



Exercise: Island

Exercise 2.1

During your holiday, you and your travelling group want to cross an island using public transportation. Since you are the only mathematician in the group, you were appointed to plan the tour.

Unfortunately, none of the typical online applications that you might use at home contain the necessary data to plan the trip, but a friend of yours has already done some research and found local bus connections. As the prices are very low, you do not have to care for any ticket prices. Instead, you would like to minimize the time spent in bus connections. Also, your group is very active and wants to avoid too much sitting. Thus they will not catch bus rides lasting longer than 5 hours.

- a) Model the problem, finding the cheapest trip from a starting point (S) to a destination (T), as a (if necessary integer) linear program. Start by understanding the data given in the `island.json`-file. Implement the model and solve it.
- b) Display the cheapest trip as a list of the vertices on the console. For this, write a function which returns the trip corresponding to the current LP-solution as a list.