Bronx Community College
Department of Mathematics and Computer Science
CSI33 Fall 2019
Programming Assignment 6: worth 30 points
Assigned on November 25, 2019
Due on December 2, 2019

Assignment 6

Implement a class Polynomial that uses a dynamic array of doubles to store the coefficients for a polynomial. Much of this work can be modelled on the C++ dynamic array of ints List that we discussed in class. This class does not need the method the overloaded += operator. Your class should have the following methods:

Write one constructor that takes an integer n for the degree of a term and a double coefficient c for the coefficient of the term and creates the polynomial c x^n. (This constructor can be given default arguments easily to have a default constructor.) Remove the existing constructor.

Write one constructor that takes an array of doubles and the number of entries and uses the array to make a Polynomial object. Use the append method to do this.

Overload the operators +, -, and * so you can add, subtract and multiply polynomials.

Overload the output operator << so you can output a representation of your operator to cout or a file.

Overload the [ ] operator so you can extract or change a coefficient of a polynomial.

Write a method degree that returns the degree of the polynomial.

Write a method eval that takes a double argument x and returns the value of the Polynomial at x.

Be sure to write a destructor, copy constructor, and assignment operator.

The Polynomial class should have private member variables coeffs_ for the array of coefficients, size_ for the number of positions used in the array, capacity_ for the capacity of the array of coefficients.

Submit the files Polynomial and Polynomial.cpp to me by email at sharon.persinger@bcc.cuny.edu by the end of the day on 12/2/2019. Be sure to

include your name in both files as a comment. Include CSI33 in the subject line of your email.