<u>Quiz 3</u>: Using the Merge Sort and Insertion Sort Algorithms to Determine the Number of Inversions and the Inverted Pairs of an Array

Due by: Oct. 10th, 11.59 PM

You are given the C++ code for the Merge Sort and Insertion Sort algorithms. The code as such would input the array size value, then generate/print a random array of specified size with values ranging from 1 to 50 and output the sorted array.

Your task in this quiz is to modify the code for the two algorithms to determine the number of inversions in an array as well as print the inverted pairs.

After the enhancement, the output of the code should be both the initial randomly generated array and the final sorted array as well as the number of inversions in the initial randomly generated array and the inverted pairs accounting for the number of inversions.

Run the code for the two algorithms independently to capture your outputs.

Submission:
(1 - 60 pts) A .cpp file featuring the enhanced version of the code for the Merge Sort algorithm to determine the number of inversions in an array as well as print the inverted pairs.
(2 - 30 pts) A .cpp file featuring the enhanced version of the code for the Insertion Sort algorithm to determine the number of inversions in an array as well as print the inverted pairs.
(3 - 10 pts) A PDF report featuring the results of the test run of your code for each of the two algorithms for an array of size 10. Capture the outputs generated (as stated above) as screenshots and include them in the report.