CSCI 300 Lab 01

**Notes for handing in: Name your project YourLastNameLab01 and submit a zipped folder of the entire Eclipse project to Blackboard.**

Create a class Polynomial that is used to evaluate a polynomial function of *x*:

P(x) = a0 + a1x + a2x2 + … + an-1xn-1 + anxn

The coefficients *ai* are floating-point numbers, the exponents of *x* are integers, and the largest exponent *n* (called the degree of the polynomial) is greater than or equal to 0. The class has the following attributes:

* Degree – the value of the largest exponent *n*
* Coefficients – an array of the coefficients *ai*

and the following methods:

* Polynomial(n) – a constructor that creates a polynomial of degree *n* whose coefficients are all 0.
* setCoefficient(i, value) – sets the coefficient *ai* to a value
* evaluate(x) – returns the value of the polynomial for the given value *x*

For example, the polynomial

P(x) = a0 + a1x + a2x2 + … + an-1xn-1 + anxn

is of degree 3 and has coefficients of a0 = 3, a1 = 5, a2 = 0, a3 = 2. The invocation evaluate(7) computes 3 + 5 *x* 7 + 0 *x* 7 + 2 *x* 73, which is 3 + 35 + 0 + 686, and returns the result 724.

To test your Polynomial class, create a driver class and **paste the following code in the main method of your driver**:

Polynomial p = **new** Polynomial(3);

p.setCoefficient(0, 3);

p.setCoefficient(1, 5);

p.setCoefficient(2, 0);

p.setCoefficient(3, 2);

Using the above code in your driver class should produce 724 as output. **Your Polynomial class must work with the above code**.