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**AMERICAN INTERNATIONAL UNIVERSITY–BANGLADESH (AIUB)**

**DEPARTMENT OF ENGINEERING**

[**INTRODUCTION TO DATABASE**](https://portal.aiub.edu/Student/Section?q=j3Wc6QZpwj8GAUZ6rruD2A%3D%3D)

**Section: K, Group: 5**

**Project Name**

PARKING SPOT MANAGEMENT SYSTEM

**Supervised By**

SIFAT RAHMAN AHONA

**Submitted By**

|  |  |
| --- | --- |
| **Name** | **ID** |
| 1. SADAF KHAN | 22-47021-1 |
| 2. MD. FAHIM BIN IMAM NAHID | 22-46078-1 |
| 3. BADHON BISWAS | 22-46351-1 |
| 4. MD. SAIDUZZAMAN SOHAG | 22-46006-1 |

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**ER Diagram Case Study:**

**PARKING SPOT MANAGEMENT SYSTEM**

In a parking spot management system there are many employees who are managed by managers. One manager may manage one or more employees. Every employee and manager are uniquely identified by system through employee id and manager id respectively. System stores the first name, last name, hire date, phone\_number and salary of the employee. Manager has name, salary, phone\_number and address stored. Manager generally manages overall situation parking spot of the park. Parking spot are uniquely identified with spot id and it has own address. There are many parking spaces inside the parking spot which identified by space id. There are many types of parking space. Based on the space type there are different type of cost rate. Customer can hire parking space based on the cost rate. Based on space type rate can be hourly and daily and type it has unique rate id. Each parking space assigns one parking slip to the customers to purchase. Parking slip has slip id, issue date and expiration date . Customer has id which confirms the identity of customers. System stores the first name, last name, email,address, phone number, license\_plate\_number and address of the customer with respect to their id. There are many rules in a parking lot to better manage and to give better services. Manager issues fine to the customer who break the rules. Issued fine has id, issued date, amount and the date to be paid.

**ER Diagram:**

Diagram

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**Normalization of Database:**

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Inside (spot\_id, address, Space\_id, space\_type)

1NF: No multivalued attribute

2NF: Spot\_id, Address

Space\_id, Space\_Type,spot\_id

3NF: No transitive dependency

Spot\_id, Address

Space\_id, Space\_Type, Space\_id

Table: Spot\_id, Address

Space\_id, Space\_Type, Space\_id

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Cost (Space\_id, Space\_type, Rate\_id, Hourly\_rate, Day\_Rate)

1NF: No multivalued attribute

2NF: Space\_id, Space\_Type

Rate\_id*,* Hourly\_rate, Day\_Rate,Type

SR\_ID, Space\_Id, Rate\_id

3NF: No transitive dependency

Space\_id, Space\_Type

Rate\_id, Hourly\_rate, Day\_Rate,Type

SR\_ID, Space\_Id, Rate\_id

Table: Space\_id, Space\_Type

Rate\_id, Hourly\_rate, Day\_Rate,Type

SR\_ID, Space\_Id, Rate\_id

/\*===================================🡺

Manages (Spot\_id, Address Manager\_id, phone\_number,

first\_name,last\_name, address,salary)

1NF: Phone\_number multivalued attribute

2NF: Spot\_id, Address, Manager\_id

Manager\_id, phone\_number, first\_name,last\_name, address,

salary

3NF: No transitive dependency

Spot\_id, Address, Manager\_id

Manager\_id, phone\_number, first\_name,last\_name, address,

salary

Table: Spot\_id, Address, Manager\_id

Manager\_id, phone\_number, first\_name,last\_name, address,

salary

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Manage by(Manager\_id , phone\_number , first\_name,last\_name, salary,address, Employee\_id, first\_Name , last\_Name , hire\_date, Salary,phone\_number)

