

WORKING WITH STRINGS: PROGRAMMING EXERCISES

1. **Pico, Fermi, Bagels** is a game in which a random three-digit number is generated and the user has to guess the secret number. To help the user guess the number, the computer will provide clues. The clues are as follows:

If 1 digit in the user's guess is correct and in the correct position, it will output FERMI.

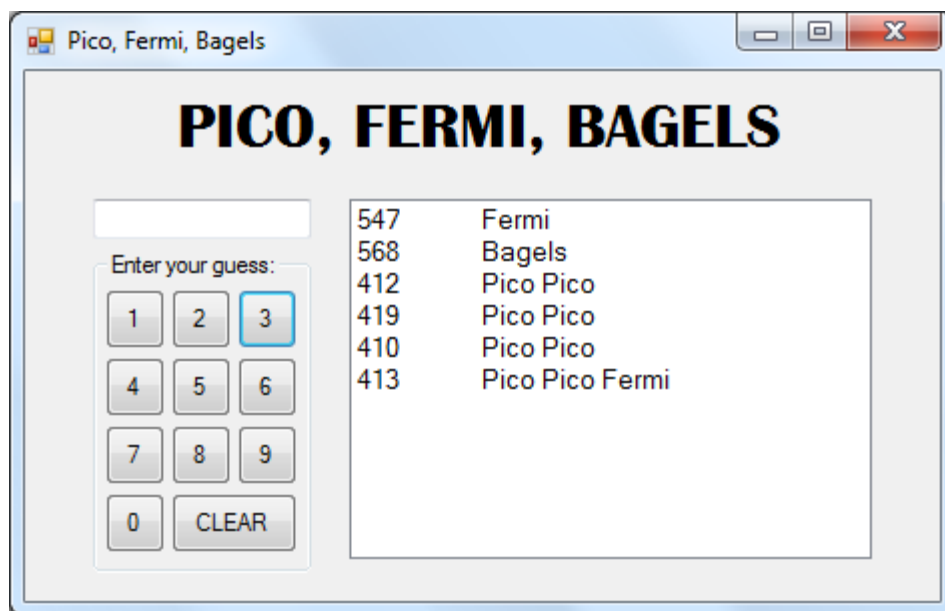
If 1 digit in the user's guess is correct but in the wrong position, it will output PICO.

If none of the digits that the user guesses is correct, it will output BAGELS.

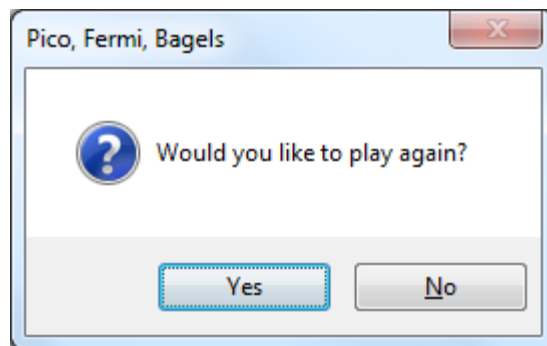
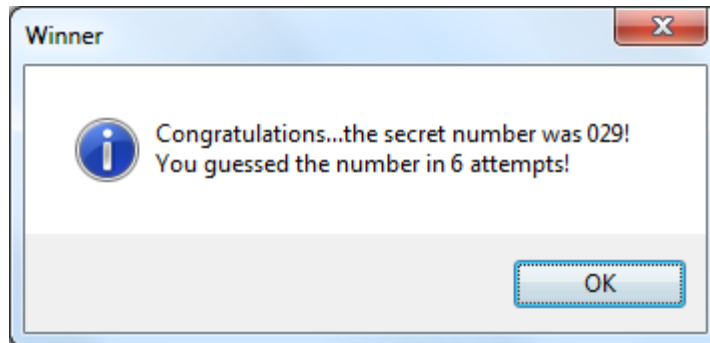
So, for example, let's say the computer generates the number **489**. The program would output the following based on the user's guess:

GUESS	OUTPUT	REASON
362	Bagel	No digit is correct
820	Pico	The 8 is in the wrong place
418	Pico Fermi	The 8 is in the wrong place, the 4 is in the correct place
518	Pico	The 8 is in the right place
487	Fermi Fermi	The 4 and 8 are in the right place
489	Fermi Fermi Fermi	All digits are in the correct place

