Practice Problem #8

1 The Problem

Professor Curry is attempting to create a new running loop through Annapolis for plebes to be able to see some of the best restaurants around town while out on a run. He also wants to make sure that this route is as short as possible. Here is the list of sights to see: El Cabrito (amazing Mexican food), Mission BBQ, Ceremony Coffee Roasters (best coffee in town), Annapolis Ice Cream Co., Evelyn's, Double T Diner, Bread & Butter Kitchen, Annapolis Smokehouse, Paul's Homewood Cafe, Lemongrass Thai Restaurant, and Basmati Indian Restaurant.

2 Parameterized Model:

Formulate the problem of determing Prof Curry's running loop above as a **parameterized** mathematical programming model to minimize the total distance of the running loop. Clearly define and describe all sets, parameters, and decision variables. (You are not being asked to solve this problem, though.)

3 Modified Problem

Suppose that Prof Curry wants to break up this loop into three different loops where a group of plebes will run one of the loops. He wants to do this because the loop he created in the first model was just too long. This way, he is able to create shorter loops that visit some subset of the restaurants. How would you change your model from the previous problem to solve this modified problem?