Lesson activity: Programming challenge 3 Guess the word

Exercise 1

Create a program that lets two players play a game called 'Guess the word'.

- Player 1 enters a secret word that Player 2 must guess.
- The program displays the length of the secret word to Player 2.
- Player 2 enters a single letter, and the program determines whether that letter is in the secret word, and how many times it appears within the secret word. The result is displayed to Player 2.
- Player 2 can enter a single letter three times, then they are asked to guess the complete word.
- If Player 2 enters a word that matches the secret word entered by Player 1 then Player 2 wins the game. If Player 2 enters an incorrect word then Player 1 wins the game.

Figure 1 is a very basic example of how the program could work. You can customise it to be more user friendly.

Figure 1

```
Welcome to Guess The Word game
Player 1 please enter the secret word
Secret word: banana
Player 2 you must guess the secret word
The word length is 6
Player 2 enter a letter: b
Letter b: count: 1
Player 2 enter a letter: a
Letter a: count: 3
Player 2 enter a letter: n
Letter n: count: 2
Player 2 enter the WORD: banana
Player 2 wins!
>>> |
```

Exercise 2

Amend the program so that Player 2 is no longer restricted to three letter guesses. Player 2 can continue to guess a letter until they decide to guess at the word.

For example:

```
Welcome to Guess The Word game
Player 1 please enter the secret word
Secret word: banana
Player 2 you must guess the secret word
The word length is 6
Player 2 enter a letter: b
Letter b: count: 1
Do you want to guess the word?
Y or N: n
Player 2 enter a letter: a
Letter a: count: 3
Do you want to guess the word?
Y or N: n
Player 2 enter a letter: n
Letter n: count: 2
Do you want to guess the word?
Y or N: Y
Player 2 enter the WORD: banana
Player 2 wins!
>>> |
```

Exercise 3

Amend your program to add validation:
- Secret word validation
  - lower case letters a-z only
  - length between 6 and 12 letters
- Single letter validation
  - lower case letters a-z only
  - length 1 letter
  - letter has not been used in an earlier guess
- Win validation
  - If Player 2 has guessed all the letters in the secret word they are asked to guess the secret word and not allowed to guess any more letters.

If validation fails, then an appropriate error message is displayed.

Exercise 4

Amend the program so that after each guess of a single letter, the word is displayed with guessed letters in the correct place and an underscore displayed representing letters in the secret word that have not been guessed.

For example, if the secret word is banana and Player 2 has guessed `b` and `a` then `ba_a_a` is displayed.

Extension 1

Add the ability to enter spaces to extend the secret word into a secret phrase, with a length validation between 6 and 20 letters.

Add Difficulty Levels. When the game starts ask Player 1 choose a difficulty level of 1, 2 or 3. Level 1 is the easiest level and 3 is the hardest.

If Player 1 chooses a difficulty level of 1 then the length of the secret word or phrase must be between 6 and 10 letters, and Player 2 is allowed up to 8 guesses.

If Player 1 chooses a difficulty level of 2 then the length of the secret word or phrase must be between 11 and 15 letters, and Player 2 is allowed up to 6 guesses.

If Player 1 chooses a difficulty level of 3 then the length of the secret word or phrase must be between 16 and 20 letters, and Player 2 is allowed up to 4 guesses.

Extension 2

Add a menu for the game:
- play single game
- play multiple games and keep score
- exit game.

When playing multiple games your program will prompt each player to alternate roles, setting and guessing the secret word or phrase. A score is kept for the number of wins for Player 1 and Player 2. The program should allow either player to end the match and display the scores. The program then returns to the menu.