

Programming Assignment #1

Deadline: 16th September, 2020

Design, implement and test a class **Poly** for polynomials. A polynomial has the form $a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$. You'll need to use a vector to store exponents and coefficients. You should implement a constructor that takes a coefficient and an exponent as arguments so that you can write

Poly c = Poly(3,4) + Poly(2,2) + Poly(7,1) + Poly(-5,0);

to get the polynomial $3x^4 + 2x^2 + 7x - 5$. You should overload the arithmetic operators +=, -= and +, - for addition and subtraction. You should overload *= to multiply a polynomial by a constant: $3 \times (2x^3 - 3x) = 6x^3 - 9x$. Finally you should include a member function **at** that evaluates a polynomial at a specific value for x . For example for the above polynomial:

double d = c.at(0) // $d \leftarrow 5 = 3*0^4 + 2*0^2 + 7*0 - 5$