1NF: Phone\_number multivalued attribute

2NF: Manager\_id, phone\_number, first\_name,last\_name, address,

salary

Employee\_id, First\_Name, Last\_Name, hire\_date, Salary,

phone\_number, Manager\_id

3NF: No transitive dependency

Manager\_id , phone\_number , first\_name,last\_name, address,

salary

Employee\_id, First\_Name , Last\_Name , hire\_date, Salary,

Manager\_id

Table: Manager\_id , phone\_number , first\_name,last\_name, address,

salary

Employee\_id, First\_Name , Last\_Name , hire\_date, Salary,

phone\_number, Manager\_id

/\*===================================🡺

Assigned(Space\_id,Space\_Type,parking\_slip\_id,Issue\_date,Expair\_date,Type)

1NF: No multivalued attribute

2NF: Space\_id,Space\_Type

parking\_slip\_id,Issue\_date,Expair\_date,Type,space\_id

3NF: No transitive dependency

Space\_id,Space\_Type

parking\_slip\_id,Issue\_date,Expair\_date,Type,space\_id

Table: Space\_id,Space\_Type

parking\_slip\_id,Issue\_date,Expair\_date,Type,space\_id

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Purchases (Customer\_id,First\_name,Last\_name,Email,Address,Phone\_number,

license\_plate\_number, Parking\_slip\_id,Issue\_date,

Expair\_date,Type)

1NF: Phone\_number multivalued attribute

2NF: Customer\_id,First\_name,Last\_name,Email,Address,Phone,

license\_plate\_number

Parking\_slip\_id,Issue\_date,Expair\_date,Type,Customer\_id

3NF: No transitive dependency

Customer\_id,First\_name,Last\_name,Email,Address,Phone,

license\_plate\_number

Parking\_slip\_id,Issue\_date,Expair\_date,Type,Customer\_id

Table: Customer\_id,First\_name,Last\_name,Email,Address,Phone,

license\_plate\_number

Parking\_slip\_id,Issue\_date,Expair\_date,Type,Customer\_id

/\*===================================🡺

Fine (Customer\_id,First\_name,Last\_name,Email,Address,

Phone\_number,license\_plate\_number,Fine\_id,Issue\_date,

paid\_date,Amount)

1NF: Phone\_number multivalued attribute

2NF: Customer\_id,First\_name,Last\_name,Email,Address,

Phone\_number,

license\_plate\_number,Fine\_id

Fine\_id,Issue\_date,paid\_date,Amount

3NF: No transitive dependency

Customer\_id,First\_name,Last\_name,Email,Address,

Phone\_number,

license\_plate\_number,Fine\_id

Fine\_id,Issue\_date,paid\_date,Amount

Table: Customer\_id,First\_name,Last\_name,Email,Address,

Phone\_number,

license\_plate\_number,Fine\_id

Fine\_id,Issue\_date,paid\_date,Amount

/\*===================================🡺

Issues (Manager\_id, phone\_number, Address, Fine\_id,Issue\_date,

paid\_date,Amount)

1NF: Phone\_number multivalued attribute

2NF: Manager\_id, phone\_number, Address

Fine\_id,Issue\_date, paid\_date,Amount,Manager\_id

3NF: No transitive dependency

Manager\_id, phone\_number, Address

Fine\_id,Issue\_date, paid\_date,Amount,Manager\_id

Table: Manager\_id, phone\_number, Address

Fine\_id,Issue\_date, paid\_date,Amount,Manager\_id

**Total Table:**

* 1.Spot\_id, Address
* 2.Space\_id, Space\_Type, Spot\_id
* 3.Space\_id, Space\_Type
* 4.Rate\_id, Hourly\_rate, Day\_Rate, Type

5.SR\_ID, Space\_Id, Rate\_id

* 6.Spot\_id, Address, Manager\_id
* 7.Manager\_id, phone\_number, first\_name,last\_name, salary,

address

* 8.Manager\_id, phone\_number, first\_name,last\_name, salary

address

* 9.Employee\_id, first\_Name, Last\_Name, hire\_date, Salary,

Phone\_nubmer, Manager\_id

* 10.Space\_id, Space\_Type
* 11.parking\_slip\_id, Issue\_date, Expair\_date, Type,space\_id
* 12.Customer\_id, First\_name,Last\_name,Email,Address,Phone,

license\_plate\_number

* 13.Parking\_slip\_id, Issue\_date, Expair\_date, Type, Customer\_id
* 14.Customer\_id, First\_name, Last\_name, Email, Address,

