**Exercise 15**

**Develop the following:**

**1.** Create a *std::vector* of type *int*, which will store some high scores, and reserve it to ten elements.

**2.** Write a loop that generates a random score value and adds it into the *vector*. With each input, display the *size* and the *capacity* of the vector.

**3.** Remove the *reserve* option and see what happens. Does the memory still pre-allocate?

**4.** Run another loop that generates more high scores and adds them to the end of the vector.

**5.** Now, insert those same random numbers somewhere in the middle of the *vector*, or perhaps a few elements from the start and try to use the Profiler to compare the speeds when adding items.

**6.** Create another loop that runs through the entire *vector* and lists each individual high score. Which three ways can we iterate through the vector container?

**7.** Sort the list of players based on the length of their names and display the list from shortest names to longest names. Use the *bubble sort algorithm* to achieve this

<https://www.tutorialspoint.com/data_structures_algorithms/bubble_sort_algorithm.htm>