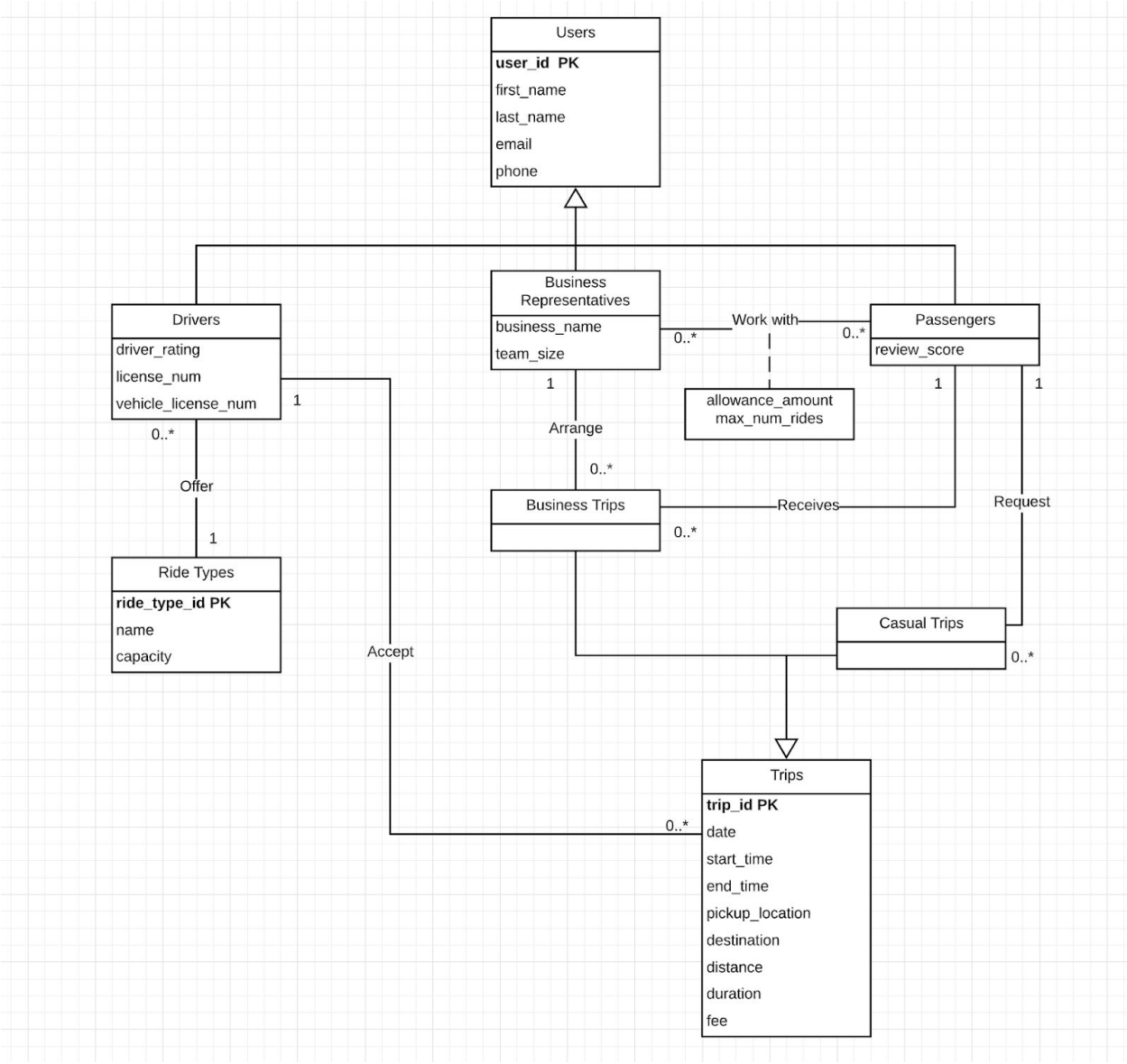
Phase 2 Final Deliverables

Business: Uber

Team 09: Andey Ng, Esteban Vázquez, Phil Huang

Revised Conceptual Model:



User Stories:

ID	Simple/Complex/Analytical	As a <role>	I want <goal>	So that <reason>
US1	Simple (Analytical)	Driver	To know my average earnings by day and by night	I can plan what time of the day I want to work to maximize my earnings
US2	Simple	Business representative	To assign an allowance and max number of rides to employees or clients	Different employees or clients can request rides for themselves
US3	Simple	Driver	To see my total earnings on a certain date	I can keep track of my finances
US4	Simple	Driver	To find the total number of miles driven on a certain date	I can budget my gasoline usage
US5	Complex	Business representative	To request rides for my employees or clients	They can get to their destination without using their own money
US6	Complex	Passenger	To be able to be picked up only by drivers above a certain rating with a certain type of car	I can enjoy from the best-quality driving and car experience
US7	Complex	Passenger	To see a history of my trips along with the driver's information for each trip	I can review my trip information and my driver's previous ratings
US8	Complex (new func.)	Passenger	To request multiple rides to the same location	I can transport a large group of people
US9	Complex(Analytical)	Passenger	To know the average time for certain trips	I can plan my trips ahead of time without being late
US10	Complex (Analytical)	Business representative	To know how much I have spent on transporting my employees this month	I can keep track of spending and plan business finances accordingly

Relational model:

Users(**user_id**, first_name, last_name, email, phone)

Drivers(**user_id**, driver_rating, license_num, vehicle_license_num, vehicle_type)

- Drivers(vehicle_type) references Ride_Types(ride_type_id)

Passengers(**user_id**, review_score)

Business_Representatives(**user_id**, business_name, team_size)

Ride_Types(**ride_type_id**, name, capacity)

Trips(**trip_id**, date, start_time, end_time, pickup_location, destination, distance, duration, fee, driver_id)

- Trips(driver_id) references Drivers(user_id)

Business_Trips(**trip_id**, business_rep_id, passenger_id)

- Business_Trips(business_rep_id) references Business_Representatives(user_id)
- Business_Trips(passenger_id) references Passengers(user_id)

Casual_Trips(**trip_id**, passenger_id)

- Casual_Trips(passenger_id) references Passenger(user_id)

Work_with(**business_rep_id**, **passenger_id**, allowance_amount, max_num_rides)

- Work_with(business_rep_id) references Business_Represnetatives(user_id)
- Work_with(passenger_id) references Passengers(user_id)

Functional Dependencies:

- Users
  - user_id → first_name, last_name, email, phone - BCNF
- Drivers
  - user_id → driver_rating, license_num, vehicle_license_num, vehicle_type - BCNF
- Passengers
  - user_id → review_score - BCNF
- Business_Representatives
  - user_id → business_name, team_size - BCNF

- Ride_Types
  - ride_type_id → name, capacity - BCNF
- Trips
  - trip_id → date, start_time, end_time, pickup_location, destination, distance, duration, fee, driver_id - BCNF
- Business_Trips
  - trip_id → business_rep_id, passenger_id - BCNF
- Casual_Trips
  - trip_id → passenger_id - BCNF
- Work_with
  - business_rep_id, passenger_id → allowance_amount, max_num_rides - BCNF

Normalization:

All the relations are already in BCNF. On each relation, there is only one functional dependency with a primary key that uniquely identifies each entry in the relation.

- Users: here user_id determines all other attributes and there are no partial or transitive dependencies.
- Drivers: here user_id determines all other attributes and there are no partial or transitive dependencies.
- Passengers: here user_id determines all other attributes and there are no partial or transitive dependencies.
- Business_Representatives: here user_id determines all other attributes and there are no partial or transitive dependencies.
- Ride_Types: here ryde_type_id determines all other attributes and there are no partial or transitive dependencies.
- Trips: here trip_id determines all other attributes and there are no partial or transitive dependencies.
- Business_Trips: here trip_id determines all other attributes and there are no partial or transitive dependencies.
- Casual_Trips: here trip_id determines all other attributes and there are no partial or transitive dependencies.
- Work_with: here business_rep_id and passenger_id are the primary key, determine all other attributes, and there are no partial or transitive dependencies.

Final Physical Model: