CS 284: Homework Assignment 1

Due: September 14, 11:55pm

Collaboration Policy. Homework assignments are to be done individually: each student must hand in his or her own answers. It is acceptable for students to collaborate in understanding the material but not in solving the problems or programming. Use of the Internet is allowed, but should not includesearching for existing solutions.

Under absolutely no circumstances code can be exchanged among students. If some code was shown in class, it can be used, but it must be obtained from *Canvas,* the instructor, or a TA.

Assignments from previous offerings of the course must not be re-used. Violations will be penalized appropriately.

Late Policy. No late submissions are allowed.

Assignment. Implement a program that defines a class for representing polynomials of the form:

$$P(x) = \sum_0^n a_i x^i.$$

Your code should support the following:

1. Store the degree n and the coefficients a_i of the polynomial. The degree does not need to be known a priori;
2. Given a value x, compute *P(x);*
3. Read a second polynomial, $Q(x) = \sum_0^m b_i x^i$ and add it to *P(x)*. Note that the degrees *n* and *m* of the polynomials may be different;
4. Ensure that all parameters passed to methods are valid. For example, the degree cannot be negative. If illegal values are detected, an appropriate message should be printed and the program should exit by executing System.exit(1);
5. Implement the *main()* method that tests every single aspect of the class.

Hint: You can use Math.pow(x,n) to raise x to the n^{th} power.