**P2P Ride Sharing Matching Algorithm**

The algorithm aims to match a driver and passengers for the purposes of carpooling. The passenger will offer an amount that they are willing to pay for travel to a particular destination. The driver will choose to accept the fare according to his/her capacity to offer the ride to the passenger. In-order to match a driver and a passenger, the following have to be satisfied.

1. ;

*Where is the driver’s intended pickup location,*

*is the acceptable distance radius from pickup that the driver is willing to meet the passenger and;*

*is the passenger’s pickup location.*

1. ;

*Where is the driver’s intended destination,*

*is the acceptable distance radius from destination that driver is willing to drop off the passenger and;*

*is the passenger’s destination.*

Implementation of the algorithm is aided by the Google Distance Matrix API which is responsible for calculating the distance between an origin and a destination. (Google, 2023)

**Algorithm Implementation Pseudocode**

*Let Dpickup = Driver pickup location*

*Let DVRadius = Off Pickup Radius*

*Let Ppickup = Passenger pickup location*

*Let Ddest = Driver destination*

*Let DdestRad = Off Destination Radius*

*Let PdropOff = Passenger Drop off location*

*PickupDistance = CalculateDistance(Dpickup, Ppickup)*

*IF PickupDistance <=DVRadius THEN*

*pickupMatch = True*

*DropOffDistance = CalculateDistance(Ddest, PdropOff)*

*IF DropOffDistance <= DdestRad THEN*

*dropOffMatch = True*

*IF pickupMatch = True AND dropOffMatch = True THEN*

*P2PMatch = True*

*NOTIFY MATCH*