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CEE 598 – Traffic Simulation and Modelling

Dr. Zhou – Fall 2020

**Traffic Assignment User Guide**

DTALite Python Code: Traffic Assignment Explanation

[*In reference to source code lines 349 – 370*](https://github.com/asu-trans-ai-lab/DTALite/blob/main/src/python/version1/dtalite_s.py)

## Outcomes

The purpose of this handout is to explain the inputs, logic, and next steps for those who desire to use the DTALite Package to describe features about a given network. This is written for CEE 598 – Traffic Simulation and Modelling under the direction of Dr. Zhou at Arizona State University

## Initialization

The following parameters and inputs are used throughout the entire code:

* Global coordinates
* Network inputs
* BPR Function
* Agents
* Links
* Link Costs
* Nodes
* Queues
* Network demand

## Traffic Assignment Pseudo Code Logistics

The first portion of the trip assignment calculates the number of vehicles (or data inputs) on each link using the shortest path:

1. Using the pre-defined network, a global coordinate system is used to describe the orientations of the links
2. Then, using the network the links and nodes are assigned respectively to create a visible network
3. Next, using iterations, the traffic assignments which are stored in an external file are placed onto the links and nodes using the BPR function and the link cost
4. The cost of the data on each link is then evaluated
5. To compute the total flow volume on each link, the volumes are summed across each link

The second portion of the traffic assignment is centered around the travel times and simulation model run time to determine the shortest path.

1. The global coordinates are used to run the simulation time
2. Loop over the simulation time start to the simulation end time in order to determine the optimized shortest path and trip assignment to each link