

CSCE 590 Fall 2020

HOMEWORK 6

Assigned Thursday 2020-10-17. Due Tuesday 2020-10-22.

Watch the video lecture “Function Level Programming and the FL Language” by Dr. John Backus, available at <https://archive.org/details/JohnBack1987>, and answer the following questions, also marking the time at which the answer is given:

1. What does it mean for a program to be “referentially transparent?”
2. When writing an FP/FL program, do you work at the object level or at the function level?
3. Name three combining forms.
4. Write a non-recursive FP/FL function to find the length of a sequence. Write down its application to the sequence `<3,4,5>`.
5. Backus argues that, when writing an FP/FL program, you do not need to worry about efficiency, but only about correctness. This is because “mysterious” optimization allows the correctness preserving transformation of inefficient programs into efficient ones. What is “mysterious”?