LINQ Assignment

Use these MDSN articles as a resource:

* Overview and links to detail pages: <https://msdn.microsoft.com/en-us/library/bb397933.aspx>
* Summary page that shows basic query syntax: [https://ms+dn.m//Q06icrosoft.com/en-us/library/bb397900.aspx](https://ms+dn.microsoft.com/en-us/library/bb397900.aspx)

Complete each question in a console app (Code) or directly in this document (English).

For each **query** question, assume “**and print the query result to the console**” is suffixed on each question.

Annotate your code responses with the annotation QXX above it, preferably each response in its own method. For example, your extension method for Q1 below will have a //Q01 comment above it.

You may use method or query syntax, lambda or full method delegates unless where specified.

1. Code: We’re going to be printing the list of students a lot. Create an extension method that iterates through the students and prints each one using a custom ToString method on Student (yes, you’ll have to write the ToString on Student as well.
2. Code: Using LINQ **method** syntax, filter the list of Students to those whose last name is Garcia.
3. Code: Using LINQ **query** syntax, filter the list of Students to those whose first name begins with an H.
4. Code: Print all the students in alphabetical order by first name.
5. English: What is the type of the query output in the above question?
   1. An IEnumerable<T> list, of type Student
6. Code: Using the FirstOrDefault LINQ method, print the first student in the list, sorted by first name.
7. English: What is the type of the query output in the above question?
   1. An object of type Student
8. Code: Using the “To group the results” section on [this page](https://msdn.microsoft.com/en-us/library/bb397900.aspx) as a guide, group the students by the first letter of their first name. (Don’t worry about printing the results... yet)
9. English: Why doesn’t your extension method from Q1 still work to print the list of students?
   1. Because the objects inside the IEnumerable list aren’t students, but lists
10. Code: Don’t worry about another extension method for grouped results... just add a loop in your Q8 code to print the groups and all the students. Hint: this code is given to you on the MSDN guide.
11. English: How is IGrouping<T, K> like a Dictionary<T, K>? How are they different?
    1. Both types are key-value based systems, but IGrouping has multiple values per key compared to Dictonary’s one-to-one key-value pairs
12. Code: Return the average test score per student.
13. Code: Return the average score per test.