- The character is shooting at it or the person (user) could be shooting at it using the arrows
 - Is there a way for scratch to allow sprites to launch something from themselves?
 - The sprite could be in the shape of a cannon and the user would move it left and right to aim and press the space button to launch
- Needs a certain score (number of shots made) to move onto the next level
- As soon as the backdrop turns on, the targets immediately starts moving
- Some targets could be worth more points than others- these could be smaller targets or targets that move faster
- This is the final game, so it would make sense to have the sprites the user is shooting at to be the creature who stole the friend/pet
- Press the Flag button
- The targets are the moving fruit and they are moving in random directions except there is a horizontal asymptote right above the sprite that looks like a cannon
- The player can move left and right and press the down arrow to shoot
- If the player hits a fruit, a point is added to the scoreboard.
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- The watermelons (smallest fruit) is worth ten points whereas every other fruit as only worth one point.

Some sort of race

- As soon as they get to the backdrop there are sprites there and the person has to beat the programmed sprites maybe also overcoming obstacles
- Control using arrow keys and space?
 - Giving the character a quest or mission and they have to do that
 - Could meet other sprites along the way (enemies or friends)

Guessing/Finding Game

- The player has a choice of beach balls to choose from
- Inside each beach ball will be hidden a crab, starfish, shark, or the pet fish
- The player is timed in order to find the correct beach ball that contains their pet fish
- If the player chooses the ball that contains their fish, the game is over and they win
- If the player opens a beach ball with a shark in it, the timer starts over
- The player will be able to use all four arrows to navigate their way to the beach balls
- This is kind of like the games magicians do when they make the audience choose the right cup that's hiding an object

Order of the Final Game (What we chose after brainstorming):

1. An introduction to what happened + introducing the characters

- a. Main sprite is the diver  who is looking for their pet fish  and the overall boss of the game is the shark 
- b. The crab and the starfish are the theme of the game (the side characters that are always collected by the player)

2. Chasing (level 1)
3. Maze (level 2)
4. Finding/guessing game (level 3)

Explanation:

While brainstorming, we decided that in order to make the overall game unique, we would make each level a different mini game. We wanted everything to be ocean themed. We decided to include three levels thus three mini games. After taking into consideration the time limit and our experience with Scratch, we first chose a chasing game, a maze game, and a throwing game, respectively. Each game would progressively get harder. While developing the games, we noticed that the first two levels each dealt with the crabs and starfish being collected while the third level (the throwing game) only had the player shooting at sharks. Asking the opinions of friends and thinking through the game, we decided that this was a major discrepancy between the levels. Thus, we decided to go with a previous idea of having the third level be a finding game. This way, we could keep the common theme of crabs and starfish.

Tiers

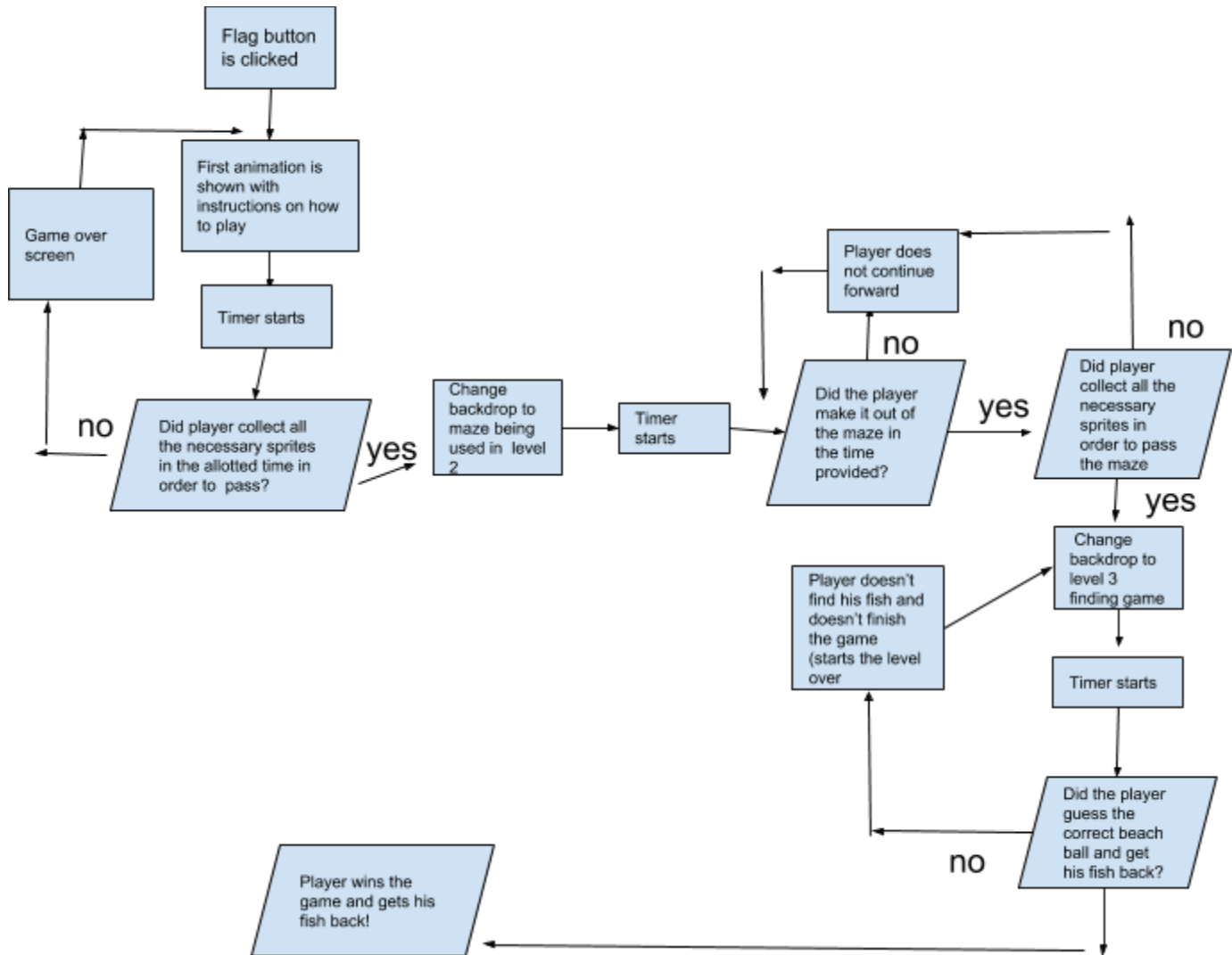
1. Tier 1
 - a. All three games working
 - b. Three levels and each one a little different (or adding onto each other)
2. Tier 2

