Faculty of Computers and Artificial Intelligence

Cairo University

Final Assessment Project

Course Title: Introduction to Database Systems (IS211)
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PROJECT TITLE

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Contents

Chapter 1: Introduction

The introduction should give the reader the appropriate knowledge and background to understand the project. Make your purpose known and introduce your topic. Explain why the project idea is important to readers.

The introduction should contain the following information:

1.1   Description of the project idea

Describe the idea behind the project

-The database of transportation system

The means of transportation nowadays are multiple and different

These methods help us to approximate distance, reduce waste time on road between starting points for trips and distention

Modern transportation also helps to bring people closer together and improve communication with each other by providing a convenient transport network that connects remote distances with ease

And we have lots of types which differs from using it

For example :

Uber and careem :By using this method of transport, you can reach anywhere so easily whether you are going to do some of your work in the city or spend a vacation in the city

It also helps you in a lot of situations when you can't find a fast method which can help you to arrive in time
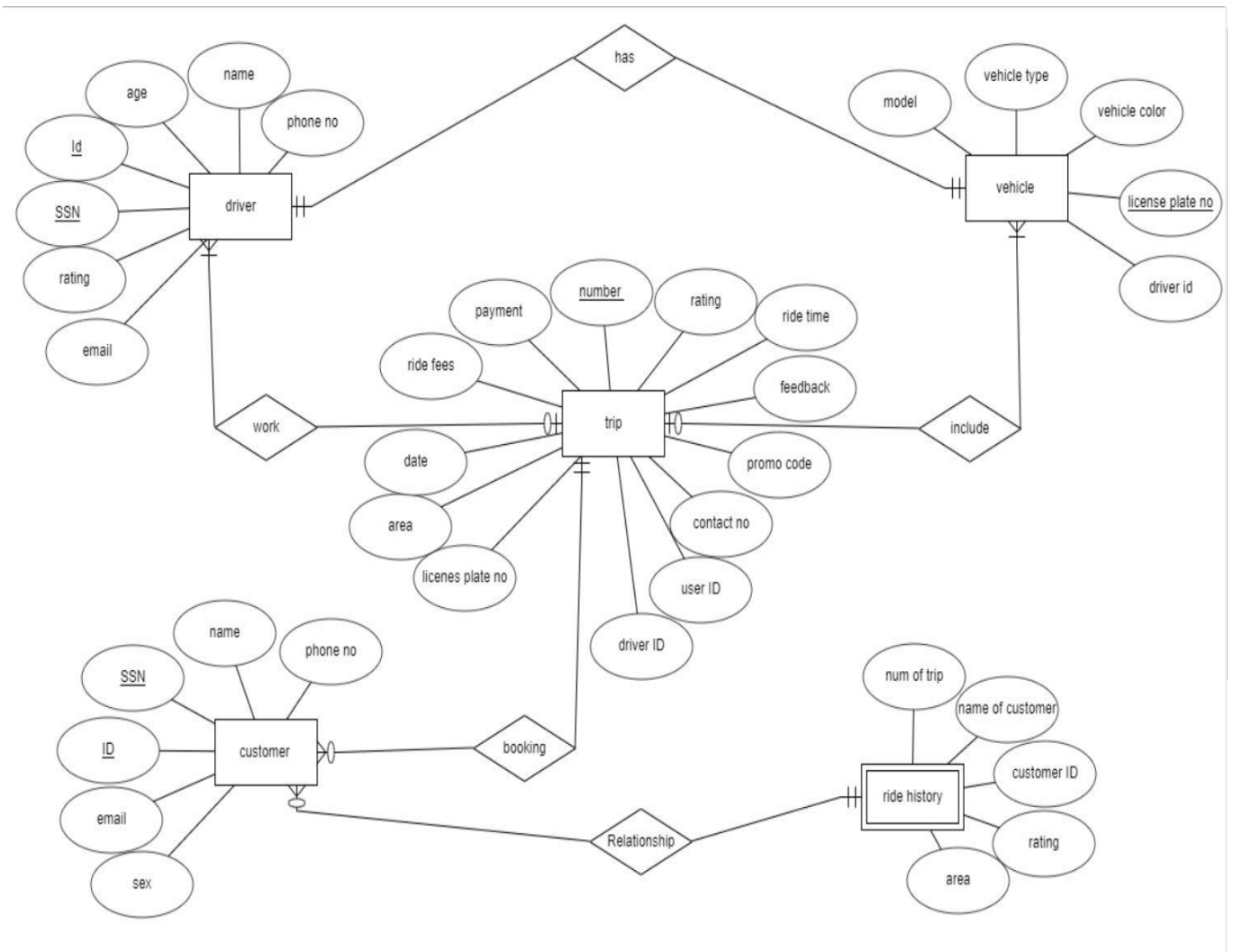
1.2 Technology and tools used

List all tools, software, programming languages needed to complete your project.

