Bike Share: Part 2

Please find your name on the list of today's studio groups. Then find your partner(s), seat yourselves comfortably according to your group number, and read through the rest of this document.

Today's Agenda

We are going to focus on Chapter 3 of the ModSimPy book and the accompanying notebook. The key modeling ideas include iterative modeling and metrics. The computational tools we will emphasize include passing State objects as parameters, the `return` statement, and comparison operators.

Before we dive into the notebook, we'll start with a warm-up activity whose main goal is to get you to think about a real-world bike-share system using the modeling tools we have introduced so far in the course.

Warm-Up Activity (15 minutes)

Each studio group should have received a handout labeled Bike Share Rebalancing Model. Take a few minutes to read it over and discuss it with your partner(s).

What kind of model are you thinking of? What kind of work would you want it to do?[1]

[1] Recall that we've talked about three kinds of work models can do: prediction, explanation, and design. This is not an exhaustive list!

Now go ahead and start working on the handout. We'll discuss it together before moving on.

Introduction and Review (10 minutes)

We will introduce the key concepts of Chapter 3 and review the solution to the Chapter 2 notebook exercise. Use this space to capture any points you are unsure about or want to think about more carefully:

First Exercise: Adding a Clock (20 minutes)

The first exercise of the notebook asks you to add a clock to the basic bikeshare simulation. One part of this task is done for you, namely adding a state variable called `clock`. What is the other part?[2]

[2] You can write down the code to be added to the step function; it should be a single line.

Second Exercise: Recording a Metric (20 minutes)

The second exercise asks you to record the time when the first customer arrives and doesn't find a bike. How did you do this?[3]

[3] There are several correct ways; again, write down the code you wrote.

Reflection Questions

The bikeshare model you've created in Python is still a *long* way from a model that would be useful to the folks at Bluebikes — or is it?

1. Briefly sketch a strategy for iteratively expanding the Chapter 3 model to address the imbalance between supply and demand at different stations.

2. Which steps do you see as easiest or hardest, and why?

Next Steps

Before class tomorrow, please do the following things:

☐ Write your name here: _____

☐ Write your name(s) of your studio partner(s) here: _____

☐ By tonight: Scan this worksheet and submit it on Canvas.
(Include a copy of the warm-up activity as the last page.)

☐ Also tonight: Read and complete the quiz for Chapter 4.

☐ Meet in the studios again on Tuesday.