# Midterm: Hangman

## **Objective**

For the midterm project you will be demonstrating your understanding of everything you have learn about JavaScript this far to create a text-based version of Hangman.

## **Game Play**

The player is presented with a puzzle, usually a common phrase or title, and the player must guess letters to solve the puzzle. If player guesses a letter that is not in the puzzle, the player receives a strike. After a predefined number of strikes, the player loses the game.

For this version, the player will be able to perform 3 actions.

#### **Start**

This is how the player will start a new game with a new puzzle and strikes set back to zero. A blank puzzle will be displayed a long with the puzzles category.

Guess

This is the main action the player will use throughout the game. The player will provide a letter that they wish to guess. If the letter is in the puzzle the player will be displayed the puzzle again with a letter filled in. If the letter is not in the puzzle the player will receive a strike and the puzzle will be displayed as it was previously. If the letter is not a valid letter (e.g a number or symbol) or the letter has been previously guessed the guess action should response stating that letter was invalid. After a guess, if the max number strikes has been met the player has lost and the game should end. If the puzzle has been completed the player has won and the game should end.

Help

The help action will give player a set of instructions on how to play the game. The instructions should be display when the page is loaded.

## **Requirement**

The following requirement must be met in order to complete the assignment successfully:

1. Create the puzzles. Each puzzle must have a phrase and a category. There should be a minimum of 20 puzzles.
2. Create a game object. The game object will hold the current game's status including:
   1. The guessed letters
   2. The number of strikes
   3. The maximum number of allowed strikes
   4. The current puzzle
3. Create a help function that will display all the instruction to the player on how to play the game. The instruction should appear immediately when the page loads.
4. Create a start function that will be start a new game. All the game status properties should be reset. It should randomly select a new puzzles, and a display the puzzle to the player a long with the puzzles category.
5. Create a guess function that will be used by the player to guess a letter. Check if the letter is in the puzzle. If it is provide confirmation to the players and display the puzzle with the guessed letter in the spots it belongs. If it is not, increase the number of strikes, provide message that it could not be found and display puzzle as it had been before the guess.
6. After each guess, the game should check the number of strikes, it is more or equal to the maximum number of strikes the player has lost the game. The player should not be able to make any more guesses.
7. After each guess, the game should check if the all the letters of the puzzle have been filled in. If so, the player has solved the puzzle and won the game. The player should not be able make any more guesses.

## **Bonus Points**

For additional points, add difficulty levels to the hangman game. The following requirements must be met to get the full bonus points.

1. There should a minimum of two difficulty levels.
2. Each puzzle should be given a difficulty level.
3. Provide a interface for the player to set the difficulty level during the start action.
4. The player should be able to play without setting the difficulty.
5. The max number of strike can also be changed based on the difficulty level.

## **Hints**

Below are a few suggestions, recommendations, and answers to common questions on how to complete this project. This list will be updated as questions arise.

1. You will need more functions than just the ones used for the actions. For example, I suggest creating a function that will convert all the puzzle's letters to "\_" and get it ready to display to the player.
2. I recommend working with all capital letters. It will simplify things when checking if a letter is in a puzzle. You can use string method toUpperCase() to convert a string to all capital letter. ([Docs (Links to an external site.)Links to an external site.](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/toUpperCase)).
3. The array method indexOf() will return the index of first instance of a value in an array. If the value is not found it will return the value -1. ([Docs (Links to an external site.)Links to an external site.](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/indexOf))
4. A string is just an array of characters. A single character can be access using an index. Strings share some of the same methods as arrays including indexOf(). ([Docs (Links to an external site.)Links to an external site.](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/indexOf))
5. The string method split() will convert a string to array. ([Docs (Links to an external site.)Links to an external site.](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/split))
6. The array method join() will convert an array to a string. ([Docs (Links to an external site.)Links to an external site.](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/join))