- ERDPlus
- Vertabelo
- SQLServerManagementStudio

Chapter 2: Analysis

2.1 DB Conceptual ERD

In this section you need to put your ER diagram (using a tool) with all details of it. Also, you need to specify any assumptions you have.

We have five entities (Driver, Customer, trip Vehicle, ride history), Each entity contains its attributes.

There is a relationship between the driver and the vehicles (one to one),

There is a relationship between the driver and trip (one to many),

There is a relationship between the vehicles and trip (one to many),

There is a relationship between the customer and the trip (one to many),

There is a relationship between the Customer and the ride history (one to many).

2.2 DB Physical ERD

In this section you need to add your ER diagram after transforming it to physical +corresponding DDL statements.
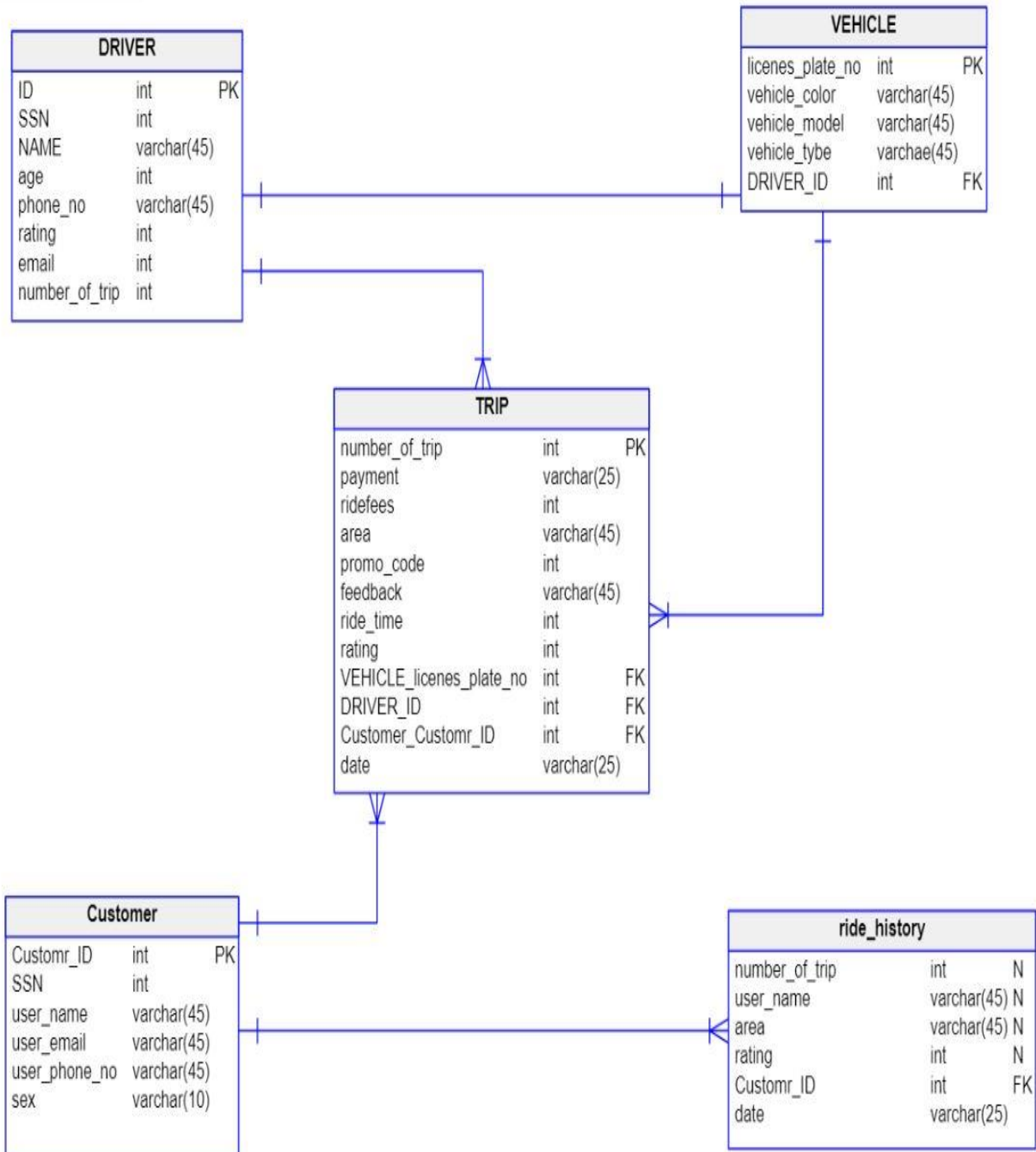
Chapter 3: SQL Queries + screenshots of the results

