Data Science Essentials

Lab 3 – Simulation

Overview

In this lab, you will learn how to create, run and interpret simulations using R or Python. Simulation is widely used in cases where estimates are required from complex distributions of values or a hierarchy of distributions.

In this lab you will estimate the range of expected profitability for a lemonade stand. The profitability of the lemonade stand depends on the number of customers arriving, the profit from the drinks they order, and the tips the customer may or may not choose to leave. The distribution of possible profits is thus, the joint distribution of customer arrivals, items ordered, and tips. In practice, such a complex distribution cannot be analyzed except using simulation.

What You'll Need

To complete this lab, you will need the following:

- A Web browser
- An Azure Machine Learning workspace.
- The files for this lab

Note: To set up the required environment for the lab, follow the instructions in the Setup Guide for this course.

Upload a Jupyter Notebook

The code for this lab is provided in a Jupyter notebook. Both R and Python versions of the notebook are provided.

1. Browse to https://studio.azureml.net and sign in using the Microsoft account associated with your free Azure ML account.
2. On the **Notebooks** tab, click **+NEW**. Then select the option to upload a notebook from a local file.
3. Select the **Simulation (R).ipynb** or **Simulation (Python).ipynb** file in the **Mod3** folder where you extracted the lab files for this course, accept the default name for the notebook, and select the appropriate language (R or Python 2).
4. After the notebook has been uploaded, open it and follow the instructions it contains.