Al Alamein International University
Faculty of Computer Science & Engineering
CSE221 Database Systems

AIU Bus Reservation

Team Members:

- Shaden Hazem ID:20100253
- Malak Amr ID:20100258
- Rowan Badr ID:20100239
- Esraa Wael ID:20100384

Application Description:

The application is for AIU users (Students, administrators, staff and visitors). It's used to reserve tickets (daily, weekly, monthly or per term). Users also choose their pick up location. Functionality of the system is to manage reserve, users data and passengers list. It would also schedule routes, set seat availability.

Data needed to be stored:

-Passenger:

- First Name
- Middle Name
- Last Name
- Gender
- ID (if exists)
- Email
- Faculty (if exists)
- Position (if exists)
- Rank (if exists)
- Street
- Area
- Phone Number

-Driver:

- First Name
- Last Name
- Phone Number
- Street
- Area
- ID
- Email
- Salary

-Transaction:

- Bank Name
- Transaction Date
- Transaction Name
- Transaction ID

-Tickets:

- Days
- Departure Time
- Collection Point
- Weekly or Daily or Monthly
- Price
- One Way or Two Ways
- Date
- Ticket ID
- QR Code

-Transports Admin:

- Email
- Phone Number
- Admin ID
- First Name
- Last Name

-Bus Supervisor:

- Email
- Phone Number
- Supervisor ID

- Pick Up Location
- Salary
- Area
- Street
- First Name
- Last Name

-Vehicle:

- Plate Number
- Route
- Vehicle Type
- Capacity
- Number of Seats Available
- Number of Seats Reserved

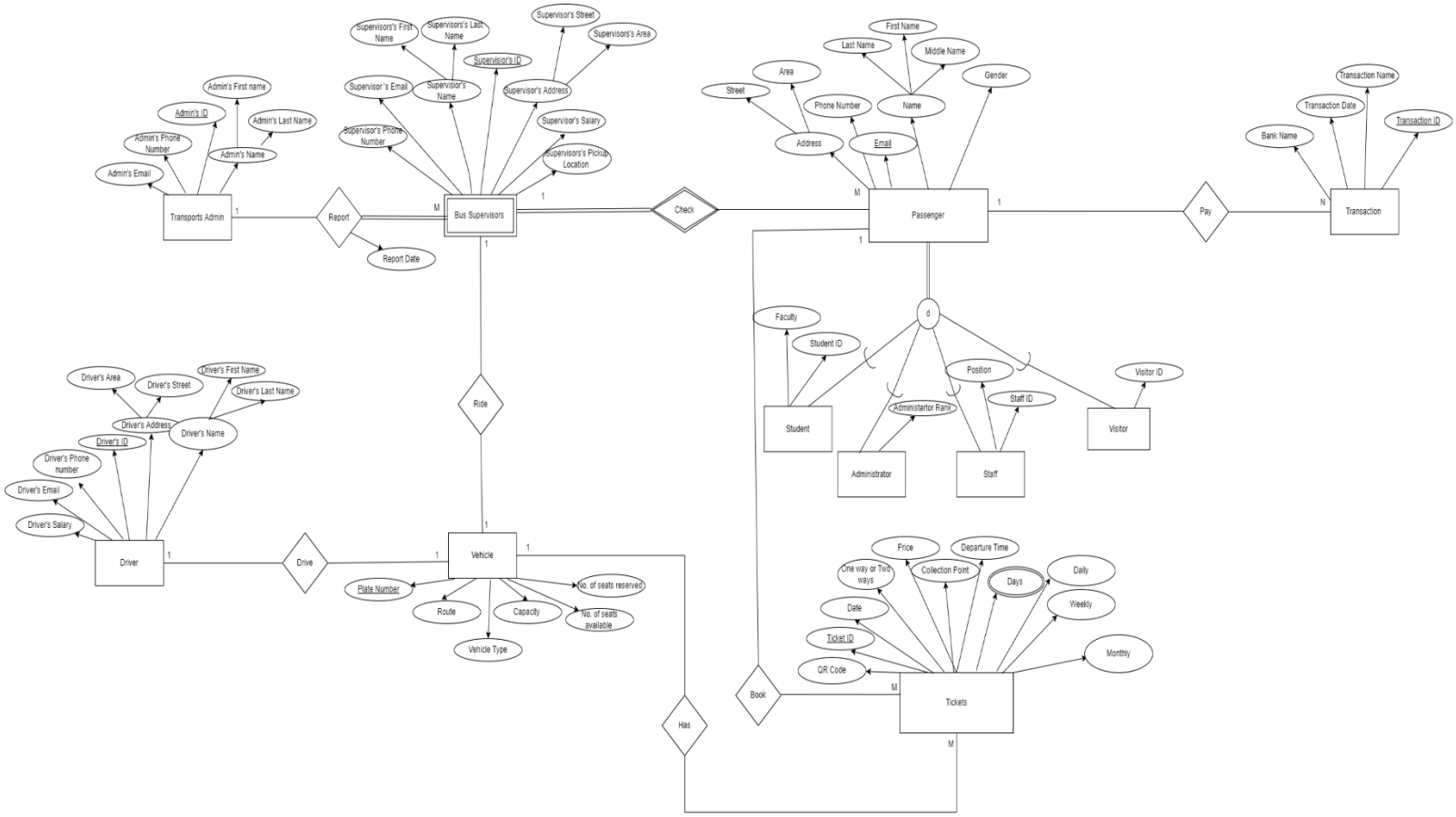
Business Rules:

