Data Structures
CS 246
Department of Physics and Computer Science
Medgar Evers College
Exam 2

Direction: Modify the `"exam02.cpp"` file in your Exams directory of your GitHub repository; and then, submit your modified work in the Exams directory of your GitHub repository or Dropbox, or in your Exam02 google classroom assignment. You can only use the libraries included in the accompanying header files and the cpp file.

Problem	Maximum Points	Points Earned
1	5	
2	5	
3	5	
4	5	
Total	20	

Problems

1. Write the definition of the function `MaximumCount()` whose header is

```
int MaximumCount(Array<double>& data)
```

   It returns the amount of times the maximum value of *data* appears in *data*. If *data* is empty, it returns 0. For instance, if $data = [7, 1, 4, 9, 6, 7, 7, 3, 2, 6, 9, 5, 9]$, it will return 3 since 9 appears three times.

2. Write the definition of the function `BubbleSort()` whose header is

```
template <typename T>
void BubbleSort(Node<T>* root)
```

   Given that *root* is referencing a doubly linked list, it sorts the list using the bubble sort method. It must sort the data of the linked list; not the nodes of the linked list.

3. Write the definition of the function `ValidEnclosure()` whose header is

```
bool ValidEnclosure(string word)
```

   It returns true if *word* represents a valid enclosure of a mixture of parentheses, (), and brackets, []; otherwise, it returns false. For instance, the function calls `ValidEnclosure("(([([])]))")` and `ValidEnclosure("([)]")` will evaluate to true and false respectively.

4. Write the definition of the function `IsSet()` whose header is

```
template <typename T>
bool IsSet(Array<T>& data)
```

   It returns true if *data* represents a set; otherwise, it returns false. A set is a collection of distinct objects.