Phone\_number, license\_plate\_number, Fine\_id

* 15.Fine\_id, Issue\_date, paid\_date, Amount
* 16.Manager\_id, phone\_number, Address
* 17.Fine\_id, Issue\_date, paid\_date, Amount,Manager\_id

**Final Table:**

1.Space\_id, Space\_Type, Spot\_id

2.Rate\_id, Hourly\_rate, Day\_Rate,Type

3.SR\_ID, Space\_Id, Rate\_id

4.Spot\_id, Address, Manager\_id

5. Manager\_id, phone\_number, first\_name,last\_name, salary,address

6.Employee\_id, First\_Name, Last\_Name , hire\_date, Salary,

Phone\_number,manager\_id

7.Parking\_slip\_id, Issue\_date,Expair\_date,Type,Customer\_id,

Space\_id

8.Customer\_id, First\_name,Last\_name,Email,Address,Phone\_number,

license\_plate\_number,Fine\_id

9.Fine\_id, Issue\_date, paid\_date,Amount,Manager\_id

**Table Creation And Data Insertion:**

**MANAGER TABLE:**

create table manager(

manager\_id number(5) constraint manager\_mid\_pk primary key,

first\_name varchar2(20) not null,

last\_name varchar2(20),

phone\_number number(11) unique not null,

salary number(10) not null,

manager\_address varchar2(20) not null

)

desc manager

drop table manager

Graphical user interface, application

Description automatically generated

create sequence mgr\_squ

increment by 1

start with 10

maxvalue 100

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Diana','Lorentz',5904235567,4200,'Bashundhara A block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'John','Chen',515124426,8200,'Bashundhara B block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Ismael','Sciarra' ,5151244369,7700,'Bashundhara C block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Jose','Manuel Urman',5151244469,7800,'Bashundhara D block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Luis','Popp',5151244567,6900,'Bashundhara E block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Den','Raphaely',5151274561,11000,'Bashundhara F block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Alexander','Khoo',5151274562,3100,'Bashundhara G block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Shelli','Baida',5151274563,2900,'Bashundhara H block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Sigal','Tobias',5151274564,2800,'Bashundhara I block')

insert into manager(manager\_id,first\_name,last\_name,phone\_number,salary,manager\_address) values (mgr\_squ.nextval,'Karen','Colmenares',5151274566,2500,'Bashundhara J block')

select \* from manager

Table

Description automatically generated

**PARKING SPOT TABLE:**

create table parking\_spot(

spot\_id number(5) constraint pspot\_sid\_pk primary key,

address varchar2(50) unique not null,

manager\_id number(5)

constraint paspot\_mid\_fk references manager(manager\_id) not null

)

desc parking\_spot

drop table parking\_spot

Graphical user interface, application

Description automatically generated

create sequence spot\_squ

increment by 1

start with 1000

maxvalue 1050

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara A block Rd No 4',10)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara B block Rd No 2',11)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara C block Rd No 6',20)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara D block Rd No 7',13)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara E block Rd No 3',14)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara F block Rd No 10',15)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara G block Rd No 11',16)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara H block Rd No 8',17)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara I block Rd No 3',18)

insert into parking\_spot(spot\_id,address,manager\_id) values (spot\_squ.nextval,'Bashundhara J block Rd No 6',19)

select \* from parking\_spot

Table

Description automatically generated

**PARKING SPACE TABLE:**

create table parking\_space(

space\_id number(5) constraint pspace\_spid\_pk primary key,

space\_type varchar2(20)

check( space\_type in ('Small','Medium','Large')),

spot\_id number(5)

constraint pspace\_sid\_fk references parking\_spot(spot\_id) not null

)

desc parking\_space

drop table parking\_space

Graphical user interface, application

Description automatically generated

create sequence space\_seq

increment by 1

start with 1

maxvalue 200

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Small',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Small',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Small',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Small',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Small',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Small',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Large',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Large',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Large',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Medium',1000)

insert into parking\_space (space\_id,space\_type,spot\_id) values(space\_seq.nextval,'Large',1000)

select \* from parking\_space

Table

Description automatically generated

**RATE TABLE:**

create table rate(

rate\_id number(5) constraint rate\_rid\_pk primary key,

hourly\_rate number(10) not null,

day\_rate number(10) not null,

type varchar2(20) check(type in ('Small','Medium','Large'))

