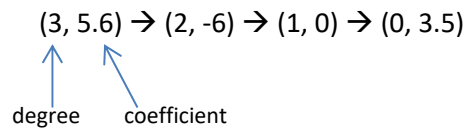**The Assignment:**

Design and implant a `Polynomial` class, in which a polynomial is implemented as a linked list of coefficients. Each node will have an integer to hold the exponent of the term and a real number to hold the coefficient the term.

For example, $5.6x^3 - 6x^2 + 3.5$ will be in the linked list as

$(3, 5.6) \rightarrow (2, -6) \rightarrow (1, 0) \rightarrow (0, 3.5)$

degree coefficient

Overload

- All the usual polynomial operators (+, –, *),
- Input and output operators
- The polynomial value when x value is given.
  I.e. $f(x) = 5.6x^3 - 6x^2 + 3.5$ for $x = 1.5$.

Purposes:
Ensure that you can write a small collection class.

Files that you must write:
1. `Polynomial.h`
   The header file for the new `Polynomial` class.
2. `Polynomial.cpp`
   The implementation file for the new `Polynomial` class that will have the implementations of all the `Polynomial`'s member functions.
3. `Demo_Polynomial.cpp`
   A simple interactive test program to test every member functions.

* Use UML to document your `Polynomial` class.
* Document your program and functions