Name: _____

Class Day / Time: _____

Due Date: _____

Lab Exercise – Linked Lists

1. Write a struct called StudentNode that will be used in a linked list. StudentNode should allow the program to track the following characteristics about students: name, age, major and gpa.

2. Using the struct in the previous item, write a function that reads from an input file (inFile.txt) and creates the linked list using StudentNode. The sample of the input file is shown below. The input file is only used in this function and should **NOT** be passed in as a parameter**.** The code should be written such that each new node is added to the **rea**r of the list. Be sure to use the proper parameters and return type. Assume all necessary pre-processor directives, namespace, the StudentNode struct and header information is contained in the header file MyHeader.h. No need to include comments.

FORMAT for **inFile.txt**

John Smith
20
Math
3.5

Anna White
19
English
3.2

Paul Johnson
18
Physics
3.7

…

3. Using the struct in item 1, write a function that searches the linked list created in the previous item for one instance of a student. The student name will be used as the search element to find the StudentNode. Be sure to use the proper parameters and return type. Assume all necessary pre-processor directives, namespace, the StudentNode struct and header information is contained in the header file MyHeader.h. No need to include comments.

4. Write a function that outputs the entire linked list created in the item 2. The output should be formatted as a table where each student's information is output in a separate line. Be sure to use the proper parameters and return type. Assume all necessary pre-processor directives, namespace, the StudentNode struct and header information is contained in the header file MyHeader.h. No need to include comments.

5. Write a function that removes the node at the front of the linked list created in the item 2. The function should output the student's information from the node being removed. Be sure to use the proper parameters and return type. Assume all necessary pre-processor directives, namespace, the StudentNode struct and header information is contained in the header file MyHeader.h. No need to include comments.

6. Write a function that calculates and returns the average gpa for all students in the linked list created in the item 2. Be sure to use the proper parameters and return type. Assume all necessary pre-processor directives, namespace, the StudentNode struct and header information is contained in the header file MyHeader.h. No need to include comments.

Create a small main program that call all functions above and use it as testing for your functions. Please include at least 5 records in the input file. There is no need for documenting your code in this exercise.

TURN IN (on-line)

1- Turn in your output from eclipse
2- Turn in your code from eclipse