**PROG1935 – Assignment 1**

**Catch the Cat!**

**Due date & Time: February 09,2025 @ 11:59 PM**

**Objective:**

You’ll notice that this assignment incorporates many of the same concepts we discussed in class, such as DOM manipulation, event handling, and the use of timing functions like setInterval and setTimeout. As you work on this, keep in mind that your solution should reflect the approaches and best practices we’ve explored together during our discussions. This will ensure that you’re applying what you’ve learned in a meaningful and practical way.

Create a simple interactive game where the goal is to "catch" a moving cat image by clicking on it. The cat image will move randomly across the screen, and the player must click it as many times as possible within a time limit. The game will include dynamic DOM updates, event handling, and timing functions.

**Given:**

1. **A folder is provided with all required folders along with “index.html”. Do all your work in the given folder, as you will be submitting it when done.**
2. **“index.html” (Already done for you with all necessary CSS – you just need to link both CSS and JS files in the sheet):**
   * + There is a div with an id="game-area" that covers the entire viewport.
     + Inside the game-area, there is an image (img tag) with an id="cat"
     + Also, there is a div with an id="score" to display the player's score (number of times the cat is clicked).
     + Moreover, one div with an id="timer" to display the remaining time.

**Requirements:**

1. **Random Movement:**
   * Use setInterval to move the cat image to a random position within the game-area every 500 milliseconds.
   * Ensure the cat image stays entirely within the bounds of the game-area.
2. **Score Tracking:**
   * When the player clicks the cat image, increment the score by 1 and update the score display.
   * Move the cat to a new random position immediately after it is clicked.
3. **Timer:**
   * Set a countdown timer for 30 seconds.
   * Update the timer display every second.
   * When the timer reaches 0, end the game by:
     + Stopping the cat's movement.
     + Displaying a "Game Over" message with the final score.
     + Removing the cat image and timer.

**Instructions:**

1. Use **function declarations only**.
2. Use querySelector to manipulate the DOM.
3. Use addEventListener to handle click events on the cat image.
4. Use setInterval and setTimeout for timing-based functionality.
5. Use Math.random() to calculate random positions for the cat image.
6. Ensure the code is clean, well-commented, and follows best practices.
7. As given above, use all the methods/functions/techniques that were discussed during the classes. **[If not sure, look at the class recordings, and make sure you comply with the requirements]**

**Submission Instructions:**

1. To submit this assignment, as mentioned before do all your work in given folder and rename it like **Assignment1\_alex** (**alex** being your first name) and then(.Zip) this folder and submit the zipped file to eConestoga.
2. No cover sheet is required for this assignment.
3. A good way to make sure everything is correct; is to unzip the file you are submitting on a different location on your computer and making sure everything works.
4. Relative links should be working fine.
5. Be careful in submitting your assignment, wrong submission will be graded 0 without any re-submission.