- a. Having and developing a backstory, with an aesthetic. Get a set color palette.
- b. Having clues at the end of each mini game or a prize
- c. Introduction animation

3. Tier 3

- a. Having user interaction in the back story (the player can choose what happens to the character before and maybe after the actual game).
- b. Have the user choose the sprites

Flowcharts of Final Game



Feedback From Paired Teams

- Define what happens if you lose at one level, how would progressing work?
- The fruit game should be coming down or it could be at random locations
- As soon as one backdrop changes, the whole setup should change
- Work on how scoring on the game would work or what is required for a user to finish each game
- Is there a score needed to progress to the next level?
- What would happen if someone loses?
 - Would the players need to restart the game or would they need to only restart the level
- The discrepancy between the last level and the other two levels is too large, make sure that the common theme is continued throughout the game

Instructions and Feedback:

Instructions:

There are 3 total levels. The theme is that of a diver who has lost their pet fish. The goal of the overall game is for the diver to find their pet fish, Throughout the whole game, you will be using the 4 arrows to control where the diver sprite will go. On the first level, your task is to collect five starfish and five crabs. You have 15 seconds to complete the task. If you do that, you pass the level to level 2. This consists of a maze and the player trying to collect 5 starfish and 5 crabs in 35 seconds. However, if the player touches the shark, it's game over. The maze walls prevent the sprite to go through them and makes this level more challenging. The 3rd level is a guessing game. You have 7 seconds to navigate your way to a beach ball and find the diver's pet fish. Hidden inside each beachball is a shark, a crab, or a pet fish. If you are able to guess where the pet fish is before the timer ends, you win, but if you reveal a shark, you must restart. If you lose at any level, you will have to press the flag button to restart the whole game.

Pro: Features Liked	Con: Aspects that were confusing, buggy, or etc.
<ul style="list-style-type: none"> • I really liked how you added a good amount of time to read what the octopus was saying • I liked how the story aspect was very creative • I like how the game is very creative with a sudden increase of difficulty • I liked the visuals of the game. It worked really smoothly. • Great aspect in starting the game with allowing player to easily collect objects • I liked how there was a table that showed you how many you have already gotten of each • The dialogue is a very good way to introduce the instructions • Nice easy premise of the game, but the twist of having a shark in level 2 and a time limit adds a touch of difficulty • The guessing aspect adds luck into the game which creates a desire to beat the game good job. • The interaction of the diver with the walls works really well 	<ul style="list-style-type: none"> • I would like to see what you could do about the shark teleporting into a wall • Is there a way that the last level can be less about chance and more about skill • The game, I think, should be have more time on each level • The start of each level takes a little too long. • I had collected all the crabs and starfish and headed towards the exit, then was eaten a shark, and still won the game. • The timer could be changed based on the level • The level changes suddenly in during the second level • Doesn't go to level 3 when the user completes (was a glitch. On attempt 2 it worked) • The instruction doesn't say we have to go to the exit bar in the game to get to level 3.

Conclusion Questions: :

1. Reflect on the creative process you used. What was useful? Discuss your reflection with your partner and then write a reflection individually.

Annabel: Our approach to brainstorming was first agreeing on a common theme and then having everyone branch off from there, allowing each person to make each level unique. We all reflected on our favorite games to make each level a different type of game, adding to the uniqueness of the overall game. Having each member be open minded and understanding made the process very smooth. Even though everyone was making their own level, each team member was able to intervene and add comments or suggestions.

Stacy: It was useful to really listen to what each team member has to say and contribute ideas. Everyone's thought process is different and it's interesting to see the different perspective and how they approach the game. This made the whole experience much more fun and made a good game.

Celine: I found it fascinating listening to the ideas of my teammates and writing them down. Seeing all the ideas written down on the pages made it easier to understand them and see where there could be improvisations and strongholds. I believe that writing down the ideas and reading is easier because shy/quieter people have a better chance of getting their ideas heard and not get drowned out.

2. Reflect on the team dynamic. What helped the team work well together? Discuss your reflection with your partner and then write a reflection individually.

Annabel: Having a calm approach while speaking to each team member was key. At times, it was hard to change gears when we realized a flaw in our game but remembering our overall goal of the project helped us not get too attached to our ideas. Everyone worked really well together, even through the miscommunications because we respected each other and our ideas.

Stacy: Overall, I think our team got along well and we managed to accomplish everything we planned on. At the beginning, there were a few moments we were confused on a specific idea for the game, but we worked it out. Everyone contributed around the same amount and took part in the project.

Celine: I believe we worked well together as a team and were able to distribute the work easily between the three of us. Although we did have some disagreements and miscommunications, we were able to work together find a solution that worked for everyone.

Daily Logs

Color coding:

Stacy

Annabel

Celine

Everyone

Day 1 8/30/18

- Introduced to the project
- Brainstormed possible games and ideas
- Worked on developing the ideas more in detail at night for homework and choosing the three main games

Reflection: We were both very open minded to each other's ideas and agreed right away with what we wanted to do. We made it clear at the very beginning what our goals would be and understood that work outside of the classroom would have to be done.

Day 2 8/31/18

- Joined Stacy and Annabel's team
- Finalized main 3 games used in our overall game
 - Finalized on the idea of having 3 mini games connected to an overall story
- Decided what goes in top 3 tiers
- Assigned a mini game to each team member so that they can work on it at home
- Paired up with sharing partners (another group) and got feedback

Reflection: We were open to the new addition of our team. While sharing original ideas from our initial team, our new team member was very excited about them and was eager to contribute her own ideas as well. We made it clear that because our team consisted of more members, we would need to push ourselves and have an excellent work ethic both at home and in the classroom.

Day 3 9/1-9/2

- Started coding the chasing game (level 1)
- Made the main character and the main plot of the game
- Made sure the keys and characters correspond and showed how it works
- Created a timer for the chasing game (10 seconds) and the score of the starfish and crab (the things the main character has to collect)
- Detailed how throwing game would work and the causes and effects of the game
- Continued brainstorming ideas as well as sketching concepts for the game levels.

Reflection: We kept our promise of having great work ethic outside of school but there were a few miscommunications due to bad cell reception. While discussing the discrepancy between our second and third level, we were unsure how necessary a change would be. While remembering to keep an open mind, we decided to restart the development process of the third level.

Day 4 9/4/18

- Added comments to all of my code and explained how and what each character does based on what block it is
- Continued with documentation as well as flowchart
- Continuation of working on maze level (level 2)
- Organized documentation
- Brainstormed another game to replace the throwing game (for the third level)
- Began development of the new level three

Reflection: We organized and figured out who's doing what parts and when. Made a plan for the week and how we were going to spread out our time so everything is done in time. This made the team work better together, overall, and kept us on task.

Day 5 9/5/18

- Decided to replace the third level Throwing Game with the Finding Game
 - Decided that the final game will be as follows:
 - 1st level is a Chasing Game
 - 2nd level is a Maze
 - 3rd level is a Finding Game
- Finished developing Finding Game
 - Working out all of the bugs
- Finalized the flow chart (edited it to have all the details).
- Finished mechanics of shark, and game over for level 2
- Created script for the walls of level 2
- Finished level 2

Reflection: Made final decisions as a group at what each level is going to be about and how we are going to create the whole game. Checking each other after one finishes coding a game was helpful, because it lets other points of view to see the game and how we can improve it. Everyone was working well and doing their parts, this made the whole project work.

Day 6 9/6/18

- Played everyone's game to check that everything works and is easy to understand
- Added final comments
- Replayed the final game to make sure there were no more glitches
- Fixed minor mistakes like typos and small glitches
- Connected Level 1 and 2 together
- Fixed bugs between both games
- Played level 1 to check for errors
- Helped attach level 3 to levels 1 and 2
- Combined level 2 and level 3 games together
- Made final comments and changes on level 3
- Worked out glitches on the final game with all 3 levels attached

- Helped finish the final game making sure that code from different levels didn't interfere with code from other levels

Reflection: We worked together as a team to help combine the levels together and make the final transitions. Therefore, if there were any glitches or bugs all three of us could look at it and see how we can fix it.

Day 7 9/7/18

- Gallery walk of everyone else's projects
- Received mostly positive feedback

Reflection: After playing everyone else's game and reviewing all of our feedback, we were really proud of being able to pull off three levels, each being its own mini game.

Day 8 9/8-9/9

- Worked on adding final touches to documentation and making sure that everything is in order.

Reflection: The work on documentation was successful because everyone carried their own weight and was very flexible with their time availability.