)

desc rate

drop table rate

Table

Description automatically generated with medium confidence

create sequence rate\_seq

increment by 1

start with 1

maxvalue 200

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,100,700,'Small')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,170,1200,'Medium')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,250,2000,'Large')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,100,700,'Small')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,170,1200,'Medium')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,250,2000,'Large')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,100,700,'Small')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,170,1200,'Medium')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,250,2000,'Large')

insert into rate(rate\_id,hourly\_rate,day\_rate,type) values (rate\_seq.nextval,100,700,'Small')

select \* from rate

Table

Description automatically generated

**SPACE RATE TABLE:**

create table space\_rate(

space\_rate\_id number(5) constraint space\_rate\_srid\_pk primary key,

space\_id number(5)

constraint space\_rate\_spid\_fk references parking\_space(space\_id),

rate\_id number(5)

constraint space\_rate\_rid\_fk references rate(rate\_id)

)

desc space\_rate

drop table space\_rate

Graphical user interface, text, application

Description automatically generated

create sequence space\_rate\_seq

increment by 1

start with 200

maxvalue 300

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,1,1)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,2,1)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,3,1)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,4,1)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,5,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,6,1)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,7,1)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,8,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,9,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,10,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,11,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,12,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,13,3)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,14,3)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,15,3)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,16,2)

insert into space\_rate(space\_rate\_id,space\_id,rate\_id) values (space\_rate\_seq.nextval,17,3)

select \* from space\_rate

Table

Description automatically generated

**EMPLOYEE TABLE:**

create table employee(

employee\_id number(5) constraint employee\_emid\_pk primary key,

first\_name varchar2(20) not null,

last\_name varchar2(20),

hire\_date date not null,

salary number(10) not null,

phone\_number number(11) unique not null,

manager\_id number(5)

constraint employee\_mid\_fk references manager(manager\_id)

)

desc employee

drop table employee

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create sequence employee\_seq

increment by 1

start with 200

maxvalue 300

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Timothy','Gates',

'17-JUN-21',5000, 625635100,10)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Randall','Perkins',

'17-JAN-21',5000, 625635101,10)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Sarah','Everett','15-MAR-21',6000, 625635102,10)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Britney','Everett',

'17-JUN-20',5000, 625635103,13)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Vance','Timothy',

'16-JAN-22',6000, 625635104,13)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,

salary,phone\_number,manager\_id)values(employee\_seq.nextval,'Everett',

'McCain','19-FEB-22',8000, 625635105,13)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Jones','Samuel','27-JUN-21',5000, 625635106,14)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Alana','Walsh','07-APR-20',3000,625635107,14)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'McCainy','Feeney',

'14-FEB-20',9000, 625635109,15)

insert into employee(employee\_id,first\_name,Last\_name,hire\_date,salary,

phone\_number,manager\_id) values(employee\_seq.nextval,'Kevin','Walsh','13-APR-20',8000, 625635108,15)

select \* from employee

Table

Description automatically generated

**FINE TABLE:**

create table fine(

fine\_id number(5) constraint fine\_fid\_pk primary key,

issue\_date date not null,

paid\_date date not null,

amount number(10) not null,

manager\_id number(5)

constraint fine\_mid\_fk references manager(manager\_id)

