Ride sharing Company
UBER

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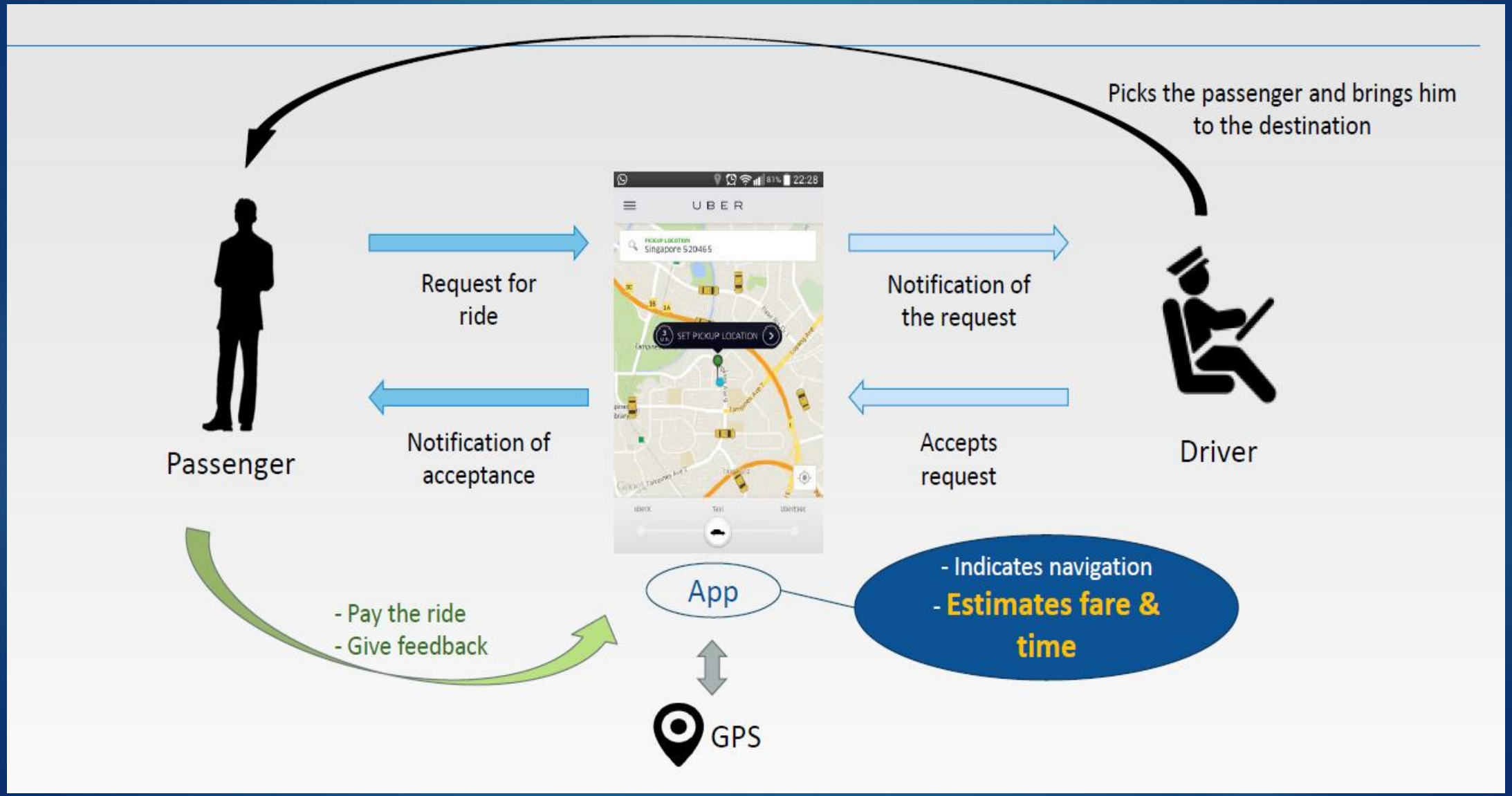
Agenda

- What is the business model of uber?
- Why ER model?
- Components of ER model
- Relationship cardinalities
- Participation Constraints
- Specialization & Generalization
- Category and Union
- Entities and their Constraints
- ER diagram of UBER
- ER diagram Notations