In this section you need to write all the SQL statements that is required from you + screenshots of the query results.

```sql
CREATE DATABASE Project
use Project

CREATE TABLE Customer (
    Customr_ID int PRIMARY KEY NOT NULL,
    SSN varchar(45) UNIQUE NOT NULL,
    use_name varchar(45)  NOT NULL,
    user_email varchar(45)  NOT NULL,
    user_phone_no varchar(45)  NOT NULL,
    sex varchar(10)  NOT NULL,
);

INSERT INTO Customer
VALUES(111,'111111111111','malek','malek@gmail.com','01110645891','male')
INSERT INTO Customer
VALUES(222,'222222222222','shimy','shimy@gmail.com','01111111111','male')
INSERT INTO Customer
VALUES(333,'333333333333','ton','tony@gmail.com','01222222222','male')
INSERT INTO Customer
VALUES(444,'444444444444','noor','noor@gmail.com','01123456789','female')
INSERT INTO Customer
VALUES(555,'555555555555','raafat','raafat@gmail.com','01512345678','male')
--INSERT INTO Customer
VALUES(666,666666666666,'zeyad','zeyad@gmail.com',01236547896,'male')
--INSERT INTO Customer
VALUES(777,777777777777,'marwa','marwa@gmail.com',01236548957,'female')
--INSERT INTO Customer
VALUES(888,888888888888,'masa','masa@gmail.com',01526498454,'female')

-- Table: DRIVER
CREATE TABLE DRIVER (
    ID int PRIMARY KEY NOT NULL,
    SSN varchar(25) UNIQUE NOT NULL,
    NAME varchar(45)  NOT NULL,
    age int  NOT NULL,
    phone_no varchar(45)  NOT NULL,
    rating decimal  null ,
    email varchar(45)  NOT NULL,
        NumOfRide int not null,

);
INSERT INTO DRIVER VALUES(1111,'194859623145','ali',39,'01165497836',4,'ali@gmail.com',4)
INSERT INTO DRIVER
VALUES(2222,'231564875645','careem',30,'01165432651',3.5,'careem@gmail.com',1)
INSERT INTO DRIVER VALUES(3333,'645231874562','saad',20,'0100000000',5,'saad@gmail.com',3)
INSERT INTO DRIVER
VALUES(4444,'987654321654','gomaa',22,'01555555555',null,'gomaa@gmail.com',0)

-- Table: TRIP
CREATE TABLE TRIP (
```

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```sql
    number_of_trip int PRIMARY KEY NOT NULL,
    payment varchar(25)  NOT NULL,
    ridefees VARCHAR(25)  NOT NULL,
    area varchar(45)  NOT NULL,
    promo_code int  NULL,
    feedback varchar(45)  NOT NULL,
    ride_time varchar(10)  NOT NULL,
    rating decimal  NOT NULL,
    VEHICLE_licenes_plate_no int  NOT NULL,
    DRIVER_ID int  NOT NULL,
    Customer_Customr_ID int  NOT NULL,
    date_trip varchar(45) not null,
        type_vehicle char(30)
        --CONSTRAINT TRIP_pk PRIMARY KEY (number_of_trip)
);

insert into TRIP values (1,'cach','50 L.E','cairo',null,'good','3
p.m',4,12345,1111,111,'5/1/2020','car' )
insert into TRIP values (2,'visa','30 L.E','cairo',null,'good','9
p.m',2,22345,2222,222,'5/3/2020','scooter')
insert into TRIP values (3,'cach','150 L.E','asswan',null,'very good','2
p.m',5,33345,3333,333,'6/1/2020','car')
insert into TRIP values (4,'visa','300 L.E','giza',123,'good','5
p.m',5,33345,3333,444,'5/14/2020','car')
insert into TRIP values (5,'cach','130 L.E','dokki',542,'good','7
p.m',5,33345,3333,555,'5/7/2020','car')
insert into TRIP values (6,'cach','50 L.E','cairo',null,'good','6
p.m',3,12345,1111,111,'5/5/2020','car')
insert into TRIP values (7,'master card','250 L.E','asswan',null,'good','10
p.m',3.5,12345,1111,222,'2/2/2020','car')
insert into TRIP values (8,'cach','50 L.E','giza',null,'good','6
p.m',4,12345,1111,111,'5/8/2020','car')


-- Table: VEHICLE
CREATE TABLE VEHICLE (
    licenes_plate_no int  NOT NULL,
    vehicle_color varchar(45)  NOT NULL,
    vehicle_model varchar(45)  NOT NULL,
    vehicle_tybe varchaR(45)  NOT NULL,
    DRIVER_ID int  NOT NULL,
    CONSTRAINT VEHICLE_pk PRIMARY KEY (licenes_plate_no)
);
insert into VEHICLE values(12345,'white','toyota','car',1111)
insert into VEHICLE values(22345,'blue','honda','scooter',2222)
insert into VEHICLE values(33345,'black','BMW','car',3333)
insert into VEHICLE values(44345,'red','fiat','car',4444)

