

## PROJECT 7 – Password Guessing Game

### (A total of 60 points)

In this game, the computer will randomly generate a 4-digit password, and you will have 5 attempts to guess the password. The computer will also give you a few "hints."

**Your program will do the following:**

- ✓ Generate a 4-digit password, using integers 1 through 9 and the random number function.
- ✓ Let the player guess the 4-digit-number password and enter the 4-digit-number on screen. The user has 5 chances to enter the password.
- ✓ Display some "hints," one hint the first try, two hints the second try, and three hints the remaining tries.  
For example,
  - The number is divisible by 3, the 1<sup>st</sup> digit is 2 and the last digit is 1.
  - The remainder of the number divided by 17 is 3, and the second digit is 6.
- ✓ If the user fails, your program will display "You lose! Password is frozen!"
- ✓ Ask user if he wants to play again.
- ✓ If the user is able to guess the password correctly, your game will display "*Excellent! You did it! Now would you like to play again (Y/N)?*"
- ✓ If the user enters "Y", then you generate a new password, and repeat the game, otherwise display "Good bye" or some other message and exit the game.
- ✓ If user exists game the only way for him to reactivate the game is to reload the page. However, if user continues to play you have to keep and display the score:
  - a. The number of times user played.
  - b. The number of times user won and lost.
  - c. Average and median number of attempts it took to guess the password for the games user won. Note that you have to keep number of attempts for each game to calculate correctly average and median.
- ✓ When user reloads the page, all scores will be zeroed out.
- ✓ Use HTML and CSS to make your game look attractive. Use graphics, animation and sound effects where appropriate.
- ✓ The game should be part of a story which, culminates in the password guessing. Each win or loss should change something visually on your webpage (besides the various counters) that fits into the narrative of your story.

#### Additional Information:

*Suggestions for a story plot (you can choose any plot you like, not only those below):*

- ❖ *A hero's quest story*
- ❖ *A scientific Discovery story*
- ❖ *A spy story*
- ❖ *A bank robbery story*
- ❖ *A prison break story*
- ❖ *Election story*

*Please note that you shouldn't repeat the same hints over and over again. Have a pool of twenty or more hits. For example, you can use a random number generator to choose a function from the pool. The pool can be an array of functions that is indexed by a random integer in the given range or a function that calls one of your functions from the pool based on its argument (where you pass randomly generated number). Each hint function can provide a unique (but not too obvious suggestions) based on user's guess, correct answer, and the number of remaining attempts.*

## Grading rubrics:

- 1) Using loops correctly:
  - a. Initialization (2 points)
  - b. Correct code in the Body of the loop (2 points)
  - c. Proper loop termination (2 points)
- 2) Using conditional blocks correctly (4 points)
- 3) Using the random number generator correctly (2 points)
- 4) Utilizing arrays in a meaningful way (4 points)
- 5) Utilizing objects in a meaningful way (4 points)
- 6) Indenting (2 points)
- 7) Comments (For JavaScript only) (4 points)
- 8) Using JavaScript to modify HTML content (4 points)
- 9) Using JavaScript to modify CSS presentation (4 points)
- 10) Keeping the score from game to game (4 points)
- 11) Calculating average and median number of attempts (4 points)
- 12) Proper structure of your project: putting CSS, JS, and Image files into corresponding subdirectories and referencing them correctly (4 points)
- 13) Ease of use for the game player.  
Well-designed diverse contextual hints and  
efficient game play and algorithm design (6 points)
- 14) Creativity and originality,  
including the story line and appearance (8 points)

## Due Date:

The project is due Friday, May 27, 11:59 PM.

To submit your project, you must:

1. Create a folder within your shared folder called Project7.
2. Upload your JavaScript file to be graded into your Project 4 folder

**Note:** Test your program extensively before submitting. Please utilize Console facilities of JavaScript that can be activated

- Google Chrome: press **F12**
- Firefox: press at the same time **Ctrl Shift K**

**Initial progress report** (at least 1 page). Due Monday, May 17, 2017

**The Final Summary** (at least two pages) due FRIDAY, May 28, 2017, at 23:59

*What did you learn? How your ideas change? How can be this project extended?*