Business Model

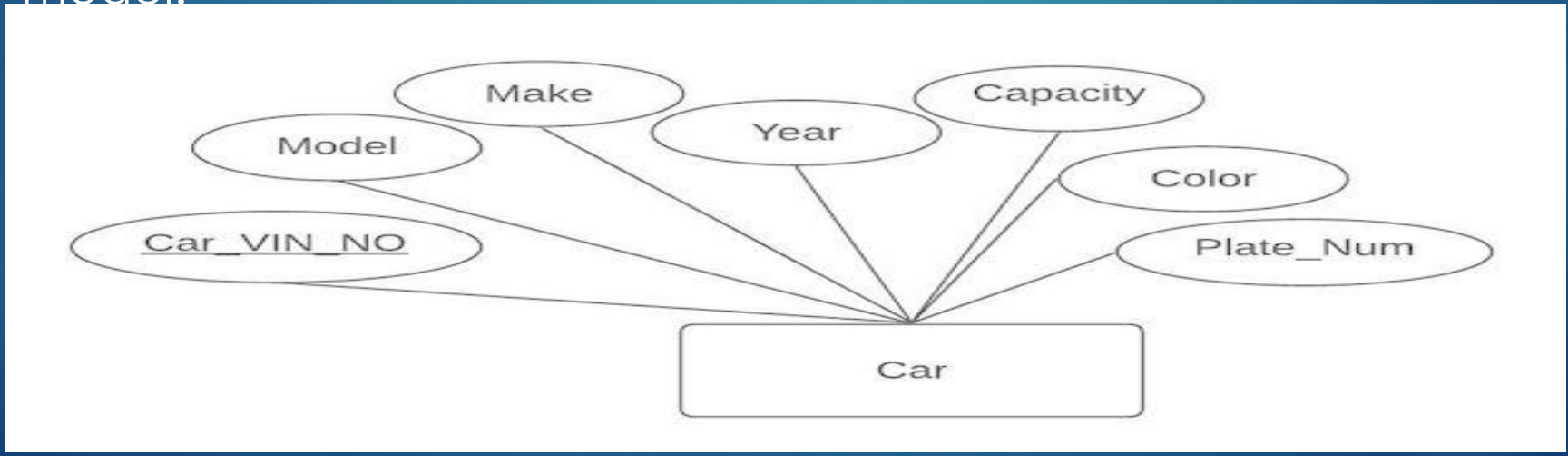


Why we choose ER-model

- It is concise description of data requirements of the user.
- It does not include implementation details
- It is easier to understand and to communicate with NonTechnical user.
- It helps in actual implementation of database by logical mapping.

Components of ER model

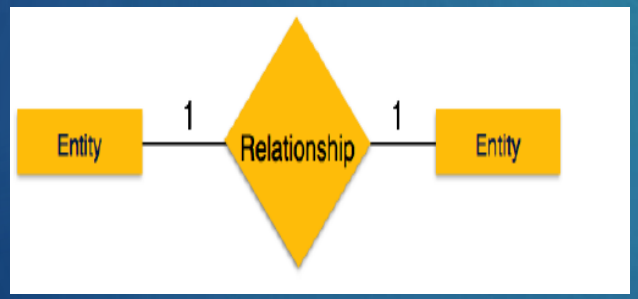
- Entity: Entity has its own identity that distinguishes it from other entities.
- Attributes: Attributes are properties of entities. Attributes is a property or characteristic of an entity that is of interest to the organization.
- **Relationships** are associations between one or more entity types. They are the "*glue*" that holds together components of an E-R model.



Relationship

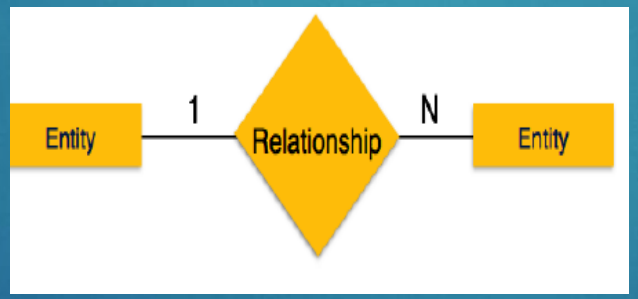
One to one

When only one instance of entity is associated with the relationship.



