Define the final output: What should the manager receive (e.g., a table of recommended bikes per station, an expected-usage plot)?

- plot showing expected usage at each start location

Outline the high-level steps, from data input to final results. Continue breaking down these steps until each piece is simple enough to be contained in its own function.

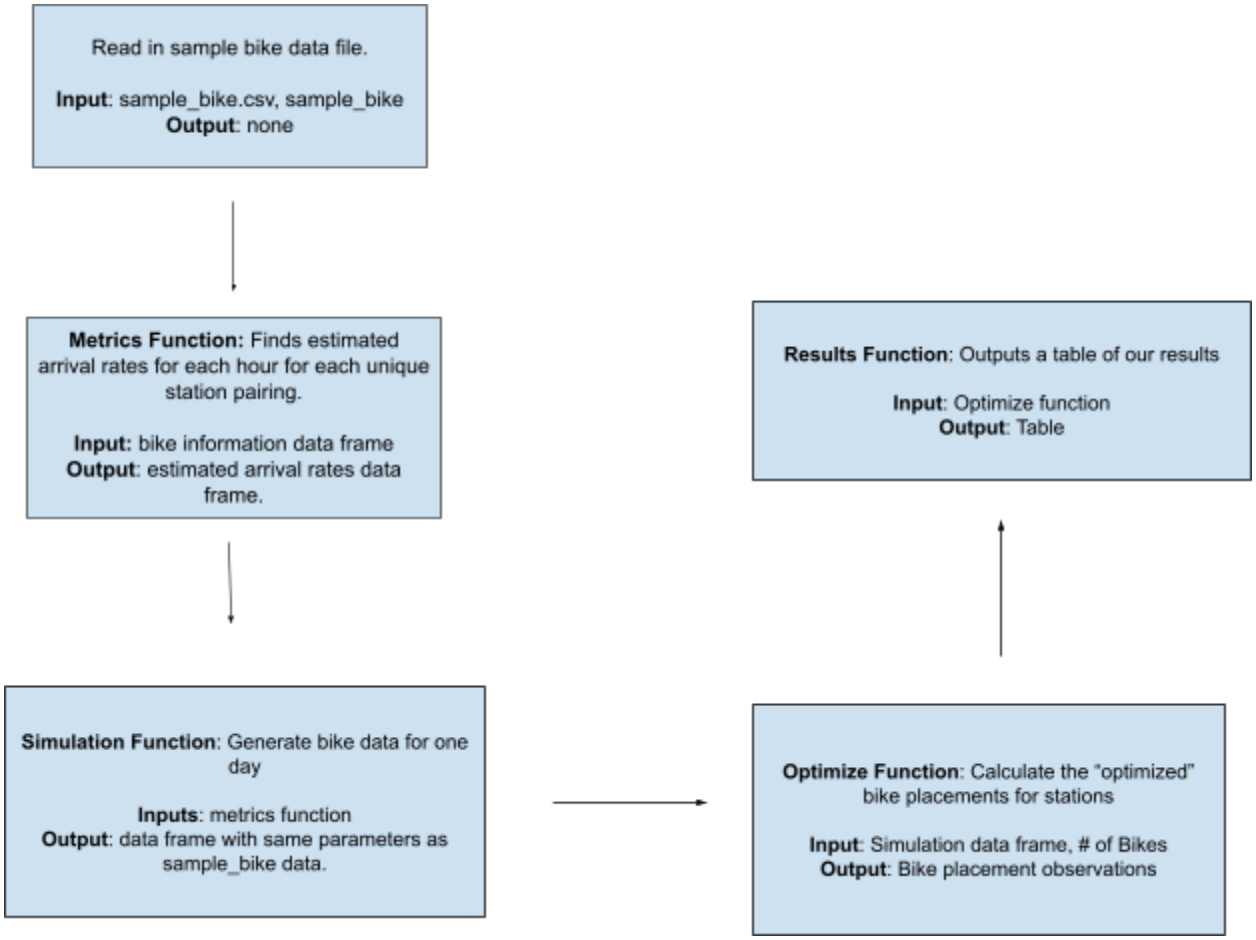
- find the estimated rates of arrival
- simulate a day
- optimize placement
- display results

List your functions. For each function include:

- estimated_arrival_rates()
    - Estimates the average number of trips taken for each unique station pairing by hour.
    - Inputs: dataframe with sample bike data
    - Outputs: dataframe containing estimated arrival rates
- simulation()
- optimize()
- results()

- Inputs (with data types)
- Outputs (with formats)
- Short description of its purpose

Draw a function dependency diagram showing the dependence of functions on each other.


Read in sample bike data file.
Input: sample_bike.csv, sample_bike
Output: none
Metrics Function: Finds estimated arrival rates for each hour for each unique station pairing.
Input: bike information data frame
Output: estimated arrival rates data frame.
Simulation Function: Generate bike data for one day
Inputs: metrics function
Output: data frame with same parameters as sample_bike data.
Optimize Function: Calculate the "optimized" bike placements for stations
Input: Simulation data frame, # of Bikes
Output: Bike placement observations
Results Function: Outputs a table of our results
Input: Optimize function
Output: Table