When the program launches, the program must generate a three-digit number where no two digits of the secret code are the same. Users will then need to enter their guess by entering a 3-digit number using the number pad. Once the user enters three unique digits, the program must output the result in the ListBox:

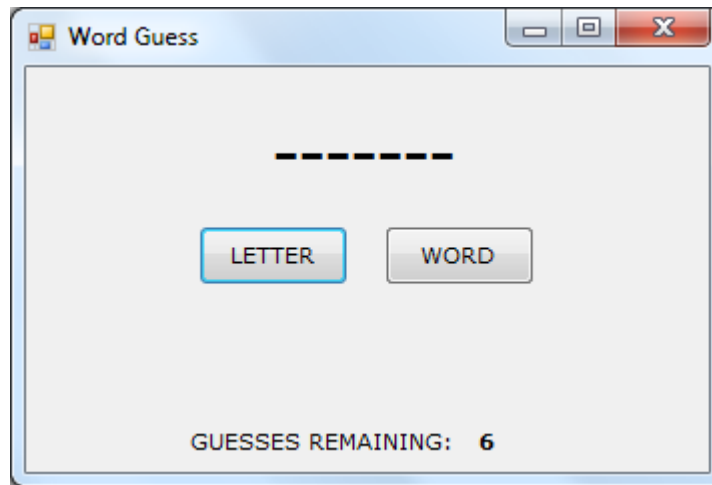


Users will need to continue entering their guess until they guess the correct number. Once users guess the number, a message should be outputted indicating how many attempts it took them to guess the number and then ask the user if they want to play again:

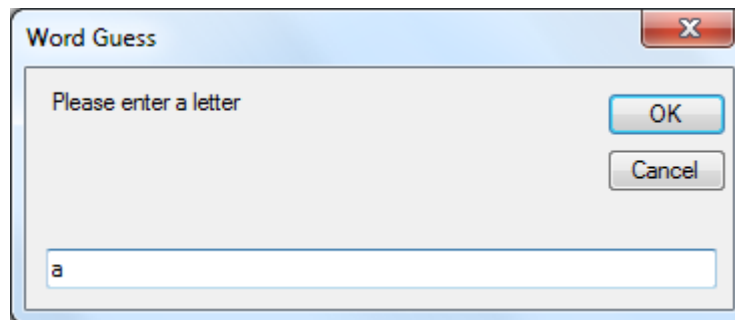


Save the project as **Pico Fermi Bagels** in your UNIT 5 folder.

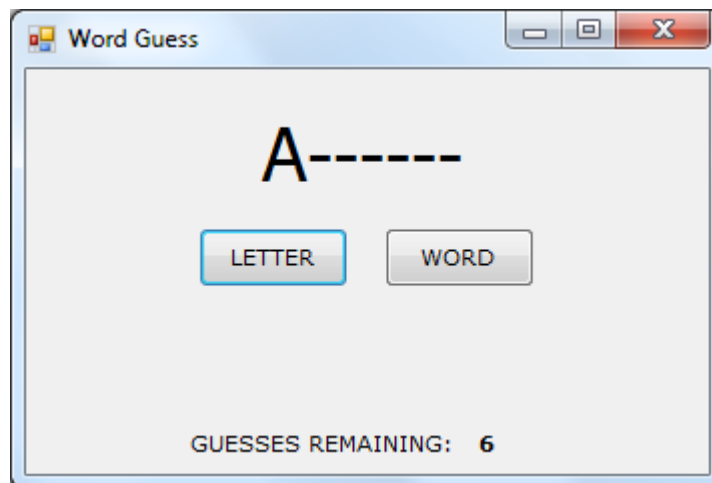
2. Create a **Word Guess** program that randomly generates one of 10 possible words and allows the player to guess the letters of the secret word. At the start of the game, the player is shown only how many letters the word contains through a set of dashes.