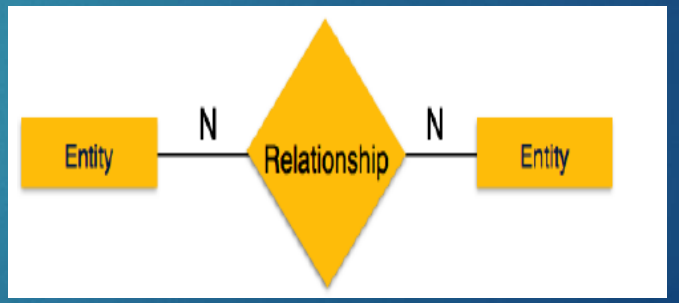
One-to-many

When more than one instance of entity is associated with the relationship.



Many to many

one instance of entity on the left and more than one instance of entity on the right can be associated with the relationship.



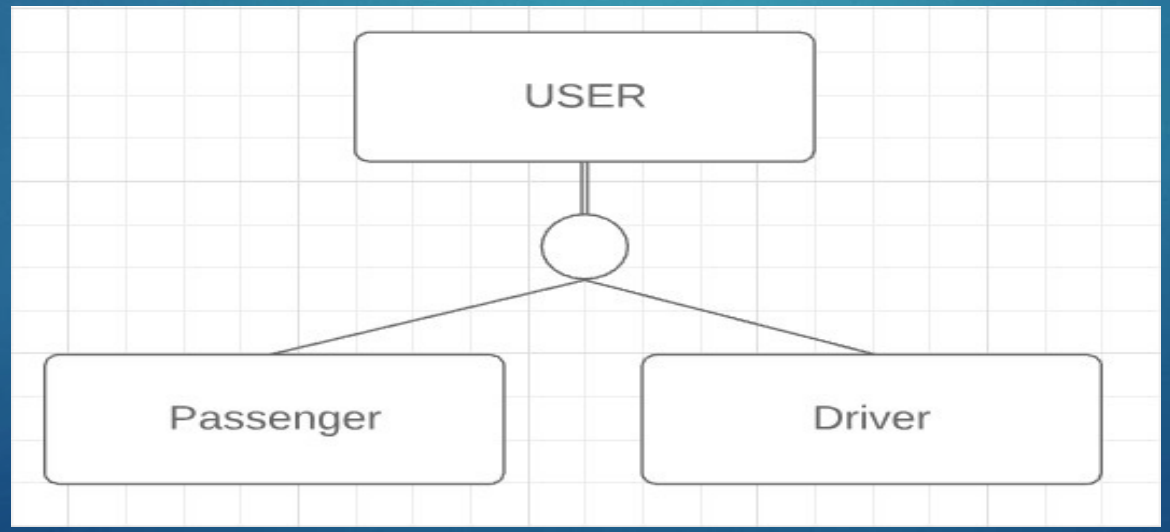
Participation Constrains

- **Total Participation:** Each entity in the entity is involved in the relationship. Total participation is represented by double lines.

- **Partial participation:** Not all entities are involved in the relation ship. Partial participation is represented by single line.

