

Systems Modeling Homework

1. Draw and label a system model depicting a campus parking lot with one entrance and one exit using STELLA format. Assign units to the inflow, reservoir, and outflow on the sketch.

2. Assuming the system is in equilibrium, estimate realistic values for the inflow, reservoir, and outflow. Can you think of two scenarios during a 24-hour period where the system is at equilibrium, yet the flow values for the two scenarios are different?

3. Describe a time of day where the parking lot is not in equilibrium. What are the flow values? Sketch a plot of time (x-axis) vs. reservoir size (y-axis) during this period.

4. Consider two different parking lots — one at a large airport (e.g., 10,000 parking spots), and one at a small apartment building (e.g., 10 spots). Assuming both lots are in equilibrium, which one has a longer residence time?