Web Development – Mr. Turner

Project – Codebreaker

Project Overview

As an international sneak thief, you break into vaults all the time. Riddling out a simple 3 digit code is child's play for you. But you must be getting sloppy in your old age because you've tripped an alarm. In no time at all, the police will be all over the place. Can you get into the vault before they arrive?

The user will have to crack a 3 digit random code in 7 turns. Each time the user completes a 3 digit guess, the computer will tell him or her whether the code is higher, lower, or correct.

Display

The list below includes the essential elements of the page.

- The "clock"
  - The clock will start at 7 and count down each time the user makes a guess.
- The "vault"
  - The vault has a series of buttons labeled "1" through "3".
  - The vault has a "clear" button.
  - The vault has a display of the user's current guess.
- A log of events.
- The page should have an intuitive display using HTML.

Functionality

The clock will start at a value of 7.

The computer will generate a random, 3 digit code using the digits 1 through 3. *Note that you cannot simply generate a random number between 111 and 333 because that will include numbers with the digit 0.*

The user will enter guesses by clicking on the buttons. Each time the user clicks a button, that number will be concatenated onto the guess. *If the user clicks the 3 first, the 2 second, and the 3 third, his or her guess will be 323.*

Once the 3rd digit is entered, the guess is automatically submitted and compared to the combination. If the guess is higher or lower than the combination, the computer will add the appropriate clue to the log. Subtract 1 from the clock after each guess and clear out the guess. If the guess matches the code, then the user has cracked the vault.

If the user clicks on the *clear* button, clear out the guess.

At the end of the game, generate a new code and let the user play again.

Enhancements

- Keep score for the player by adding up the leftover turns on the clock each time the player cracks a code. If the user is caught by the police, reset the score to 0. You'll need to add a score section to the display.
- After each turn, add a 5% random event that may add or subtract a turn.
    - Traffic jam. The police will be held up by one turn.
    - In the area. The police will show up 1 turn sooner.
    - Make up some of your own...

Necessary Programming Skills

- Comprehension of the specifications sheet.
- Design Document
    - Figure out the information you need to keep track of.
        - This information will become your global variables.
    - Plan out the individual tasks your program must perform.
        - Think through the steps for each task.
        - Think through the information your task needs (where does it come from?).
        - These will become your functions.
    - Plan out the user interface.
        - You can start with the barest interface, but you should have an idea what you want the final product to look like.
- Managing your variables
    - What's global, local, and passed through as parameters (hint - this program can use all three)?
- Assigning functions as tasks
    - Does your program sort out the different tasks into their own functions?
- Sequencing
    - Does your program sequence from the user interaction into the necessary functions?
    - Is there an efficiency to your code that flows from the design document?
- An intuitive user experience
    - Is your display appropriate to the program (what's viewable and what scrolling has to be done)?
    - Is your display adaptable to other resolutions?
    - Is the interface intuitive?