Functional Programming - Lab Class Exercises 5

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1. Car Velocity and Acceleration

Assume you have an analog voltage signal x that represents the position of a car. Construct an analog circuit to compute the car's velocity and acceleration. This can be presented as op-amp circuit or analog compute components.

2. Second Order Differential Equation Solver

Consider the second-order linear differential equation `y''(t) = -y'(t) + y(t)` where y is a scalar function over the real numbers, `y: R -> R`. Design an analog circuit to simulate this equation, assuming y'(0) and y(0) are known. This can be presented as op-amp circuit or analog compute components.