**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

For each of the below questions, write a short sentence or two to express (in your own words) your answer. Keep the answers short, but use complete, correct, English sentences.

If it helps to clarify the questions, feel free to mentally prefix all the questions with the phrase "According to the video…"

1. After you’ve watched all the videos, please answer this question:  
   Of all the videos that you watched, if you could pick one video to be re-recorded by the instructor outside of class which would you choose? Why?  
   (Keep in mind the recording outside of class will omit any pauses from the instructor answering student questions, have less hemming and hawing, etc, and generally be more concise)

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| < Write your answer here > |

**VIDEO: Nested Classes**

1. By default, where should you put your classes (even after watching this video)?

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| < Write your answer here > |

1. Why does it make sense to make the node class (within a linked list) into a nested class? (I.e., what rationale was provided in the video)?

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| < Etc. > |

1. If IntListNode is marked as protected, which classes can access it? What if it's marked private?

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1. When do you want to use a nested class?

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1. Why is it ok to mark the data fields of the protected nested class as being public?

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1. Why does the LinkedList\_Verifier need your nested IntListNode to be protected, and not private?

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1. In a nutshell, how does the LinkedList\_Verifier check to see if your linked list is correct?

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**VIDEO: Linked Lists: Overview**

1. Up till now, what did you (typically) use in order to store a collection of things?

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1. What is the major downside of using an array to store items?

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1. What are the (minimum) two fields that each node in the linked list must have?

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1. What value will the last node in the list use for it's **next** field?

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1. Which node will we keep track of? (Will we keep track of all of them, or just one?)

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1. If I wanted to add something to the middle of a linked list, how do I do that (answer this intuitively/pictorially, NOT using C# code)?

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1. If I wanted to add something to the middle of an array, what would I have to do? Why is it easier to add something to the middle of a linked list?

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1. In addition to the "node" object/class that the video discusses, what other class/object does the video mention (towards the end)? What is the purpose of this second class?

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1. Are the "next" links for each node one-directional or bi-directional? If they're one-way, which way do they point?

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**VIDEO: Linked Lists: AddAtFront**

1. Why can't we use the name **LinkedList** when creating our own linked list class? What is a good name to use instead?

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1. What is the role/purpose of the MyLinkedList class?

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1. In this video, where are we going to add new items to the list?

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1. Why is it important that the **front** reference start out with the value null?  
   Is it necessary to assign null to front ourselves? Why or why not?

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1. Should the Node class be nested or separate? If nested, which class should it be nested within?

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1. What line of C# code will determine if a list is empty?

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1. When the list is empty, how do you add a new node to the list?

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1. The constructor for the Node class does not explicitly set the value of **next** – what value will next have?

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1. How can you think about the computer's memory?  
   If I say "The node's address is 70,000" what does that mean (intuitively)?

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1. C++ does allow you to actually get the memory address of objects – why does C#/Java/etc NOT allow us to get these memory addresses?

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1. When adding a new node to the front of an existing list, what three steps do we have to do?  
   (List these intuitively/in English – NOT using C# code)

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1. What is the C# source code for the three steps that you explained in the previous question?

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1. What is the difference between **nn** and **nn.** ?

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1. What will happen if you accidentally reverse the order of the second two steps?

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1. In the Node class, is **next** an actual, embedded Node object? If not, then what is it?

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**VIDEO: Linked Lists: PrintAll**

1. What does the phrase "traversing the list" mean?

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1. What is the first step in printing all the nodes in the list?  
   (List this in English, not C# code)

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1. What steps will we repeatedly do, in order to print all the nodes in the list?  
   (List this in English, not C# code)

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1. What is the C# source code to print everything in the list?

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1. Why doesn't PrintAll crash if the list is empty?

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1. Within the .Net platform library, what pattern is often used to store items in an array (instead of storing integers, like we typically do here)?

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**VIDEO: Linked Lists: RemoveFromFront**

1. When you create a new MyLinkedList class, do you automatically create a Node class at the same time?  
   When do you get new Node objects?

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1. What two things will the RemoveFromFront method do?

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1. Explain in English what should be done if the list is empty:

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1. If front is not null, what do we know about the list?

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1. List out the C# source code that will remove the first item from the list & return it's data field:

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1. If we call RemoveFromFront on a list with two items, what will the list look like after the method ends?

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1. What will happen to the nodes that no longer have any references referring to them?

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1. If we call RemoveFromFront on a list with only one item, what will the list look like after the method ends?

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1. If we call RemoveFromFront on a list with no items, what will the list look like after the method ends?

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**VIDEO: Linked Lists: Print At Location**

1. In terms of our PrintAtLocation method, what is the index of the first item in the list? What is the index of the second item?

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1. What is the correct C# source code for the loop that walks to a particular node of the linked list?  
   Why will || (the logical OR) NOT work correctly in the loop?

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1. When the method goes directly to using a Console.WriteLine on cur.data, and the given index is larger than the list, what will happen (and more importantly, why does it happen)?  
   How do we fix the program so that it doesn't crash (list C# source code)?

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