Department of Computer Engineering

CSE5041 Database Design & Development
Project Report

PROJECT TITLE

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PROJECT DESCRIPTION

Muğla's Bus hubs are full of activity: the crowd, the rush, the lines, the race to the platform or terminal. Clearly, such places require a lot of organization! In this project, we'll describe a database model that could keep a transport hub organized.

And that's not easy. There are many parameters to account for: lines, stations, passengers, tickets, garages , buses , and the number of available seats on any given trip. Plus, before selling tickets or doing any similar action, we need to be sure that the result is the desired one.

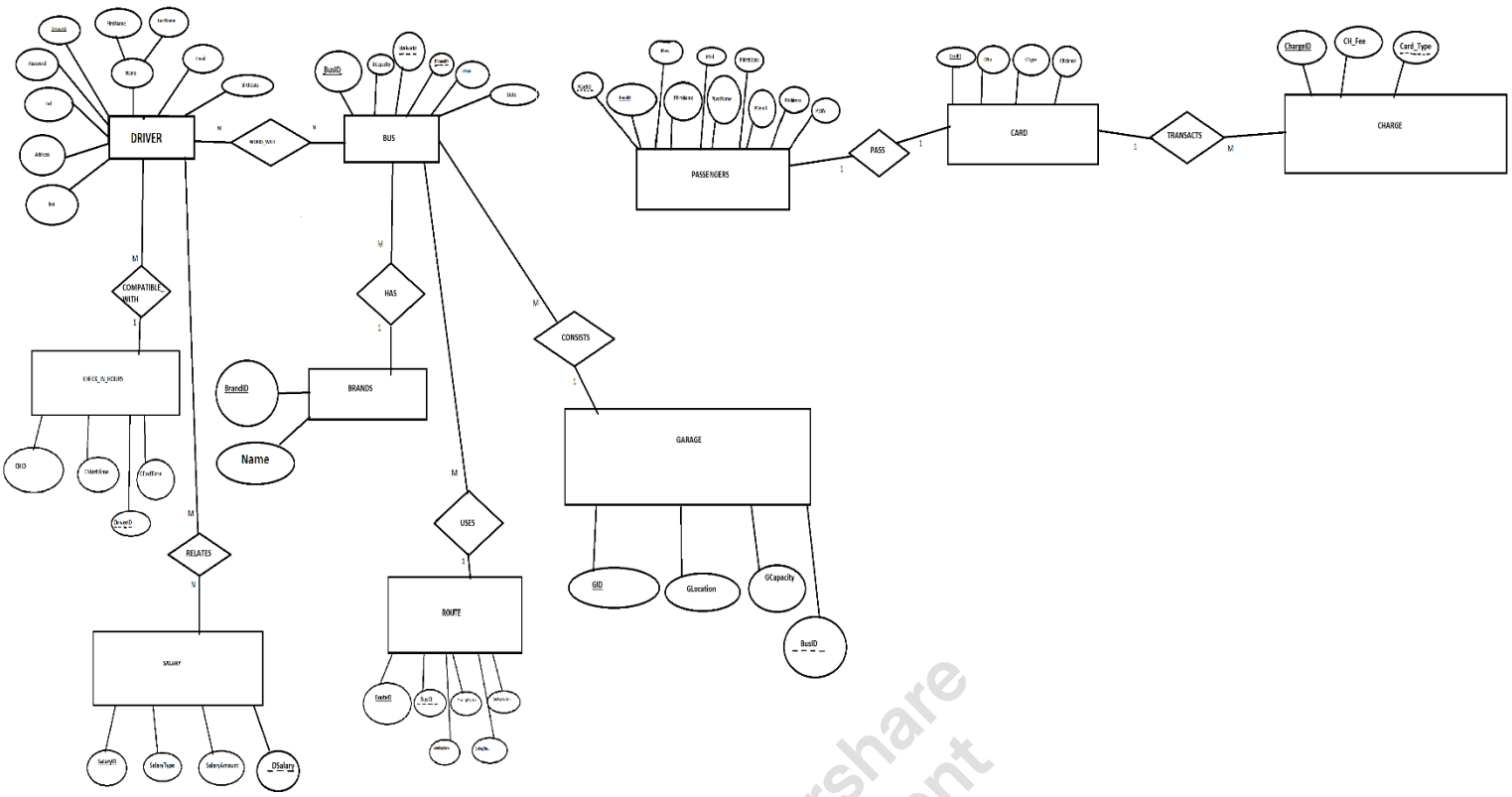
So let's look at the problems transport hubs face as well the data model to solve them.

Before we start the technical stuff, we'll consider the issues facing travel hubs from different perspectives. For each one, we'll explain what actions are required.

• The buses are organized into routes. Each route has a unique ID, a unique number,a starting point and an ending point. The database keeps track of the starting and ending time . A starting route may have several locations.

• The database stores each driver's name, driver's id, address, salary, sex and birthdate. A driver might be assigned to many buses and he/she may work on several buses, which are not necessarily controlled by the same bus. The database also keeps track of the check in hours of a driver already worked on each bus.

