**Lab Assignment 1**

**Due date: Monday Midnight, 21st March, 2022**

**Total Marks: 30**

Text

Description automatically generated

* Create a **toString** method which displays the polynomial in standard format. Note that exponent may be simply shown after the variable x. E.g. the above polynomial may be displayed as:
  + P(x) = 3 + 5x + 2x3
* Also, create **getter/setter** methods for all instance variables.

Create the following additional functions in the polynomial class:

* **addPolynomial**: adds 2 polynomials. Create 2 overloaded methods:
  + void addPolynomial(Polynomial p2);
    - adds polynomial p2 to the current polynomial object.
  + static Polynomial addPolynomials(Polynomial p1, Polynomial p2);
    - a static class method which adds 2 polynomials p1 and p2 and returns the resultant polynomial. Note that you should create a deep copy of the result polynomial.
* [optional] **multiplyPolynomials**: multiplies 2 polynomials
  + add 2 overloaded versions of multiplyPolynomials in the same way as for addPolynomials.
* **Inside the Test class:** 
  + Create a polynomial object p1 for the polynomial in above example. Then, call the evaluate method and display the result.
  + Create another polynomial object p2 with coefficients of your choice. Then, demonstrate the usage of addPolynomial methods (both variants) and [optionally] the multiplyPolynomial method by calling them with p1 and p2 as actual arguments. Display p1, p2 and the resultant polynomial in each case using the toString method.