## **Example**

The following video is an example of how a finished version of the assignment could look like. For this example, I used a very short puzzle, I recommend using longer puzzles for your finished project. **There is no audio.**

https://www.youtube.com/watch?time\_continue=47&v=Z0w-\_yueIFY

**Hangman Rubric**

| Hangman Rubric | | |
| --- | --- | --- |
| **Criteria** | **Ratings** | **Pts** |
| This criterion is linked to a Learning OutcomeCreate a list of puzzles where each puzzle has a phrase and a category. Must have a minimum of 20 puzzles. | |  |  | | --- | --- | | 5.0 pts  *Successfully created a list of 20 or more puzzles with each puzzle having a phrase and category.* | 0.0 pts  *Failed to created a list of 20 or more puzzles with each puzzle having a phrase and category.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate a game object to hold the current game status.  *The game object must properties to track of the player's guesses, strikes, the maximum number of strikes, the current puzzle, and if a game is currently active.* | |  |  | | --- | --- | | 5.0 pts  *Successfully created a game object with all the required properties.* | 0.0 pts  *Failed to create a game object with all the required properties.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate a start action so the player can start a new game | |  |  | | --- | --- | | 5.0 pts  *Successfully created a start action that reset the game status and displayed a new puzzle with category for the player.* | 0.0 pts  *Failed to create start action for the player to start a new game.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate a guess action so the player can guess a letter. | |  |  | | --- | --- | | 5.0 pts  *Successfully created a guess actions that allows the player to guess a letter and check if the letter is a valid letter (e.g. not a number or symbol).* | 0.0 pts  No Marks  *Failed to created a guess actions that allows the player to guess a letter and check if the letter is a valid letter (e.g. not a number or symbol).* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate the proper response when the player's guess is correct.  *If the player's guess is correct, the game's status should be updated and a response should given stating the guess was correct followed by the updated puzzle with the guessed letter in the correct spots.* | |  |  | | --- | --- | | 5.0 pts  *Successfully updated the game status and displayed the updated puzzle when a player's guess was correct.* | 0.0 pts  *Failed to updated the game status and displayed the updated puzzle when a player's guess was correct.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate the proper response when the player's guess is incorrect.  *If the player's guess is incorrect, the game status should be updated and a response should be given stating the guess was incorrect followed by the puzzle in current state.* | |  |  | | --- | --- | | 5.0 pts  *Successfully responded to the player's incorrect guess and properly updated the game status.* | 0.0 pts  *Failed to respond to the player's incorrect guess and properly updated the game status.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate the proper response when the puzzle has been completed  *If the player's completed the puzzle, the game's status should be updated and a response should given stating the player has won the game followed by instructions on how to start a new game.* | |  |  | | --- | --- | | 5.0 pts  *Successfully updated the game status and displayed the proper message that player has won the game.* | 0.0 pts  *Failed to updated the game status and displayed the proper message that player has won the game.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate the proper response when the maximum number of strikes has been reached  *If the maximum number of strikes has been reached, the game status should be updated and a response should be given stating that the player has reached the maximum number of strikes and lost the game follow by instructions on how to start a new game.* | |  |  | | --- | --- | | 5.0 pts  *Successfully updated the game status and displayed the proper message that player has lost the game.* | 0.0 pts  *Failed to updated the game status and displayed the proper message that player has lost the game.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomePrevent the player from making guesses when there is no current game.  *If the player has just won or lost a game and/or has not started a new game, the player should not be allow to guess, and a response should be given stating that there is no active game followed by instructions on how to start a new game.* | |  |  | | --- | --- | | 5.0 pts  *Successfully prevented the player from making guesses when a game is not active and displayed the proper message.* | 0.0 pts  *Failed to prevented the player from making guesses when a game is not active and displayed the proper message.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeCreate a help action so the player can get the game instructions.  *The help action should allow the player to get the game instructions at any point. The instructions should also be display immediately when the page has loaded.* | |  |  | | --- | --- | | 5.0 pts  *Successfully created a help action that display the game instructions for the player and displayed them when the page first loads.* | 0.0 pts  *Failed to created a help action that display the game instructions for the player and displayed them when the page first loads.* | | 5.0 pts |
| This criterion is linked to a Learning OutcomeBONUS: Add difficulty level to the game.  *Add the ability for the player to set the difficulty level when the game has started. Puzzles should be given a difficulty level and puzzles should be picked based on the difficulty setting.* | |  |  | | --- | --- | | 10.0 pts  *Successfully completed all of the requirements for adding difficulty levels to the game.* | 0.0 pts  *Failed to completed any of the requirements for adding difficulty levels to the game.* | | 10.0 pts |
| Total Points: 60.0 | | |