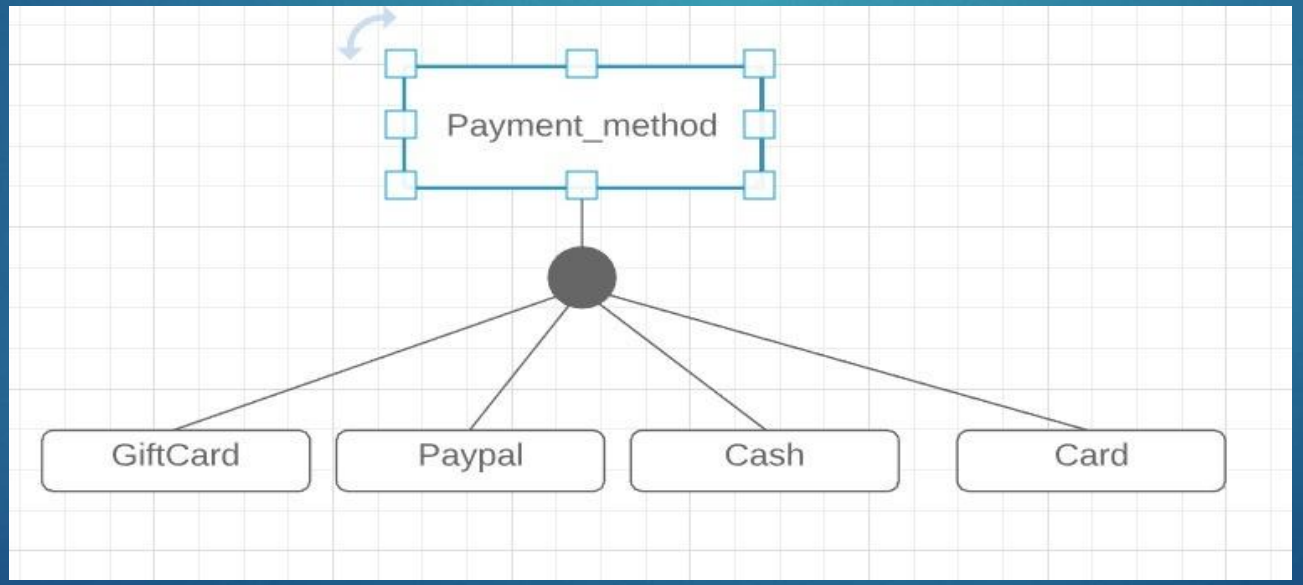
Specialization & Generalization

- **Specialization and generalization**: Specialization used for categorizing a class of object into subclasses.
- Generalization is the quite opposite of the specialization and it is used combined several class into a higher -level class.
- Example: User can be Passenger or Driver.



Category & Union

- **Category** - a subclass that represents a collection of entities from different entity types.
- Example: In Payment method inherits the attributes from Gift card, Card (Debit/Credit), Paypal account depending on the superclass to which Payment method user selects.



Passenger Entity:

USER_ID	F_NAME	L_NAME	GENDER	EMAIL-ID	MOBILE_NO	Password	RATING

Constraints for Passenger table

- Primary Key: USER_ID
- All attributes are not NULL
- OVERALL_RATING:
  - Range between 0 to 5.
  - Default value : 5.0
- Mobile_NO: Cannot be greater than 10 digits
- Password: Minimum 8 Character and Maximum 20 Character.

Driver Entity

Driver_id	Firstname	Lastname	Gender	Email_id	Mobileno	Avg_Rating	Password	DL_Num

Constraint for Driver table

- Primary Key : DRIVER_ID & DRIVER_LIC_NO
- Mobile_No: Must be 10 digit Number.
- Overall_Rating:
  - Ranges between 0.0 and 5.0
  - Default value is 5.0
- Password: Min. 8 Char & Max 20 Char
- DL_Num: Must be 8 Character.

Car Entity

Car_Vinno	Model	Make	Year	Capacity	Color	Plate_num

Constraints for Car table

Primary Key: CAR_VIN_NUM (Uniquely identifies car)
Year: No car older than 2010 year
Capacity: Min. 2 and max 8

Request Entity

Req_ID	User_ID	surge	Date&time	Ride_type	Pickup_loc	Dropoff_loc	EST_FARE	Seats

Constraints for Request Table

- Primary Key: Req_ID
- Foreign Key: User_ID
- Ride_type: Pool, Express Pool, Uber X & Uber XL
- Num_of_seat: Min 1 and Max 8.

Trip Entity

Trip_Id	Req_Id	Driver_id	Start_time	Duration	Fare	Tip	D_Rating	P_Rating	Comment

Constraints for trip table

- Primary Key : Trip ID
- Foreign Key : Req_ID & Driver_ID
- D_Rating, P_Rating: Ranges between 0 and 5

Payment Method

Gift card

Expiry date	Card_num	Amount

Constraints

- P K: Card_num
- Expiry_Date: date greater than current month

Paypal

Paypal_ID

- P k:Paypal _ID

Card

Card_num	Name	Expiry	Type

Constraints

- Card_num: primary key
- Expiry: Date should be greater than current month
- Type: Credit or Debit.

