1. **First step is to create table of number of people at each location at the beginning of the simulation. This is done by joining household table (locations) with the person table, which says who lives in what household. Count each person, grouped by location. Assuming the simulation starts with every person in their household.**

**Create table beginning\_location**

**as**

**select** **count** (person.person) **as** occupants, household.location

**from** household

**join** person

**on**

person.household = household.household

**group** **by** household.location ;

1. **Next this needs to be combined with all locations, to account for places no one is at (aka not households).**

**create** **table** Beginning\_Location\_All

**as**

**select** location.location, location.land\_use, Beginning\_Location.occupants

**from** location

**left** **join** Beginning\_Location

**on** location.location = Beginning\_Location.location;

1. **Have to change null values to 0 so they can be altered.**

**Update** Beginning\_Location\_All

**set** occupants = 0

**where** occupants **is** **null**;

1. **\*scenario to count people leaving from location at a given hour (this is hour 1)\***

**create** **table** depart\_1

**as**

**select** **count**(trip.person) **as** depart\_1, origin

**from** Trip

**where** trip.start <3600

**group** **by** trip.origin;

1. **\*scenario to count people arriving location at a given hour (this is hour 1)\***

**create** **table** arrive\_1

**as**

**select** **count**(trip.person) **as** arrive\_1, destination

**from** Trip

**where** trip.end <3600

**group** **by** trip.destination;

1. **combine beginning location with departures for hour 1. Delete useless tables, change table names.**

**create** **table** departs\_1

**as**

**select** Beginning\_Location\_All.location, Beginning\_Location\_All.land\_use, Beginning\_Location\_All.occupants, depart\_1.depart1

**from** Beginning\_Location\_All

**left** **join** depart\_1

**on** Beginning\_Location\_All.location = depart\_1.origin;

**Update** depart\_1

**set** depart\_1 = 0

**where** depart\_1 **is** **null**;

1. **combine departures with arrivals for hour 1. Get rid of null values**

**create** **table** depart\_arrive\_1

**as**

**select** depart\_1.location, depart\_1.land\_use, depart\_1.occupants, depart\_1.depart\_1, arrive\_1.arrive\_1

**from** depart\_1

**left** **join** arrive\_1

**on**

depart\_1.location = arrive\_1.destination;

**update** depart\_arrive\_1

**set** arrive\_1 = 0

**where** arrive\_1 **is** **null**;

**select** \* **from** depart\_arrive\_1;

1. Simultaneously add and subtract people leaving and arriving within the first hour. Put into new table

**create** **table** occupants\_1

**as**

**select** location, land\_use, occupants, depart\_1, arrive\_1, (occupants - depart\_1 + arrive\_1) **as** occupants\_1

**from** depart\_arrive\_1;

1. Now this table mimicks beginning\_location\_all. Go back to step 4 and 5 and repeat

**create** **table** depart\_2

**as**

**select** **count**(trip.person) **as** depart\_2, origin

**from** Trip

**where** trip.start > 3600 **and** trip.start < 7200

**group** **by** trip.origin;

**create** **table** arrive\_2

**as**

**select** **count**(trip.person) **as** arrive\_2, destination

**from** Trip

**where** trip.end > 3600 **and** trip.end < 7200

**group** **by** trip.destination;

combine departures w/ occupants\_1. Then arrivals+departures+occupants. Delete useless tables again, rename, change null values

**create** **table** departs\_2

**as**

**select** occupants\_1.location, occupants\_1.land\_use, occupants\_1.occupants, occupants\_1.occupants\_1, depart\_2.depart\_2

**from** occupants\_1

**left** **join** depart\_2

**on** occupants\_1.location = depart\_2.origin;

|  |
| --- |
| **create** **table** departs\_8  **as**  **select** occupants\_7.location, occupants\_7.land\_use, occupants\_7.occupants, occupants\_7.occupants\_1, occupants\_7.occupants\_2, occupants\_7.occupants\_3, occupants\_7.occupants\_4, occupants\_7.occupants\_5, occupants\_7.occupants\_6, occupants\_7.occupants\_7, depart\_8.depart\_8  **from** occupants\_7  **left** **join** depart\_8  **on** occupants\_7.location = depart\_8.origin; |

|  |
| --- |
| **create** **table** departs\_11  **as**  **select** occupants\_10.location, occupants\_10.land\_use, occupants\_10.occupants, occupants\_10.occupants\_1, occupants\_10.occupants\_2, occupants\_10.occupants\_3, occupants\_10.occupants\_4, occupants\_10.occupants\_5, occupants\_10.occupants\_6, occupants\_10.occupants\_7, occupants\_10.occupants\_8, occupants\_10.occupants\_9, occupants\_10.occupants\_10, depart\_11.depart\_11  **from** occupants\_10  **left** **join** depart\_11  **on** occupants\_10.location = depart\_11.origin; |

**ALTER** **TABLE** "departs\_2"

RENAME **TO** "depart\_2";

**Update** depart\_2

**set** depart\_2 = 0

**where** depart\_2 **is** **null**;

**create** **table** depart\_arrive\_2

**as**

**select** depart\_2.location, depart\_2.land\_use, depart\_2.occupants, depart\_2.occupants\_1, depart\_2.depart\_2, arrive\_2.arrive\_2

**from** depart\_2

**left** **join** arrive\_2

**on**

depart\_2.location = arrive\_2.destination;

|  |
| --- |
| **create** **table** depart\_arrive\_7  **as**  **select** depart\_7.location, depart\_7.land\_use, depart\_7.occupants, depart\_7.occupants\_1, depart\_7.occupants\_2, depart\_7.occupants\_3, depart\_7.occupants\_4, depart\_7.occupants\_5, depart\_7.occupants\_6, depart\_7.depart\_7, arrive\_7.arrive\_7  **from** depart\_7  **left** **join** arrive\_7  **on**  depart\_7.location = arrive\_7.destination; |

**update** depart\_arrive\_2

**set** arrive\_2 = 0

**where** arrive\_2 **is** **null**;

Simultaneously add and subtract people leaving and arriving within the second hour. Put into new table

**create** **table** occupants\_2

**as**

**select** location, land\_use, occupants, occupants\_1, depart\_2, arrive\_2, (occupants\_1 - depart\_2 + arrive\_2) **as** occupants\_2

**from** depart\_arrive\_2;

|  |
| --- |
| **create** **table** occupants\_8  **as**  **select** location, land\_use, occupants, occupants\_1, occupants\_2, occupants\_3, occupants\_4, occupants\_5, occupants\_6, occupants\_7, depart\_8, arrive\_8, (occupants\_7 - depart\_8 + arrive\_8) **as** occupants\_8  **from** depart\_arrive\_8; |

people\_location = people\_location.groupby('location').agg('count')