General Description:

In this second part of the project, you will implement the divide and conquer algorithm for DFT and for DFT\(^{-1}\). You will also implement multiplication of polynomials by applying either version of the implementation of DFT and DFT\(^{-1}\). This is described in section 30.2 of our textbook.

Detailed Description:

Implement the divide and conquer algorithm described as `RECURSIVE-FFT(a)` on page 911 of our textbook.

Similarly, implement the divide and conquer algorithm for DFT\(^{-1}\), as described on page 913 of our textbook.

Also implement the multiplication of polynomials by computing the DFT, doing point by point multiplication, and computing DFT\(^{-1}\). Test that everything works whether you use the DFT and DFT\(^{-1}\) methods from Part 1 or the recursive ones.

In this part of the project, we don’t need timing experiments. This will come in Part 3 of the project.

**Turn in:** The source code of your program or programs and some sample runs with input and output illustrating the correctness of your work. Send an e-mail to longpre@utep.edu with CS 5350 and Part 2 on the subject line.

**Due date:** November 3, 11:59pm. The penalty is 10% for each day late up to one week late. No homework accepted after one week.