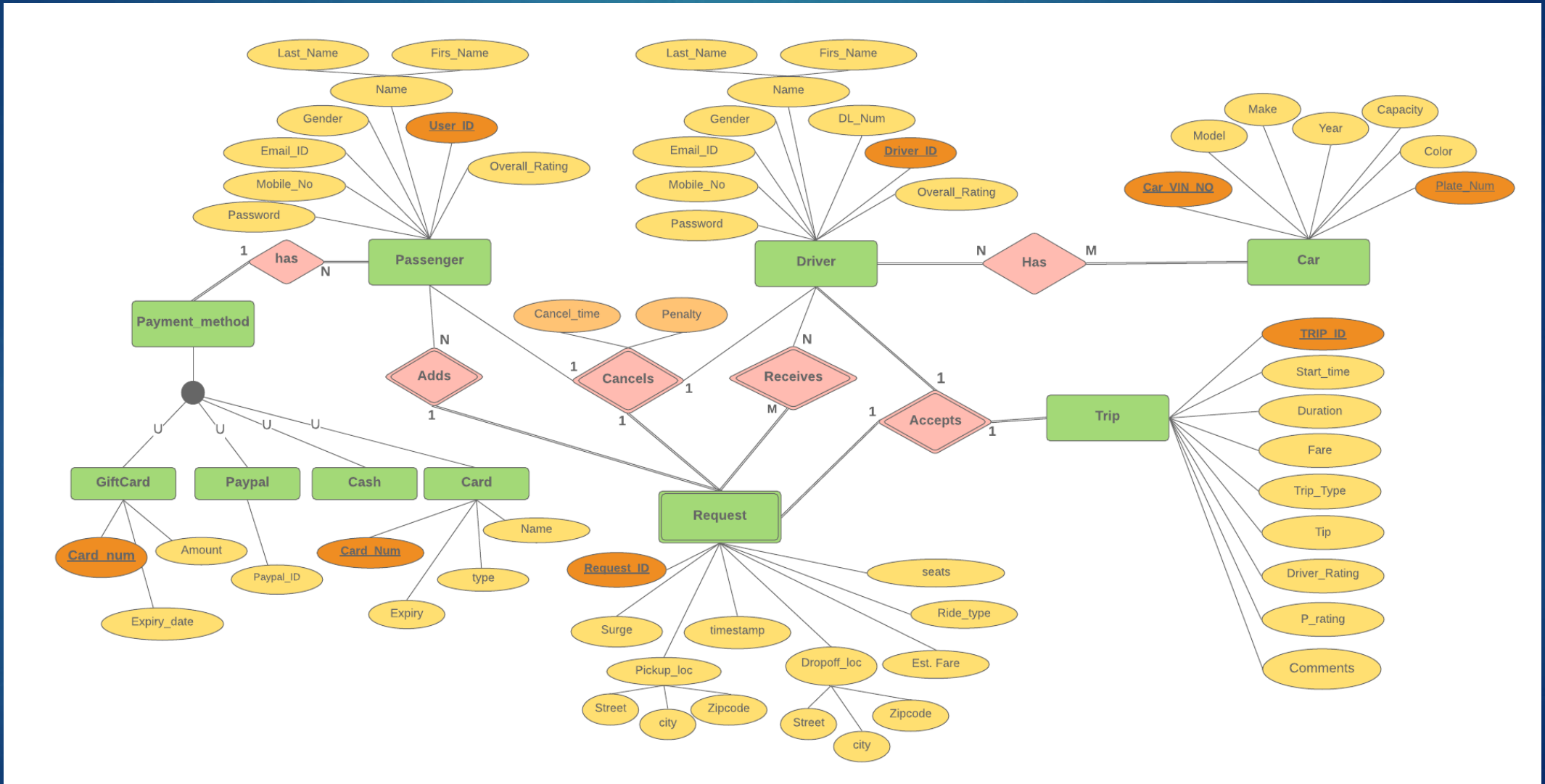
Cancel Request

REQ_ID	USER_ID	DRIVER_ID	Penalty	Cancel_time	Cancelled_BY	Reason

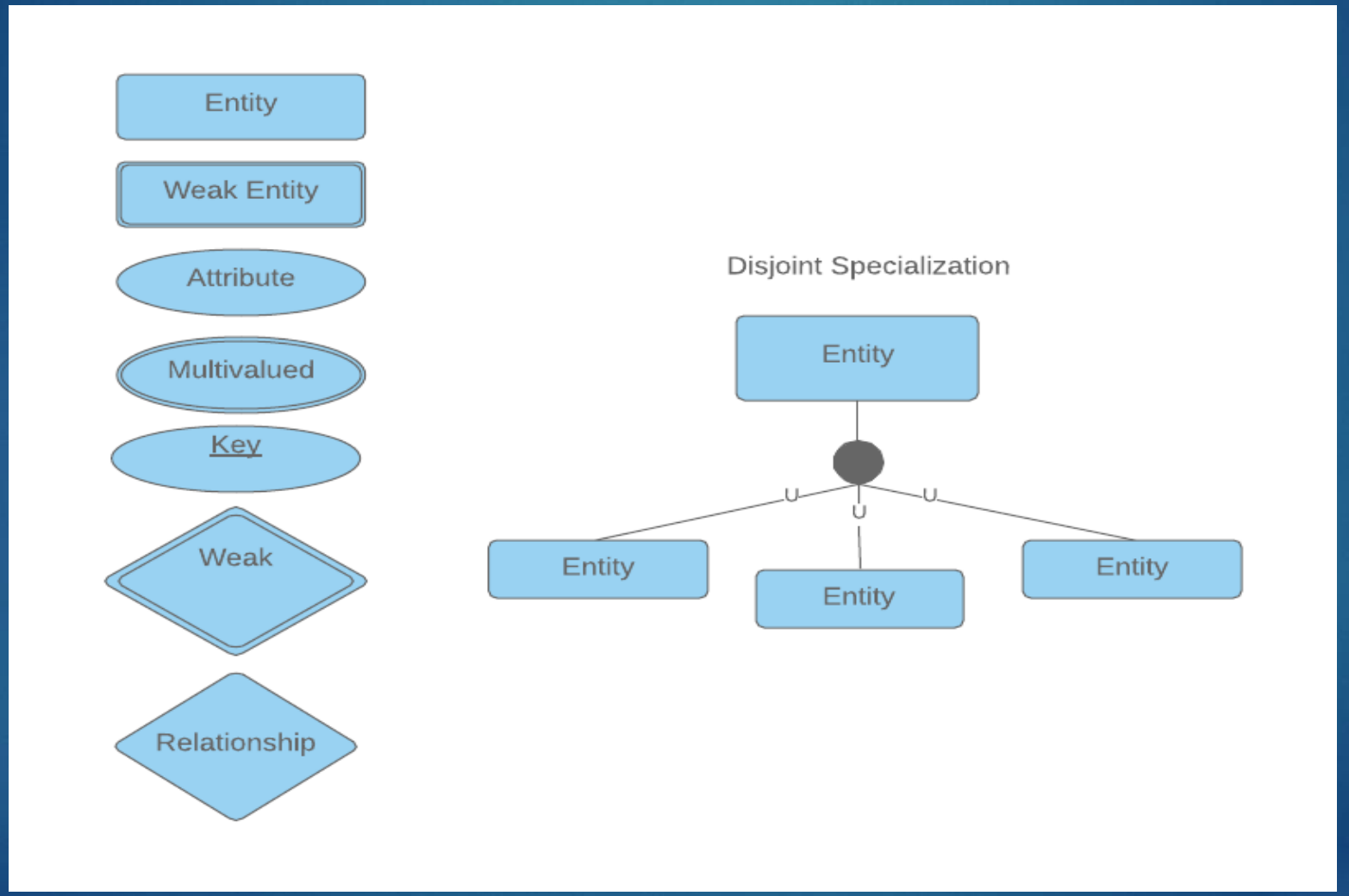
Constraints for Cancel table

- Primary Key : REQ_ID, USER_ID, DRIVER_ID
- Foreign Key : REQ_ID, USER_ID, DRIVER_ID
- Canceled BY: has to be USER_ID or DRIVER_ID.

ER Diagram for UBER



ER Diagram Notations



Thank You

Question?