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What Is Cancer - Game Outline

This is a non-technical explanation on how the code is written and everything that goes within it.

Guidelines for the document

Bold: Titles of the Scenes

Italic: Connecting Scenes

Purple: Buttons

Green: Variables

Red: Variables that get automatically updated

Yellow: Future improvement recommendations

Light blue: Functions

Brown: Graphics

Light Pink: Pending

Menu Scene

- Play Button → takes you to *instruction scene*

- Recent Score (easy, medium, hard, expert)

- High Score (easy, medium, hard, expert)

- Recommendation: Create a separate scene for recent and high scores for each level.

  - You could also make the background change depending on the last level played and only display the recent and high scores from that game.

Instructions Scene

- Character and three bubbles: simple backstory and instructions for the game.

- Skip Button → takes you directly to *Goal Scene*

- Previous Arrow → to previous instruction

- Next Arrow → to next instruction (after clicking the arrow for the 3rd time it takes you to *goal scene*)

Goal Scene

- Instructions button → takes you back to *Instructions Scene*

- Background: Changes depending on the level being played.

- Goal Graphic

  ○ Fish graphic: updates the number depending on the fish number set in the function goalSetUp(). Right now the fish is set to 75.

    ■ Recommendation: create a dictionary to change the fish goal number depending on level.

  ○ Timer graphic: should update to the time from the last unlocked difficulty.

    ■ Now it is set up to 60sec as stated in goalSetUp().

  ○ Difficulty buttons → takes you to the corresponding difficulty mode in *Game Scene* (and to the correct level being played).

    ■ The difficulties only appear on the screen once they have been unlocked, if they were once unlocked they will remain unlocked.

Game Scene

- Health bar - maxHealth: A dictionary with different amount of little health boxes depending on difficulty. Meaning that the higher the difficulty the faster the user will lose its health.
  - ["easy": 15, "medium": 10, "hard": 5, "expert": 3]
- Timer - counterStartValue: A dictionary with different times depending on difficulty
  - ["easy": 75, "medium": 60, "hard": 45, "expert": 30]
- Score - currscore: Counts how many fish have been tapped, excluding the "sick fish."
- Fish goal to reach - goalNum: This variable is connected to fish variable in *goal Scene,* therefore it will be updated whenever fish is changed in *goal scene.*
- Difficulty - Variable is updated depending on the difficulty selected in the *Goal Scene,* which tells the dictionaries the values it should use for this game mode.
- Fish graphics differences:
  - red: worth +1pts.
  - white: worth +2pts.
  - platelet: fast fish, worth +20pts if tapped.
  - Sick: Lowers health
  - Power Ups:
    - Redpu: Grants extra life.
    - Plateletpu: adds 25sec to the timmer.
    - Whitepu: reduces speed of fish.

- Recommendation: add a function for an antidote that will be displayed only after a certain amount of fish have been tapped (example. Every 25fish), that will allow for a short period of time (example. 10sec) to turn sick fish, when tapped, into healthy fish. A graphic was already created (cure). (Idea from one of the patients)

- General functions:

  - Actions: Randomizes fish motion and appearance.

  - Idea: Each level goes in deeper in the ocean, meaning the third level is very dark in the deep sea.

- Overview of scene appearance:

  - Score text - keeps track of currscore.

  - Timer text - count down of the timer set by the difficulty.

  - Question mark - pops up a helpinstructions with descriptions of all the fishes and what they do. It is also a way to pause the game.

  - Health bar - updates depending on the user, if sick fish is tapped it goes down, if health reaches 0 it goes to the *gameover scene*.

  - Goal text - updates depending on the fish variable from *goal scene*, to remind the user of the goal they must reach in order to unlock other levels.

  - Exit button → leads to Menu Scene

- Unlocking:

  - All difficulties have to be unlocked in order to go to the next level, which can only be unlocked when the goal has been reached.

    - If the goal is reached a pop up for "difficulty unlocked" will come up.

- If the difficulty is on expert then the pop up will be "Level unlocked".

- Recommendation: Make the pop ups only appear when the next difficulties or levels haven't been unlocked, not every time the goal is reached.

Level 1

- Normal set up of the game, everything is in *Game Scene*.

- Background: is close to the shore, a lot of light and simple fishes. (Image named: Background)

Level 2

- *Ocean Scene*: Extension of *Game Scene.*

- Different background deeper in the sea (image Named: Level2_CS)

- New items:

  - Shark: if tapped decreases health and makes the fish that cross it disappear.

  - Current: fish go faster when the current hits them.

Level 3

- *Deep Scene*: Extension of *Ocean Scene.*

- Background is deep in the sea (image Named: Level 3)

- Light: this levels is completely dark, the fish are only scene when the flash light is facing them.

<u>Level Scene</u>

- *Game Scene* will lead to *Level Scene* only if the goal has been reached and the time ended.

- Difficulties will be unlocked by adding a yellow circle, a pop up label with fireworks will be displayed with the difficulty that was unlocked. This will only happen if it is the first time unlocking it, if the same difficulty has been replayed then the label won't pop up.

- Levels will be unlocked by changing the background to the deeper level unlock background and including a label pop up with fireworks stating that a level was unlocked.

- Labels to transfer between levels will be displayed if those levels have been already unlocked.

- If in level 1: Background graphic - level1_unlock

- If in level 2: Background graphic - level2_unlock

- If in level 3: Background graphic - level3_unlock

  - If all levels have been unlocked (image named: allUnlocked) will be displayed with the levels labels that if clicked will take you to the *goal scene* and into the correct level.

- Home button → goes back to *Menu Scene*

- Play button → goes to *Goal Scene* set into the current level played.

- Level labels → go to *Goal Scene* set into the level tapped.

- *Levels Scene* tells *Goal Scene* what difficulty labels to display and in what background depending on level.

- Recommendations: Instead of having play button make it be the current level label, if all levels have been unlocked only display the "allUnlocked" graphic regardless of the level being replayed.

Game Over Scene

- *Game Scene* will take you to *Game Over Scene* if the goal wasn't reached before time ran out or if health was lost before the goal was reached.

- Displays a label saying "Game Over." and the score that was achieved during that game.

- If any level has been unlocked it will display it's label at the top, therefore any previously unlocked level can be played.

- Home button → takes back to *Menu Scene*.

- Recommendation: Improve the display of the game over scene.

General comments:

- Recommendations: Add as many power ups, levels, or extra challenges in the current levels. Add some music and audio effects to the game, and the instructions text in audio as well for younger kids that have a harder time reading.

- There is room for a lot of improvement to make it more fun and challenging. There is also room to make some of the code more effective and simple based on the ideas from the current code.