

University of Illinois at Urbana-Champaign
Dept. of Electrical and Computer Engineering

ECE 220: Computer Systems & Programming

Review: Systematic Decomposition

How Does One Write a Program?

You have seen several examples of programming.

Given a task in human terms,

- we **produce an algorithm**
- that solves the problem
- using steps that each require a few **LC-3** instructions (or **C** statements).

How did we do it?

Systematic Decomposition: What is It?

Systematic decomposition is an approach to programming. The idea is as follows:

- **starting with a high-level model** of the task, usually in a human language,
- repeatedly **break** the task **into simpler tasks**
- until **each subtask** is easily **expressed in a few instructions**.

We Will Discuss Three Constructs

We will discuss

- the pieces (the structure of “simpler tasks”)
- and how each maps to **LC-3** memory.

But before we start, a couple of comments on programming...