CREATE TABLE ride_history (
    number_of_trip int  NULL,
    user_name varchar(45)  NULL,
        date_trip varchar(45),
    area varchar(45)  NULL,
    rating decimal  NULL,
    Customr_ID int  NOT NULL
);

insert into ride_history values (3,'malek','may','cairo',4,111)
insert into ride_history values (3,'malek','april','cairo',4,111)
```

```sql
insert into ride_history values (2,'shimy','may','cairo',4,222)
insert into ride_history values (1,'tony','may','asswan',5,333)
insert into ride_history values (1,'noor','may','giza',5,444)
insert into ride_history values (1,'raafat','may','dokki',4,555)
insert into ride_history values (3,'malek','may','giza',4.5,111)
insert into ride_history values (2,'shimy','may','asswan',4,222)

-- foreign keys
ALTER TABLE TRIP ADD CONSTRAINT TRIP_Customer
    FOREIGN KEY (Customer_Customr_ID) REFERENCES Customer (Customr_ID)
;

ALTER TABLE TRIP ADD CONSTRAINT TRIP_DRIVER
    FOREIGN KEY (DRIVER_ID)  REFERENCES DRIVER (ID)
;

ALTER TABLE TRIP ADD CONSTRAINT TRIP_VEHICLE
    FOREIGN KEY (VEHICLE_licenes_plate_no) REFERENCES VEHICLE (licenes_plate_no)
;

ALTER TABLE VEHICLE ADD CONSTRAINT VEHICLE_DRIVER
    FOREIGN KEY (DRIVER_ID) REFERENCES DRIVER (ID)
;


ALTER TABLE ride_history ADD CONSTRAINT ride_history_Customer
    FOREIGN KEY (Customr_ID) REFERENCES Customer (Customr_ID)
;
-------------------------------------------------------------------------
--a. What was the area that had the most/least ride requests last month?

select x.area as heigh , y.area as low
from

(select area  , count(area) as hight
  from TRIP
  where DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
group by area
having count(area) =
    ( select max(hight) as hight
       from (
               select area , count(area) as hight
                 from TRIP
                           where DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
               group by area
               ) as a
     ))as x,
(select area , count(area) as vehicle
  from TRIP
  where DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
group by area
having count(area) =
    ( select min(vehicle) as highest_total
       from (
               select area , count(area) as vehicle
                 from TRIP
                           where DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
               group by area
               ) as b
```

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```
      )
)as y
```

--b. Who were the drivers with the maximum number of rides last month?

```sql
select DISTINCT DRIVER.ID , DRIVER.NAME , DRIVER.SSN ,
DRIVER.age,DRIVER.phone_no,DRIVER.rating,DRIVER.email,DRIVER.NumOfRide
from DRIVER,TRIP
where NumOfRide =
(select MAX(NumOfRide) from DRIVER)and DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
;
```

--c. For each driver, retrieve all his/her information and the number of rides he/she had.

```sql
SELECT* FROM DRIVER ;
```

--d. Which driver got at least 4.5 out of 5 on every user rating he/she got?
```sql
select * from DRIVER where (rating >= 4.5 );
```

	ID	SSN	NAME	age	phone_no	rati...	email	NumOfRide
1	3333	645231874562	saad	20	0100000000	5	saad@gmail.com	3

--e. Who were the drivers that didn't have any ride last month?

```
select DISTINCT DRIVER.ID , DRIVER.NAME , DRIVER.SSN ,
DRIVER.age,DRIVER.phone_no,DRIVER.rating,DRIVER.email,DRIVER.NumOfRide
from DRIVER,TRIP
where NumOfRide =0
and DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
```

	ID	NAME	SSN	age	phone_no	rating	email	NumOfRide
1	4444	gomaa	987654321654	22	01555555555	NULL	gomaa@gmail.com	0

--f. What is the most type of vehicle (car, bus, and scooter) requested last month?

```
select type_vehicle , count(type_vehicle) as vehicle
  from TRIP
  where DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
group by type_vehicle
having count(type_vehicle) =
    ( select max(vehicle) as highest_total
        from (
            select type_vehicle , count(type_vehicle) as vehicle
              from TRIP
                        where DATEDIFF(MONTH,date_trip,GETDATE()) BETWEEN 1 AND 1
            group by type_vehicle
            ) as t
    )
```

	type_vehi...	vehicle
1	car	5

References

This section contains links or citations to any sources used in implementing and completing this project -if any