# HW3

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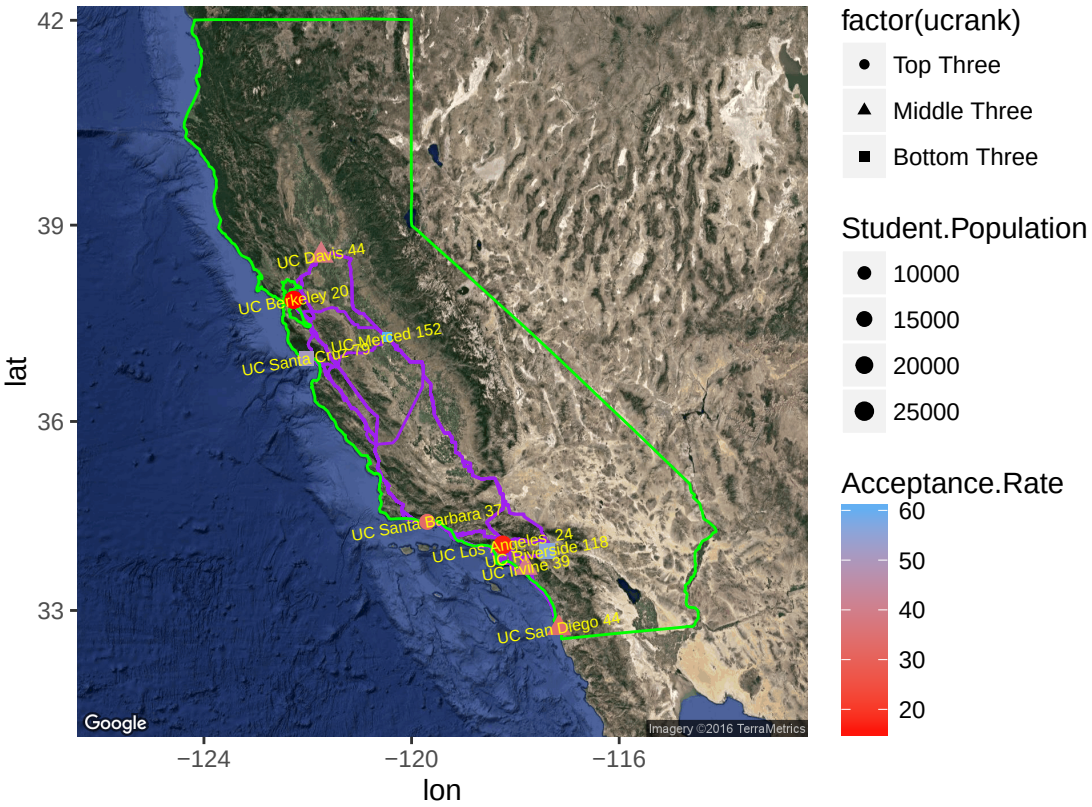
The codes and results derived by using these codes constitute my own work. I have consulted the following resources regarding this assignment:" (Tzvi Gluck, Jacob Rabin, Isaac Gluck)

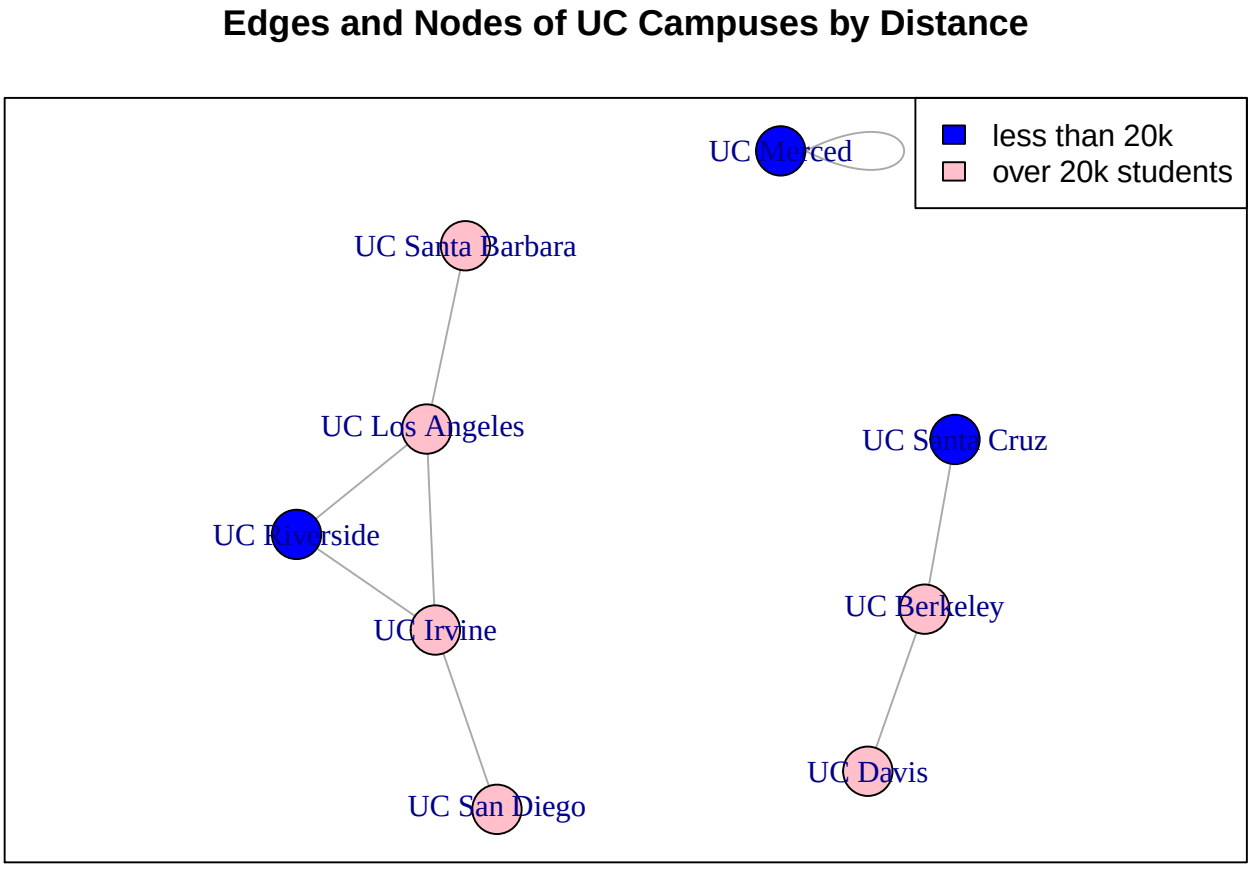
## Problem 1

up




This plot illustrates the bikeroutes connecting each of the UC campuses. The routes are depicted in purple and points of campuses are in teal. The campuses are all labeled with their name and university rank beside the name. To make this plot we used a mapply function to run the route function from ggmap multiple times. Then we created a tofrom vector which we eventually used to group the routes for graphing so that we did not overplot the routes. In order for the groupings to work though, we needed to adjust the elements from type factor to type character as seen in the part of the code utilizing the combn function. The different aesthetic features are color of points based on acceptance rate, size of points based on student population, and shape based on the rank of the schools.

## Problem 2




In this plot we color code the edges based off of whether a university has more or less than 20,000 students. The nodes are connected when a university is within 100 miles of another. Thus we see a neighboring relationship between the Southern California schools and the Northern California school, with the exception of UC Merced. For this problem we used a mapply function on the function map_dist. This obtained the driving distances between the universities.