)

desc fine

drop table fine

Graphical user interface, application

Description automatically generated

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (01,'08-dec-22','09-dec-22',70,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (02,'11-dec-22','12-dec-22',120,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (03,'08-dec-22','09-dec-22',200,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (04,'15-dec-22','16-dec-22',300,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (05,'08-dec-22','09-dec-22',250,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (06,'20-dec-22','22-dec-22',500,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (07,'10-dec-22','15-dec-22',1000,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (08,'08-dec-22','09-dec-22',100,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (09,'08-dec-22','09-dec-22',100,10)

insert into fine (fine\_id,issue\_date,paid\_date,amount,manager\_id) values (10,'08-dec-22','09-dec-22',100,10)

select \* from fine

Table

Description automatically generated

**CUSTOMERS TABLE:**

create table customers(

customer\_id number(5) constraint customer\_cid\_pk primary key,

first\_name varchar2(20) not null,

last\_name varchar2(20),

email varchar2(50),

address varchar2(20),

phone\_number number(11) unique not null,

license\_plate\_number varchar2(20) unique not null,

find\_id number(5)

constraint customer\_fid\_fk references fine(fine\_id)

)

desc customers

drop table customers

**Application

Description automatically generated with medium confidence**

create sequence customer\_seq

increment by 1

start with 100

maxvalue 300

insert into customers(customer\_id,first\_name,last\_name,phone\_number,email,

address, license\_plate\_number)values(customer\_seq.nextval,'Winston','Taylor',

'6505079876','instonaylor@gmail.com','Bashundhara A block','KA 45-2422')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Jean',

'Fleaur','6505079877','jeanfleaur@gmail.com','Bashundhara B block',

'KA 34-3243')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Martha',

'Sullivan','6505079878','marthasullivan@gmail.com','Bashundhara A block','KHA 22-1123')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Girard',

'Geoni','6505079879','girardgeoni@gmail.com','Bashundhara B block','KA 11-3432')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Nandita',

'Sarchand','6505091876','nanditasarchand@gmail.com','Bashundhara A block','GA 22-1232')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Alexis',

'Bull','6505092876','alexisbull@gmail.com','Bashundhara E block','KA 33-4332')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Julia',

'Dellinger','6505093876','juliadellinger@gmail.com','Bashundhara F block','KA 65-4534')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Anthony',

'Cabrio','6505094876','anthonycabrio@gmail.com','Bashundhara B block','KHA 25-4311')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Kelly',

'Chung','6505051876','kellychung@gmail.com','Bashundhara E block','CA 25-2432')

insert into customers (customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Jennifer',

'Dilly','6505052876','jenniferdilly@gmail.com','Bashundhara A block','KA 53-2423')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Timothy',

'Gates','6505053876','timothygates@gmail.com','Bashundhara G block','KA 43-2422')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Randall',

'Perkins','6505054876','randallperkins@gmail.com','Bashundhara G block','KA 62-1434')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Sarah',

'Bell','6505011876','sarahbell@gmail.com','Bashundhara A block','KHA 51-5234')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Britney',

'Everett','6505012876','britneyeverett@gmail.com','Bashundhara C block','KHA 53-6423')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Samuel',

'McCain','650.5013876','samuelmcCain@gmail.com','Bashundhara A block','CA 12-3433')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Vance',

'Jones','6505014876','vancejones@gmail.com','Bashundhara C block','GA 13-4122')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Alana',

'Walsh','6505079811','alanawalsh@gmail.com','Bashundhara A block','GA 31-4334')

insert into customers(customer\_id,first\_name,last\_name,phone\_number,

email,address, license\_plate\_number) values(customer\_seq.nextval,'Kevin',

'Feeney','6505079822','kevinfeeney@gmail.com','Bashundhara B block','GA 22-4114')