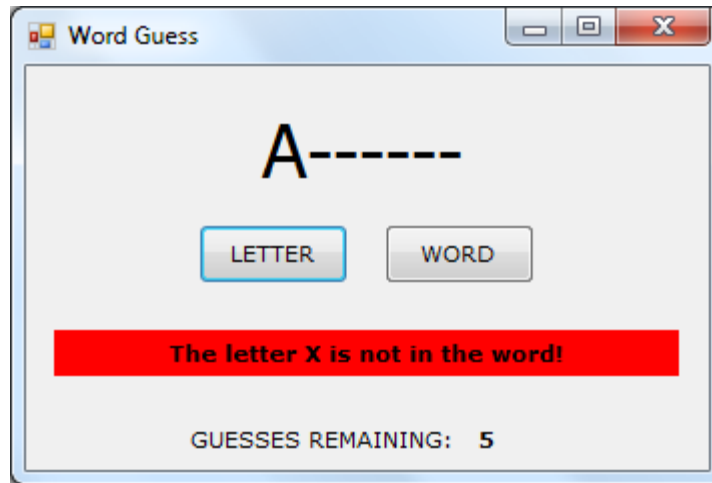
When the user clicks the **LETTER** button, an input box should be displayed prompting the user to enter a letter:



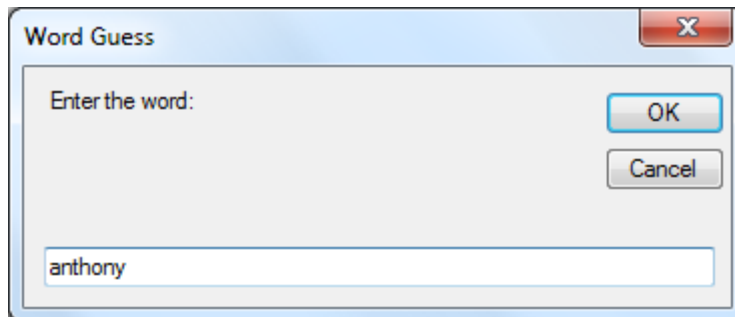
If the letter the user guesses is contained in the word, the dash should be replaced at the position(s) where the letter occurs:



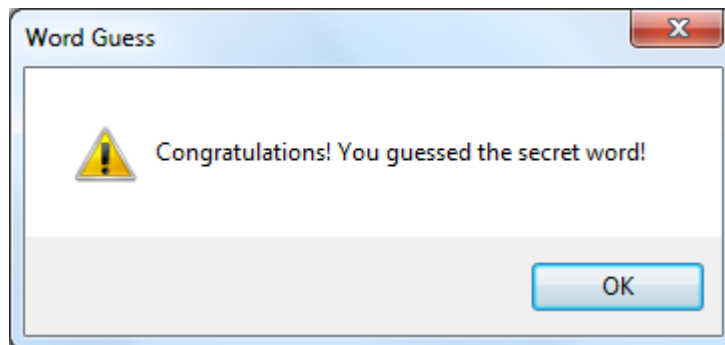
If the letter that the user guesses is not contained in the word, a message should be displayed in a label letting the user know that they guessed incorrectly:



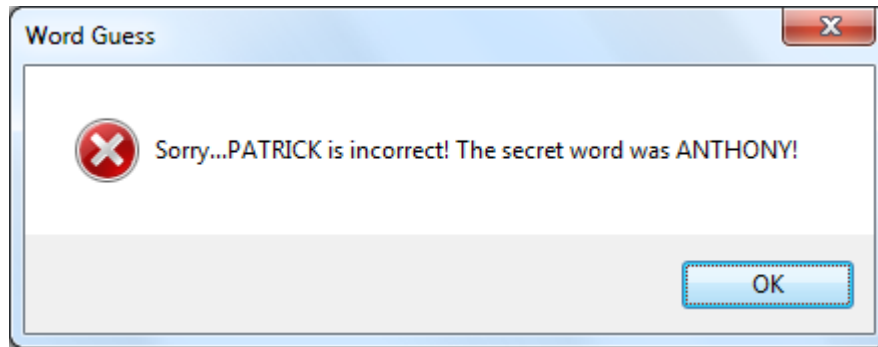
When the user clicks the WORD button, an input box should be displayed prompting the user for the secret word:



If the user guesses the correct word, the following message should be displayed before the program exits:



If the user guesses the incorrect word, the following message should be displayed before the program exits:



Save the program as **Word Guess** in your UNIT 5 folder.