- Passengers must keep the ticket and QR code to be able to ride and must present it when requested for scanning. If his ticket was not with him on the bus and it became clear that he had not booked in advance, he must cut another ticket according to the availability of seats.
- Must manage the traveling time and vehicle schedules.
- Passengers must book only one pick up location he can't be in two pick up locations.
- Vehicle can't change their determined route.
- Each driver must in one vehicle only not two.
- Each ticket must have a unique QR Code.

Potential Queries:

- Show me the information of the user?
- Show me the collection points?
- Show me the vehicles codes?
- Show me the available seats in each vehicle?
- Show me the passengers travelling from Cairo to Al Alamein?
- Show me the passengers who book one-way only?
- Show me the driver of bus 456?
- Show me the route information of each vehicle?
- Show me the passengers who booked monthly tickets?
- Show me names of passengers that will ride from a specific collection point?

EERD:



Relational Schema:

- Passenger (<u>Email</u>, Phone Number, Street, Area, First Name, Middle Name, Last Name, Gender, <u>Plate Number</u>, <u>Supervisor ID</u>)
- Student (<u>Email</u>, Faculty, Student ID, <u>Supervisor ID</u>)
- Administrator (<u>Email</u>, Administrator Rank)
- Staff (<u>Email</u>, Staff ID, Position)
  -Foreign Key Passenger (Supervisor ID) references Bus Supervisor (Supervisor ID)
- Bus Transaction (<u>Transaction ID</u>, Transaction Name, Transaction Date, Bank Name, <u>Email</u>)

- Bus Supervisor (Supervisor ID, Supervisor Email, Supervisor Phone Number, Supervisor First Name, Supervisor Last Name, Supervisor Street, Supervisor Area, Supervisor Salary, Supervisor Pickup Location, Admin ID, Report Date)
  -Foreign Key Bus Supervisors (Admin ID) references Admin (Admin ID)
- Admin (Admin ID, Admin Phone Number, Admin Email, Admin First Name, Admin Last Name)
- Driver (Driver ID, Driver Salary, Driver Phone Number, Driver Email, Driver Area, Driver Street, Driver First Name, Driver Last Name, Plate Number)

  - Foreign Key Driver (Plate Number) references Vehicle (Plate Number)

- Vehicle (Plate Number, Route, Capacity, No.of seats available, No.of seats reserved, Capacity, Vehicle Type, Supervisor ID)
  -Foreign Key Vehicle (Supervisor ID) references Bus Supervisor (Supervisor ID)
- Ticket (Ticket ID, QR Code, Ticket Date, One way or Two ways, Price, Collection Point, Departure Time, Daily, Weekly, Monthly, Days, Email, Plate Number)
  Modified:
- Ticket (Ticket ID, QR Code, Ticket Date, One way or Two ways, Price, Collection Point, Departure Time, Daily, Weekly, Monthly, Email, Plate Number)
  -Foreign Key Ticket (Email) references Passenger (Email)
  Foreign Key Ticket (Plate Number) references Vehicle (Plate Number)
- Days of Coming (Days, Ticket ID)

  - Foreign Key Pay (Ticket ID) references Ticket (Ticket ID)

Functional Dependencies:

- In Ticket Table (Days) is a multivalued attribute so we would decompose this table into two tables.

- There are no partial dependencies.

- There are no transitive dependencies.

- Email → Phone Number, Street, Area, First Name, Middle Name, Last Name, Gender, Staff ID, Position, Administrator Rank, Faculty, Student ID
- Transaction ID → Transaction Name, Transaction Date, Bank Name
- Supervisor ID → Supervisor Email, Supervisor Phone Number,
- Supervisor First Name, Supervisor Last Name, Supervisor Street, Supervisor Area, Supervisor Salary, Supervisor Pickup Location
- Admin ID → Admin Phone Number, Admin Email, Admin First Name, Admin Last Name
- Driver ID → Driver Salary, Driver Phone Number, Driver Email, Driver Area, Driver Street, Driver First Name, Driver Last Name
- Plate Number → Route, Capacity, No.of seats available, No.of seats reserved, Capacity, Vehicle Type
- Ticket ID → QR Code, Ticket Date, One way or Two ways, Price, Collection Point, Departure Time, Daily, Weekly, Monthly, Days

Contents of Tables:

-Admin:

```
create table TransportsAdmin(

AdminID int primary key not null,

AdminPhoneNumber varchar(20) unique not null,

AdminEmail varchar(45)unique not null,

AdminFirstName varchar(15) not null,

AdminLastName varchar(15) not null

);

insert into TransportsAdmin values(20100, "01123689321"
,"Yamen@AIU.com","Yamen","Ghonem");

insert into TransportsAdmin values(20101, "01223689421"
,"Farida@AIU.com","Farida","Mohamed");

insert into TransportsAdmin values(20102, "01523689521"
,"Mariam@AIU.com","Mariam","Anwer");

insert into TransportsAdmin values(20103, "01023689621"
,"Mohamed@AIU.com","Mohamed","Abdslam");
```

insert into TransportsAdmin values(20104, "01003689721" ,"Youssef@AIU.com","Youssef","Ahmed");

insert into TransportsAdmin values(20105, "01553689821","Donia@AIU.com","Donia","Aymen");

Select * from TransportsAdmin;

AdminID	AdminPhoneNumber	AdminEmail	AdminFirstName	AdminLastName
20100	01123689321	Yamen@AIU.com	Yamen	Ghonem
20101	01223689421	Farida@AIU.com	Farida	Mohamed
20102	01523689521	Mariam@AIU.com	Mariam	Anwer
20103	01023689621	Mohamed@AIU.com	Mohamed	Abdslam
20104	01003689721	Youssef@AIU.com	Youssef	Ahmed
20105	01553689821	Donia@AIU.com	Donia	Aymen

-Bus Supervisor:

create table BusSupervisor(

SupervisorID int primary key not null,

SupervisorEmail varchar(45)unique not null,

SupervisorPhoneNumber varchar(20) unique not null,

SupervisorFirstName varchar(15) not null,

SupervisorLastName varchar(15) not null,

SupervisorStreet varchar(20) not null,

SupervisorArea varchar(20) not null,

SupervisorSalary int not null,

SupervisorPickupLocation varchar(20) not null,

AdminID int,

foreign key BusSupervisor(AdminID) references TransportsAdmin(AdminID),

ReportDate date not null

);

insert into BusSupervisor values(30100,"Mohammed@AIU.com", "01003456123","Mohammed","Osama","Sidi bishr","El montazah",6000,"Sidi bishr",20100, '2022-02-22');

insert into BusSupervisor values(30101,"Khaled@AIU.com", "01013456122","Khaled","Ehab","Abu qir","Elmontazah",6000,"Abu qir",20101, '2021-12-23');

insert into BusSupervisor values(30102,"Noor@AIU.com", "01023456121","Noor","Hossam","Smouha","Mostafa Kaml",6000,"Smouha",20102, '2022-04-19');

insert into BusSupervisor values(30103,"Sherif@AIU.com", "01033456124" ,"Sherif","sameh","Smouha","Sidi bishr",6000,"Smouha",20103, '2021-05-16');

insert into BusSupervisor values(30104,"Rana@AIU.com", "01073456125","Rana","Ahmed","Nasr city","Mostafa el nahaas",6000,"Ramsis",20104, '2022-01-01');

insert into BusSupervisor values(30105,"Nahed@AIU.com","01083456126","Nahed","Ismail","Maadi","elnasr",6000,"Abd elmunim riad",20105, '2021-09-12');

select * from BusSupervisor;

SupervisorID	SupervisorEmail	SupervisorPhoneNumber	SupervisorFirstName	SupervisorLastName	SupervisorStreet	SupervisorArea	SupervisorSalary	SupervisorPickupLocation	AdminID
30100	Mohammed@AIU.com	01003456123	Mohammed	Osama	Sidi bishr	El montazah	6000	Sidi bishr	20100
30101	Khaled@AIU.com	01013456122	Khaled	Ehab	Abu qir	Elmontazah	6000	Abu qir	20101
30102	Noor@AIU.com	01023456121	Noor	Hossam	Smouha	Mostafa Kaml	6000	Smouha	20102
30103	Sherif@AIU.com	01033456124	Sherif	sameh	Smouha	Sidi bishr	6000	Smouha	20103
30104	Rana@AIU.com	01073456125	Rana	Ahmed	Nasr city	Mostafa el nahaas	6000	Ramsis	20104
30105	Nahed@AIU.com	01083456126	Nahed	Ismail	Maadi	elnasr	6000	Abd elmunim riad	20105

-Vehicle:

create table Vehicle(

PlateNumber Varchar(10) primary key not null,

Route varchar(250) not null,

Capacity int not null,

NoOfSeatsAvailable int not null,

NoOfSeatsReserved int not null,

VehicleType varchar(10) not null,

SupervisorID int ,

foreign key Vehicle(SupervisorID) references BusSupervisor(SupervisorID)

);

Insert into Vehicle(PlateNumber,Route,Capacity, NoOfSeatsAvailable, NoOfSeatsReserved, VehicleType, SupervisorID)

Values (123,'somoha',40, 6,34, 'Bus',30100);

Insert into Vehicle(PlateNumber,Route,Capacity, NoOfSeatsAvailable, NoOfSeatsReserved, VehicleType, SupervisorID)

Values (456,'borg al arab' ,20,6,14, 'Mini-Bus',30101);

Insert into Vehicle(PlateNumber,Route,Capacity, NoOfSeatsAvailable, NoOfSeatsReserved, VehicleType, SupervisorID)

Values(789, 'el manshya',40,5,35, 'Bus' ,30102);

Insert into Vehicle(PlateNumber,Route,Capacity, NoOfSeatsAvailable, NoOfSeatsReserved, VehicleType, SupervisorID)

Values(101,'kafr abdo',40,0,40,'Bus',30103);

Insert into Vehicle(PlateNumber,Route,Capacity, NoOfSeatsAvailable, NoOfSeatsReserved, VehicleType, SupervisorID)

Values(112,'elmarg',20,2,18,'MiniBus',30104);

Insert into Vehicle(PlateNumber,Route,Capacity, NoOfSeatsAvailable, NoOfSeatsReserved, VehicleType, SupervisorID)

Values(131,' madenet nasr',40,7,33,'Bus' ,30105);

select * from vehicle;

PlateNumber	Route	Capacity	NoOfSeatsAvailable	NoOfSeatsReserved	VehicleType	SupervisorID
101	kafr abdo	40	0	40	Bus	30103
112	elmarg	20	2	18	MiniBus	30104
123	somoha	40	6	34	Bus	30100
131	madenet nasr	40	7	33	Bus	30105
456	borg al arab	20	6	14	Mini-Bus	30101
789	el manshya	40	5	35	Bus	30102

-Passenger:

create table Passenger(

Email varchar(45) primary key not null,

PhoneNumber varchar(20) unique not null,

```
Street varchar(20) not null,
Area varchar(20) not null,
FirstName varchar(15) not null,
MiddleName varchar(15) not null,
LastName varchar(15) not null,
Gender varchar(6) ,
SupervisorID int not null ,
PlateNumber varchar(10) not null,
foreign key (SupervisorID) references BusSupervisor(SupervisorID),
foreign key (PlateNumber) references Vehicle(PlateNumber)
);
insert into Passenger values("Bardess@Aiu.com", "01124680121","Mostafa Kamal","Smouha","Bardess","Khaled","Mohamed","Female",30100,456);
insert into Passenger values("Shaden@Aiu.com","01134680122","Ahmed fathy","Gleem","Shaden","Hazem","Mohamed","Female",30101,789);
insert into Passenger values("Esraa@Aiu.com","01144680123","Dr taymour","El mokattam","Esraa","Wael","Wagih","Female",30102,123);
insert into Passenger values("Rowan@Aiu.com","01154680124","Mahmoud Amer","Haram","Rowan","Badr","Saleh","Female",30103,123);
insert into Passenger values("Malak@Aiu.com","01164682125","Mostafa Kaml","Borg el arab","Malak","Amr","El sayed","female",30104,789);
insert into Passenger values("Nada@Aiu.com", "01184680120","Mostafa Kaml","Smouha","Nada","Ahmed","Mohamed","Female",30105,456);
insert into Passenger values("Hany@Aiu.com","01194686126","Gamal abd elnasser","Victoria","Hany","Abdein","Mohamed","male",30101,456);
insert into Passenger values("Nadia@Aiu.com","01152680127","Kafr abdou","Roushdy","Nadia","Mohamed","Khaled","Female",30103,789);
insert into Passenger values("Ahmed@Aiu.com","01294688128","Teseen","5th settlement","Ahmed","Samir","Mohamed","male",30103,123);
```

insert into Passenger values("Ashraf@Aiu.com","01150680129","Korbba","Masr al jadidah","Ashraf","Hassan","Tarek","male",30101,123);

select * from Passenger;

Email	PhoneNumber	Street	Area	FirstName	MiddleName	LastName	Gender	SupervisorID	PlateNumber
Ahmed@Aiu.com	01294688128	Teseen	5th settlement	Ahmed	Samir	Mohamed	male	30103	123
Ashraf@Aiu.com	01150680129	Korbba	Masr al jadidah	Ashraf	Hassan	Tarek	male	30101	123
Bardess@Aiu.com	01124680121	Mostafa Kamal	Smouha	Bardess	Khaled	Mohamed	Female	30100	456
Esraa@Aiu.com	01144680123	Dr taymour	El mokattam	Esraa	Wael	Wagih	Female	30102	123
Hany@Aiu.com	01194686126	Gamal abd elnasser	Victoria	Hany	Abdein	Mohamed	male	30101	456
Malak@Aiu.com	01164682125	Mostafa Kaml	Borg el arab	Malak	Amr	El sayed	female	30104	789
Nada@Aiu.com	01184680120	Mostafa Kaml	Smouha	Nada	Ahmed	Mohamed	Female	30105	456
Nadia@Aiu.com	01152680127	Kafr abdou	Roushdy	Nadia	Mohamed	Khaled	Female	30103	789
Rowan@Aiu.com	01154680124	Mahmoud Amer	Haram	Rowan	Badr	Saleh	Female	30103	123
Shaden@Aiu.com	01134680122	Ahmed fathy	Gleem	Shaden	Hazem	Mohamed	Female	30101	789

-Student:

```
create table Student(
Email varchar(45) primary key not null,
Faculty varchar(45) not null,
StudentID int unique not null,
SupervisorID int,
foreign key Student(SupervisorID) references BusSupervisor(SupervisorID),
foreign key Student(Email) references Passenger(Email)
);
```

insert into Student values ("Shaden@Aiu.com", "Computer Science & Engineering", 20100253, 30100);

insert into Student values ("Esraa@Aiu.com", "Pharmacy", 20100384, 30101);

insert into Student values ("Rowan@Aiu.com", "Dentistry", 20100239, 30103);

insert into Student values("Malak@Aiu.com", "Business" , 20100258, 30104);

select * from Student;

Email	Faculty	StudentID	SupervisorID
Esraa@Aiu.com	Pharmacy	20100384	30101
Malak@Aiu.com	Business	20100258	30104
Rowan@Aiu.com	Dentistry	20100239	30103
Shaden@Aiu.com	Computer Science & Engineering	20100253	30100

-Administrator:

```
create table Administrator(
Email varchar(45) primary key not null,
AdministratorRank varchar(45) not null,
foreign key Administrator(Email) references Passenger(Email)
);
insert into Administrator values ("Hany@Aiu.com", "Manager");
insert into Administrator values ("Ashraf@Aiu.com", "Program Manager");
select * from Administrator;
```

Email	AdministratorRank
Ashraf@Aiu.com	Program Manager
Hany@Aiu.com	Manager

-Staff:

```
create table Staff(
Email varchar(45) primary key not null,
StaffID int,
Position varchar(45) not null,
foreign key Staff(Email) references Passenger(Email)
);
insert into Staff values("Bardess@Aiu.com", 40100100, "Teacher Assistant" );
insert into Staff values("Nadia@Aiu.com", 40100101, "Student Affairs Employee" );
select * from Staff;
```

Email	StaffID	Position
Bardess@Aiu.com	40100100	Teacher Assistant
Nadia@Aiu.com	40100101	Student Affairs Employee

-Visitor:

```
create table Visitor(
```

```
Email varchar(45) primary key not null,
VisitorID int not null,
foreign key Visitor(Email) references Passenger(Email)
);
insert into Visitor values("Nada@Aiu.com",50100101);
insert into Visitor values("Ahmed@Aiu.com",50100102);
select * from Visitor;
```

	Email	VisitorID
▶	Ahmed@Aiu.com	50100102
	Nada@Aiu.com	50100101

-Bus Transaction:

```
create table BusTransaction(
TransactionID int primary key not null,
TransactionName varchar(45),
TransactionDate date not null,
BankName varchar(20) not null,
Email varchar(45) unique key not null,
foreign key Ticket(Email) references Passenger(Email)
);
Insert into BusTransaction
(TransactionID,TransactionName,TransactionDate,BankName)
Values (1348931123,'bustransaction1' ,'2022-05-15' ,'elahly bank', 'Rowan@Aiu.com');
Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)
Values (1432562233, 'bustransaction2','2022-02-17', 'elqahera
bank','Shaden@Aiu.com');
Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)
Values(1432563245,'bustransaction3','2021-09-22','elahly bank', 'Malak@Aiu.com');
Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)
```

Values(1432564123,'bustransaction4','2022-05-16','QNB Bank','Esraa@Aiu.com');

Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)

Values(1432565456,'bustransaction5','2022-05-20','elahly bank', 'Nada@Aiu.com');

Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)

Values(1432566000,'bustransaction6','2021-01-20','elahly bank', 'Hany@Aiu.com');

Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)

Values(1432567643,'bustransaction7','2022-01-29','elahly bank', 'Ahmed@Aiu.com');

Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)

Values(1432568439,'bustransaction8','2021-01-23','elahly bank', 'Nadia@Aiu.com');

Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)

Values(1432569938,'bustransaction9','2022-03-13','elahly bank', 'Ashraf@Aiu.com');

Insert into BusTransaction(TransactionID,TransactionName,TransactionDate,BankName)

Values(1432560397,'bustransaction10','2021-04-14','elahly bank', 'Bardess@Aiu.com');

select * from BusTransaction;

TransactionID	TransactionName	TransactionDate	BankName	Email
1348931123	bustransaction1	2022-05-15	elahly bank	Rowan@Aiu.com
1432560397	bustransaction10	2021-04-14	elahly bank	Bardess@Aiu.com
1432562233	bustransaction2	2022-02-17	elqahera bank	Shaden@Aiu.com
1432563245	bustransaction3	2021-09-22	elahly bank	Malak@Aiu.com
1432564123	bustransaction4	2022-05-16	QNB Bank	Esraa@Aiu.com
1432565456	bustransaction5	2022-05-20	elahly bank	Nada@Aiu.com
1432566000	bustransaction6	2021-01-20	elahly bank	Hany@Aiu.com
1432567643	bustransaction7	2022-01-29	elahly bank	Ahmed@Aiu.com
1432568439	bustransaction8	2021-01-23	elahly bank	Nadia@Aiu.com
1432569938	bustransaction9	2022-03-13	elahly bank	Ashraf@Aiu.com

-Driver:

create table Driver(

DriverID int primary key not null,

DriverSalary int not null,

DriverPhoneNumber varchar(20) unique not null,

DriverEmail varchar(45)unique not null,

```
DriverArea varchar(20) not null,

DriverStreet varchar(20) not null,

DriverFirstName varchar(15) not null,

DriverLastName varchar(15) not null,

PlateNumber Varchar(10) unique not null ,

foreign key Driver(PlateNumber) references Vehicle(PlateNumber)

);

Insert into Driver(DriverID,DriverSalary, DriverPhoneNumber, DriverEmail, DriverArea ,
DriverStreet , DriverFirstName, DriverLastName, PlateNumber )

Values (23549,3000, "01245656768", 'Driver1@gmail.com','smoha','mustafa kamel',
'mohammed', 'ali',123);

Insert into Driver(DriverID,DriverSalary, DriverPhoneNumber, DriverEmail, DriverArea ,
DriverStreet , DriverFirstName, DriverLastName, PlateNumber )

Values (23550,3000, "01067583542", 'Driver2@gmail.com','sedy
jaber','mosheer','osama' , 'gamal',456);

Insert into Driver(DriverID,DriverSalary, DriverPhoneNumber, DriverEmail, DriverArea ,
DriverStreet , DriverFirstName, DriverLastName, PlateNumber )

Values (23551,3000, "012568787496" , 'Driver3@gmail.com' , 'gleem', 'gleem street',
'selim','ahmed' ,789);

Insert into Driver(DriverID,DriverSalary, DriverPhoneNumber, DriverEmail, DriverArea ,
DriverStreet , DriverFirstName, DriverLastName, PlateNumber )

Values (23552,3000, "01578659439", 'Driver4@gmail.com' ,'elmontaza','jamela
abohred' ,'momen', 'ali' ,101);

Insert into Driver(DriverID,DriverSalary, DriverPhoneNumber, DriverEmail, DriverArea ,
DriverStreet , DriverFirstName, DriverLastName, PlateNumber )

Values (23553,3000, "01224578946 ",'Driver5@gmail.com' ,'elmanshya' ,'salah
salem','ahmed' ,'ali' ,112);

Insert into Driver(DriverID,DriverSalary, DriverPhoneNumber, DriverEmail, DriverArea ,
DriverStreet , DriverFirstName, DriverLastName, PlateNumber )

Values (23554,3500, "010078645442", 'Driver6@gmail.com','elmarg,shobra','maidan
shobra' ,'salah', 'abdallah' ,131);
```

select * from Driver;

DriverID	DriverSalary	DriverPhoneNumber	DriverEmail	DriverArea	DriverStreet	DriverFirstName	DriverLastName	PlateNumber
23549	3000	01245656768	Driver1@gmail.com	smoha	mustafa kamel	mohammed	ali	123
23550	3000	01067583542	Driver2@gmail.com	sedy jaber	mosheer	osama	gamal	456
23551	3000	012568787496	Driver3@gmail.com	gleem	gleem street	selim	ahmed	789
23552	3000	01578659439	Driver4@gmail.com	elmontaza	jamela abohred	momen	ali	101
23553	3000	01224578946	Driver5@gmail.com	elmanshya	salah salem	ahmed	ali	112
23554	3500	010078645442	Driver6@gmail.com	elmarg,shobra	maidan shobra	salah	abdallah	131

-Ticket:

```
create table Ticket(
TicketID int primary key not null,
QRCode int unique not null,
TicketDate date not null,
OneWayOrTwoWays varchar(15) not null,
Price int not null,
CollectionPoint varchar(20) not null,
DepartureTime time not null,
Daily int default null,
Weekly int default null,
Monthly int default null,
Email varchar(45) unique key not null,
PlateNumber Varchar(10) not null,
foreign key Ticket(Email) references Passenger(Email),
foreign key Ticket(PlateNumber) references Vehicle(PlateNumber)
);
insert into Ticket(TicketID, QRCode, TicketDate,
OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email,
PlateNumber)
values(123456784,2022001,'2022-05-15','Twoways',300,'Cairo-Alamein',
'12:00',null,1,null,'Rowan@Aiu.com',123);
```

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456781,2022002,'2021-04-14','Oneway',75,'Alexandria','8:00',1,null,null,'Bardess@Aiu.com',456);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456782,2022003,'2022-02-17','Twoways',3000,'Alalmein-Alexandria','3:00',null,null,1,'Shaden@Aiu.com',789);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456785,2022004,'2021-09-22','Twoways',3000,'Alexandria-Alalmein','8:00',null,null,1,'Malak@Aiu.com',789);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456783,2022005,'2022-05-16','Twoways',300,'Alalmein-Cairo','3:00',null,1,null,'Esraa@Aiu.com',123);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456786,2022006,'2022-05-20','Oneway',75,'Alalmein','3:00',1,null,null,'Nada@Aiu.com',456);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456787,2022007,'2021-01-20','Oneway',75,'Alalmein','3:00',1,null,null,'Hany@Aiu.com',456);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456788,2022008,'2022-01-29','Twoways',300,'Cairo-Alamein','12:00',null,1,null,'Ahmed@Aiu.com',123);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456789,2022009,'2021-01-23','Twoways',3000,'Alalmein-Alexandria','3:00',null,null,1,'Nadia@Aiu.com',789);

insert into Ticket(TicketID, QRCode, TicketDate, OnewayorTwoways,Price,CollectionPoint, DepartureTime, Daily, Weekly, Monthly, Email, PlateNumber)

values(123456780,2022000,'2022-03-13','Twoways',300,'Alalmein-Cairo','3:00',null,1,null,'Ashraf@Aiu.com',123);

select * from Ticket;

TicketID	QRCode	TicketDate	OneWayOrTwoWays	Price	CollectionPoint	DepartureTime	Daily	Weekly	Monthly	Email	PlateNumber
123456780	2022000	2022-03-13	Twoways	300	Alalmein-Cairo	03:00:00	NULL	1	NULL	Ashraf@Aiu.com	123
123456781	2022002	2021-04-14	Oneway	75	Alexandria	08:00:00	1	NULL	NULL	Bardess@Aiu.com	456
123456782	2022003	2022-02-17	Twoways	3000	Alalmein-Alexandria	03:00:00	NULL	NULL	1	Shaden@Aiu.com	789
123456783	2022005	2022-05-16	Twoways	300	Alalmein-Cairo	03:00:00	NULL	1	NULL	Esraa@Aiu.com	123
123456784	2022001	2022-05-15	Twoways	300	Cairo-Alamein	12:00:00	NULL	1	NULL	Rowan@Aiu.com	123
123456785	2022004	2021-09-22	Twoways	3000	Alexandria-Alalmein	08:00:00	NULL	NULL	1	Malak@Aiu.com	789
123456786	2022006	2022-05-20	Oneway	75	Alalmein	03:00:00	1	NULL	NULL	Nada@Aiu.com	456
123456787	2022007	2021-01-20	Oneway	75	Alalmein	03:00:00	1	NULL	NULL	Hany@Aiu.com	456
123456788	2022008	2022-01-29	Twoways	300	Cairo-Alamein	12:00:00	NULL	1	NULL	Ahmed@Aiu.com	123
123456789	2022009	2021-01-23	Twoways	3000	Alalmein-Alexandria	03:00:00	NULL	NULL	1	Nadia@Aiu.com	789

-Days of Coming:

create table DaysOfComing(

Days varchar(10) not null,

TicketID int not null,

foreign key DaysOfComing(TicketID) references Ticket(TicketID)

);

insert into DaysOfComing(Days, TicketID) values('Sunday',123456781);

insert into DaysOfComing(Days, TicketID) values('Monday',123456781);

insert into DaysOfComing(Days, TicketID) values('Tuesday',123456781);

insert into DaysOfComing(Days, TicketID) values('Wednsday',123456781);

insert into DaysOfComing(Days, TicketID) values('Sunday',123456782);

```
insert into DaysOfComing(Days, TicketID) values('Monday',123456782);
insert into DaysOfComing(Days, TicketID) values('Tuesday',123456782);
insert into DaysOfComing(Days, TicketID) values('Monday',123456783);
insert into DaysOfComing(Days, TicketID) values('Thursday',123456783);
insert into DaysOfComing(Days, TicketID) values('Tuesday',123456784);
insert into DaysOfComing(Days, TicketID) values('Wednesday',123456785);
insert into DaysOfComing(Days, TicketID) values('Thursday',123456786);
insert into DaysOfComing(Days, TicketID) values('Sunday',123456786);
insert into DaysOfComing(Days, TicketID) values('Monday',123456787);
insert into DaysOfComing(Days, TicketID) values('Tuesday',123456787);
insert into DaysOfComing(Days, TicketID) values('Wednsday',123456787);
insert into DaysOfComing(Days, TicketID) values('Sunday',123456787);
insert into DaysOfComing(Days, TicketID) values('Monday',123456788);
insert into DaysOfComing(Days, TicketID) values('Tuesday',123456788);
insert into DaysOfComing(Days, TicketID) values('Monday',123456789);
insert into DaysOfComing(Days, TicketID) values('Thursday',123456789);
insert into DaysOfComing(Days, TicketID) values('Tuesday',123456789);
insert into DaysOfComing(Days, TicketID) values('Wednesday',123456780);
insert into DaysOfComing(Days, TicketID) values('Thursday',123456780);
select * from DaysOfComing;
```

Days	TicketID
Sunday	123456781
Monday	123456781
Tuesday	123456781
Wednsday	123456781
Sunday	123456782
Monday	123456782
Tuesday	123456782
Monday	123456783
Thursday	123456783
Tuesday	123456784

Business Questions:

- Show me the passengers travelling from Cairo to Al Alamein?

```
select p.FirstName,p.MiddleName, p.LastName,p.email, t.CollectionPoint
from Passenger as p
inner join Ticket as t
on p.email=t.email
where CollectionPoint = 'Cairo-Alamein';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FirstName	MiddleName	LastName	email	CollectionPoint
Rowan	Badr	Saleh	Rowan@Aiu.com	Cairo-Alamein
Ahmed	Samir	Mohamed	Ahmed@Aiu.com	Cairo-Alamein

- Show me the passengers travelling in the bus of plate number of 123?

```
select concat(p.FirstName, ' ' ,p.MiddleName, ' ' , p.LastName) as Name, v.PlateNumber
from Passenger as p
inner join Vehicle as v
on p.PlateNumber=v.PlateNumber
and p.PlateNumber =123;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Name	PlateNumber
Ahmed Samir Mohamed	123
Ashraf Hassan Tarek	123
Esraa Wael Wagih	123
Rowan Badr Saleh	123

- Show which bus supervisor is going to Somoha area?

```
select bs.SupervisorID,bs.SupervisorFirstName, bs.SupervisorLastName
from BusSupervisor as bs
inner join Vehicle as v
on bs.SupervisorID=v.SuperVisorID
and v.Route='Somoha';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

SupervisorID	SupervisorFirstName	SupervisorLastName
30100	Mohammed	Osama

- Show me how many seats are available in each vehicle descending?

```
select NoOfSeatsAvailable, PlateNumber
from Vehicle
Group by  PlateNumber
Order BY NoOfSeatsAvailable DESC;
```

Result Grid | Filter Rows: | Edit:

NoOfSeatsAvailable	PlateNumber
7	131
6	123
6	456
5	789
2	112
0	101
NULL	NULL

- Show me the passengers who booked monthly tickets?

```
select p.FirstName,p.MiddleName, p.LastName,p.email
from Passenger as p
inner join Ticket as t
on p.email=t.email
where Monthly=1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

FirstName	MiddleName	LastName	email
Shaden	Hazem	Mohamed	Shaden@Aiu.com
Malak	Amr	El sayed	Malak@Aiu.com
Nadia	Mohamed	Khaled	Nadia@Aiu.com

- Show me the driver of bus 456?

```
select DriverFirstName,DriverLastName
From Driver
where PlateNumber=456;
```

Result Grid | Filter Rows: | Export:

DriverFirstName	DriverLastName
osama	gamal

- ALTER TABLE BusTransaction RENAME VehicleTransaction ;