- The database stores each passenger's name, passenger's id, address, email, sex, Social Security Number and birthdate.
- The database stores each cards and the charge that has been taken from the card.
- Each bus is stored in a garage and our database holds each specific element of a garage.



RELATIONAL MAPPING

STEP 1-) MAPPING OF REGULAR ENTITY TYPES

DRIVER

DriverID	FirstName	LastName	Email	Tel	Address	Password	Sex	BirthDate

BUS

BusID	BCapacity	Plate	State

Brands

BrandID	Name

PASSENGERS

PassID	PFirstName	PLastName	PEmail	PSex	PTel	PBirthDate	PAddress	PSSN

ROUTE

RouteID	StartingStation	EndingStation	StartingTime	EndingTime

CARD

CardID	CNo	CType	CBalance

SALARY

SalaryID	SType	SAmount

CHECK_IN_HOURS

CHID	CStartingTime	CEndingTime

CHARGE

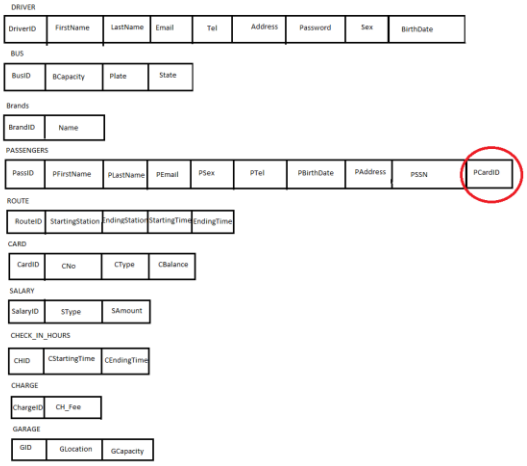
ChargeID	CH_Fee

GARAGE

GID	GLocation	GCapacity

Step 2-) MAPPING WEAK ENTITIES

STEP 3-) MAPPING OF BINARY 1:1 RELATIONSHIPS



STEP 4-) MAPPING OF BINARY 1:N RELATIONSHIPS

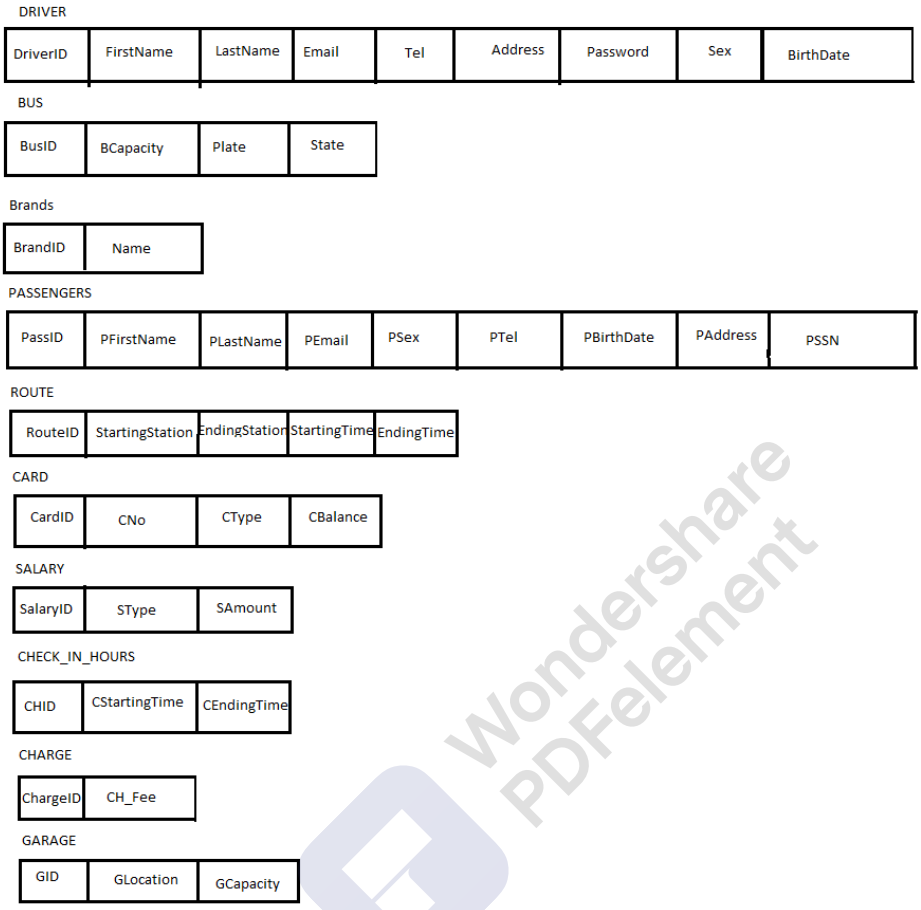
STEP 5-) MAPPING OF BINARY M:N RELATIONSHIPS

STEP 6-) MAPPING OF MULTIVALUED ATTRIBUTES

STEP 7-) MAPPING OF N-ARY RELATIONSHIPS

3 NORMALIZATION

3.2 UNNORMALISED FORM



3.3 FIRST NORMAL FORM

3.4 SECOND NORMAL FORM

3.5 THIRD NORMAL FORM