PRG355 **LAB #6**

(Marks: 2%) Due: Next lab class

Static Members

Design a class that simulates the communication between workstations/nodes in a computer network. The class should use the following members:

- a **static** string data member that is used as a **buffer** to store messages sent by workstations (i.e., class objects)
- a **static** data member that is used as a counter to keep the track of the number of active workstations (i.e., workstations that sent messages)
- a non-static string data member to store a message to be sent by a workstation
- a non-static integer data member that stores an ID that identifies the workstation
- a **static** function that clears the buffer (i.e., clears the string that is used as the buffer)
- a **static** function that displays the buffer contents
- a **static** function that displays the value of the counter, i.e., the number of workstations that sent messages
- a non-static function that sets a workstation's message and ID
- a non-static function that copies a workstation's message into the buffer (i.e., adds the message at the end of the current contents of the buffer)
- at least one constructor

It should be noted that the string that is used as the buffer should be larger than the strings that are used to store individual workstations' messages. For example, if the network has 10 workstations and the maximum size of the message sent by each workstation is up to 50 characters, then the size of the buffer should be at least 500 characters. This should be taken in consideration if a fixed-size character array is used as the memory storage for the buffer. You could also use a non-standard ***string*** type.

Create a test program that uses this class to create a computer network that contains **any** number of workstations/objects as specified by the user. Please note that objects are dynamically allocated at run-time. The user should also be able to assign IDs to the nodes and messages to be sent by each node. The test program should call/test **all** member functions of the class, i.e., to send stations' messages to the buffer, display the buffer contents before and after clearing the buffer, as well as display how many workstations sent messages to the buffer.

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