Data Set Generation

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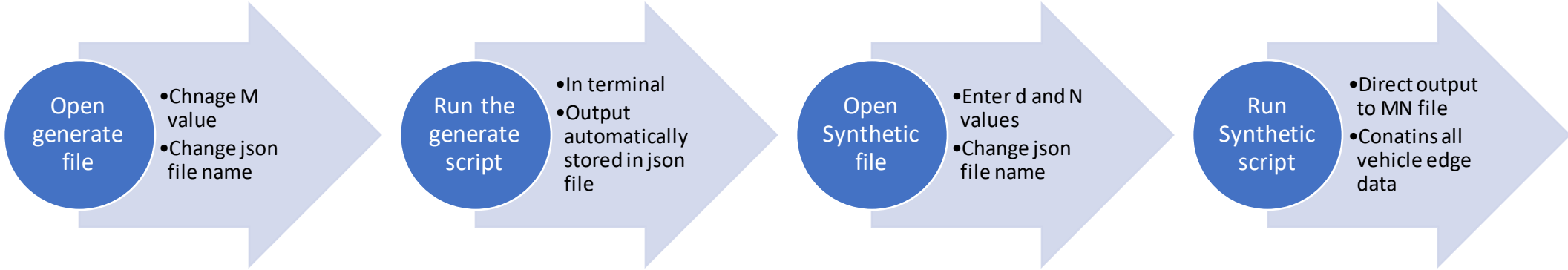
Synthetic Data set

Flow of Working



Generate Edge Data

- This file contains the generation of all the data elements specific to each edge.
- While degenerating data for multiple values of N, for the same value of M we utilize the same edge data i.e. this file is only run once for a particular value of M
- Need to modify value of M and name of json file according to need
- Output will be stored automatically in a json file

Generate Edge Data

- All variables except vel_at_edge, bw_const and density are assigned random values in a specified range
- bw_const and density are fixed values
- vel_at_edge is calculated by the formula vel_at_edge = vel_free *(1-(density/density_jam))

Synthetic Data Generator

- Load Edge Data from json file
- Calculate vehicle paths
- Calculate earliest arrival time and latest departure time of vehicles at edges
- Sort these vehicles and make a list of common vehicles at an edge
- Calculate vehicle to edge travel time matrix
- Calculate overlapping sets
- Calculate length of overlapping sets

Synthetic Data Generator

- Modify the values of d (square root of perfect square M) and N (Number of Vehicles)
- Change the name of input json file accordingly
- Run the script using command python3 Synthetic_data_generator.py
- Direct the printed output into a file of the naming format M__N__Data.txt (e.g. M36N140Data.txt)

Real Data Set

Real data Generator

- Extract list of vehicles passing through the chosen edges from xml file
- Create fine set of vehicles satisfying passing through at least M/10 edges criteria
- Extract length of road segments
- Extract Vehicle routes
- Create a distance matrix based on length of roads and vehicle routes
- Vehicle path matrix calculation
- Overlapping sets and V2E travel time calculation
- (After vehicle path generation rest is similar to synthetic data set)

Real Data Generator

- Modify the values of d (square root of perfect square M) and N (Number of Vehicles)
- Change the name of input json file accordingly
- Run the script using command python3 Real_data_generator.py
- Direct the printed output into a file of the naming format M__N__Data.txt (e.g. M36N140DataR.txt)