

Homework 5

For this homework assignment you will be implementing the functions in the Polynomial class:

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/* *****  
* Assignment: Homework 5 - Description of a Polynomial class *  
* Author: *  
* Date: Fall 2017 *  
* File: Polynomial.h *  
* *  
* Description: This file contains the *  
***** */  
  
#ifndef POLYNOMIAL_H  
#define POLYNOMIAL_H  
  
#include <iostream>  
#include <map>  
using namespace std;  
  
/* *****  
* Class: Polynomial *  
* *  
* Description: This class is designed to *  
***** */  
  
class Polynomial  
{  
public:  
    // Default constructor  
    Polynomial ();  
    // Destructor  
    ~Polynomial ();  
    // Copy constructor  
    Polynomial (const Polynomial & P);  
    // Assignment operator  
    Polynomial & operator = (const Polynomial & P);  
    // Additional constructors  
    Polynomial (float C);  
    Polynomial (const string & S);  
    Polynomial (int D, float C);  
    Polynomial (int D, float * C);  
    // Arithmetic operators  
    Polynomial operator + (const Polynomial & P) const;  
    Polynomial operator - (const Polynomial & P) const;  
    Polynomial operator * (const Polynomial & P) const;  
    Polynomial operator += (const Polynomial & P);  
    Polynomial operator -= (const Polynomial & P);  
    Polynomial operator *= (const Polynomial & P);  
    // Logical operators  
    bool operator == (const Polynomial & P) const;
```

```
        bool operator != (const Polynomial & P) const;
        bool operator < (const Polynomial & P) const;
        bool operator <= (const Polynomial & P) const;
        bool operator > (const Polynomial & P) const;
        bool operator >= (const Polynomial & P) const;
// Input and output operators
        friend istream & operator >> (istream & ins, Polynomial & P);
        friend ostream & operator << (ostream & outs, const Polynomial & P);
// Evaluation function
        float Evaluate (float V) const;
// Accessor functions
        float operator [] (int I) const;
        int Degree () const;
private:

};

#endif
```

Due Date: Sunday, 20 November 2017, 11:59 pm

To Turn In: Your Homework 5 solution should be submitted in a .tgz file called *yourlastnameH5.tgz*. Create a folder called *yourlastnameH5* containing Polynomial.h, Polynomial.cpp, your test application program(s) and makefile. Tar and zip this folder using the cfvz flags. The submission script will unpack your .tgz file and will compile and link your Polynomial class with an application program that uses all of the functions in the class.