Project 1: Addressing Multiple Digital Lines
Questions?
Project 1

- **Hardware:**
  - Wire in a LED bar

- **Software:**
  - Provide interface function for the LEDs
  - Write a test loop() function
Circuit

10-LED Bar:
• 10 rows of 2 pins; one LED per row
• Don’t forget the resistor!
• Pair the LEDs off so each pair can be driven by a single Teensy pin
• All pins must be on the same port
Distance Display

10 LEDs in a line (use bar graph):
• Represent distances between .1 and .8 m
• Interface function:
  
  ```
  void display_distance(float dist)
  ```
• dist is a value in meters
• 9 different illumination patterns
Project 1: Test Function

• In `loop()`
  • Prompt the user for a distance in millimeters
  • Display that distance
Code Specifications as Contracts

• You are implementing code that will be used for future projects and by your other group members

• Implement exactly the functions that we ask for
  • Name of function must be as specified
  • Parameter types and names must be as specified
  • Return values must be as specified
Documentation

Project-level documentation (top of each C (and H) file)

- Project #
- Date
- Group number
- Group members
- Group member responsible for the software
Documentation

Function-level documentation:

• Summarize what the function does in a sentence or two
  • This is for future users of your function

• Explicitly document the **inputs** (parameters) and **outputs** (return values) of the function
  • Include variable names and meaning of the variables, including units!
  • Discuss any other effects that the function has (e.g., changing pin state)

• The specification links to an example
Documentation

• In-Line documentation:
  • Document the *meaning* of individual lines of code or small groups of lines
  • Document what you are doing and why
• See the project 1 specification for a link to an example