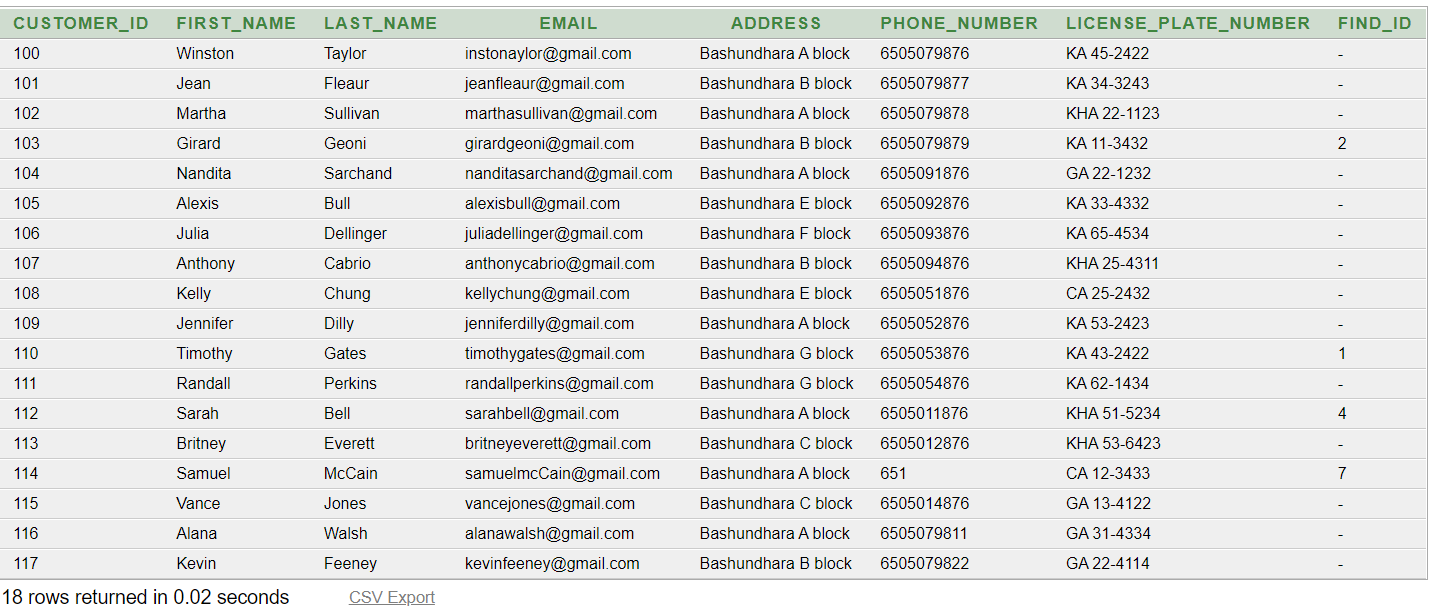
Update customers set find\_id = 2 where customer\_id = 103

Update customers set find\_id = 1 where customer\_id = 110

Update customers set find\_id = 7 where customer\_id = 114

Update customers set find\_id = 4 where customer\_id = 112

select \* from customers



**PARKING SLIP TABLE:**

create table parking\_slip(

parking\_slip\_id number(5) constraint pkslip\_psid\_pk primary key,

issue\_date date not null,

expair\_date date not null,

customer\_id number(5)

constraint parkingslip\_cid\_fk references customers(customer\_id) not null,

vehicle\_type varchar2(30)

check(vehicle\_type in ('small','medium','large')),

space\_id number(5)

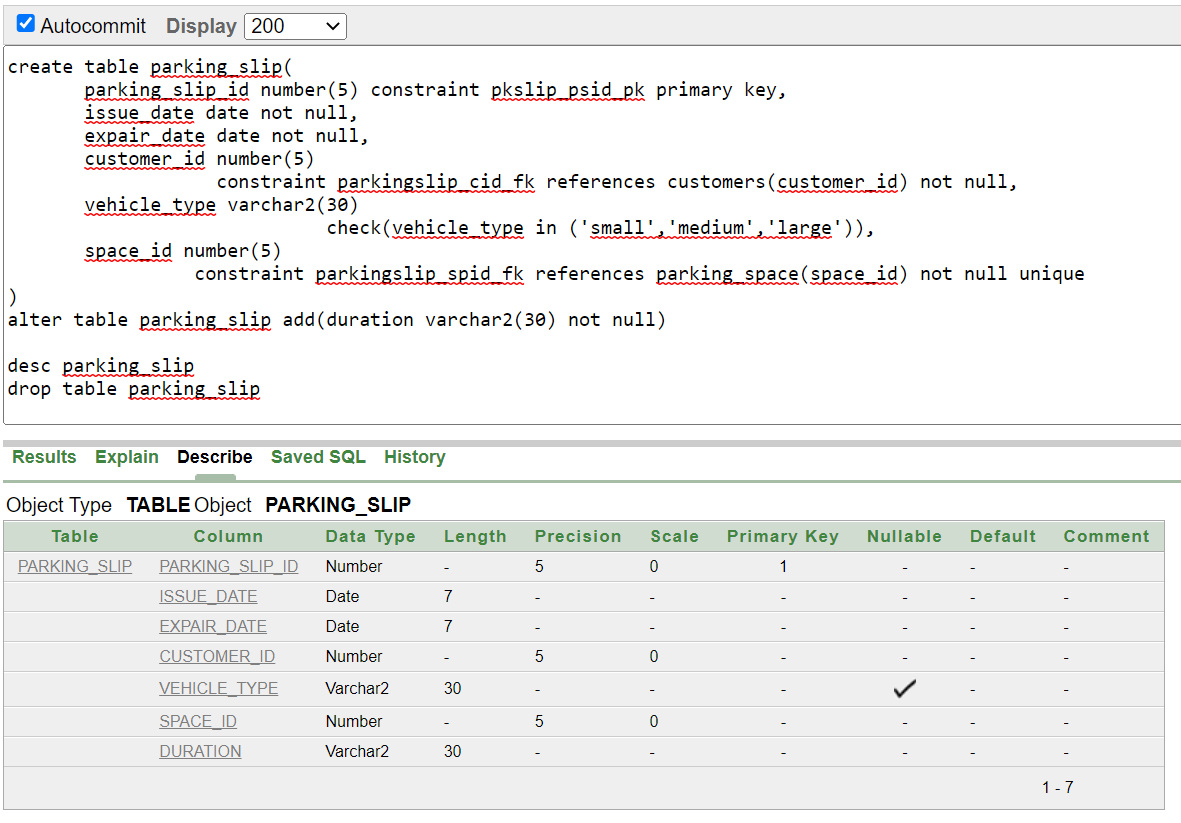
constraint parkingslip\_spid\_fk references parking\_space(space\_id) not null unique

)

alter table parking\_slip add(duration varchar2(30) not null)

desc parking\_slip

drop table parking\_slip



create sequence parking\_slip\_seq

increment by 1

start with 1

maxvalue 500

nocache

nocycle

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'09-dec-22','09-dec-22','small',104,2,'2 hours')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'10-dec-22','10-dec-22','medium',105,5,'5 hours')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'10-dec-22','10-dec-22','small',106,1,'3 hours')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'09-dec-22','09-dec-22','small',107,3,'1 hours')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'11-dec-22','12-dec-22','large',108,13,'1 day')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'11-dec-22','12-dec-22','small',110,4,'1 day')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'09-dec-22','09-dec-22','large',111,14,'7 hours')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'15-dec-22','15-dec-22','large',112,15,'2 days')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'11-dec-22','13-dec-22','small',113,6,'2 days')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'11-dec-22','11-dec-22','medium',114,8,'1 days')

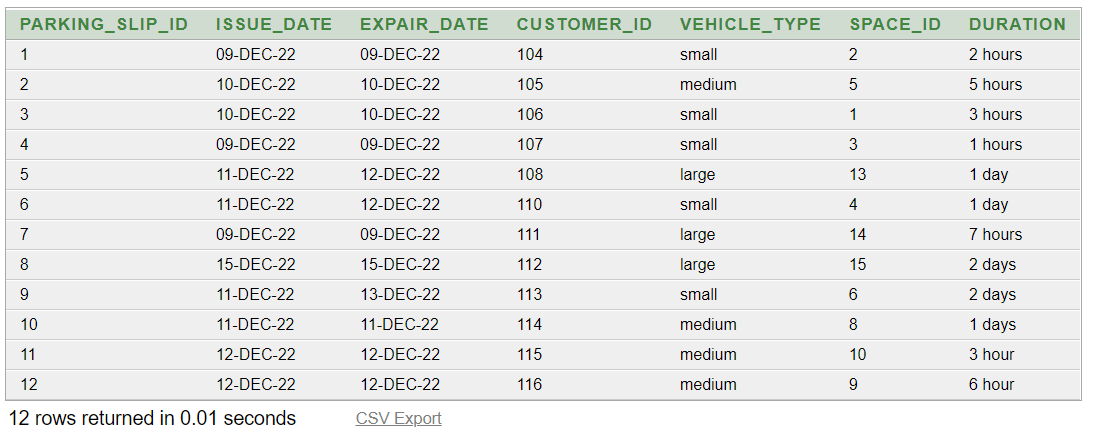
insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'12-dec-22','12-dec-22','medium',115,10,'3 hour')

insert into parking\_slip(parking\_slip\_id,issue\_date,expair\_date,vehicle\_type,

customer\_id,space\_id,duration) values(parking\_slip\_seq.nextval,'12-dec-22','12-dec-22','medium',116,9,'6 hour')

select \* from parking\_slip



**8. Query**

select \* from employee

select \* from manager

select \* from customers

select \* from fine

select \* from parking\_slip

select \* from parking\_space

select \* from parking\_spot

select \* from rate

select \* from space\_rate

**# Equijoin:**

1.Display empemployee first name and their manager first name

select e.first\_name as employee\_name,m.first\_name as manager\_name

from employee e,manager m

where e.manager\_id = m.manager\_id

**Table

Description automatically generated**

2.Display customer name,parking slip issue\_date,expair\_date space id and space type

select c.first\_name,p.issue\_date as slip\_issue\_date,p.expair\_date as slip\_expair\_date,

s.space\_id,s.space\_type

from customers c,parking\_slip p,parking\_space s

where c.customer\_id = p.customer\_id and s.space\_id = p.space\_id

**Table

Description automatically generated**

**# Self-join:**

1.Display the first and last name and salary for those employees who earn less than the employee earn whose number is 208.

select e.first\_name, e.last\_name, e.salary

from employee e,employee s

where e.salary < s.salary

and s.employee\_id = 208

Graphical user interface, text, application, email

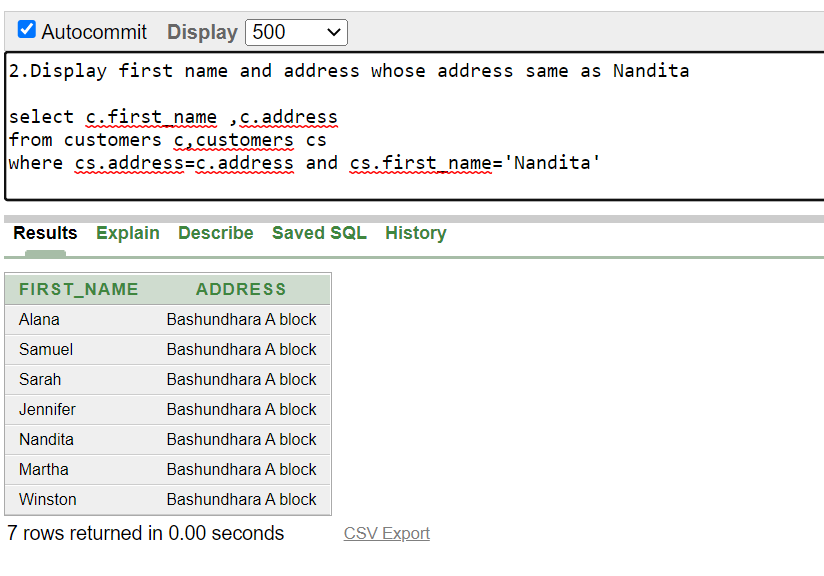
Description automatically generated

2.Display first name and address whose address same as Nandita

select c.first\_name ,c.address

from customers c,customers cs

where cs.address=c.address and cs.first\_name='Nandita'



**# Outer join:**

1.Display the first name, last name, phone number for all employee who have or

have not parking any car.

select c.first\_name,c.phone\_number,s.space\_id,issue\_date,s.duration

from customers c,parking\_slip s

where c.customer\_id=s.customer\_id(+)

Table

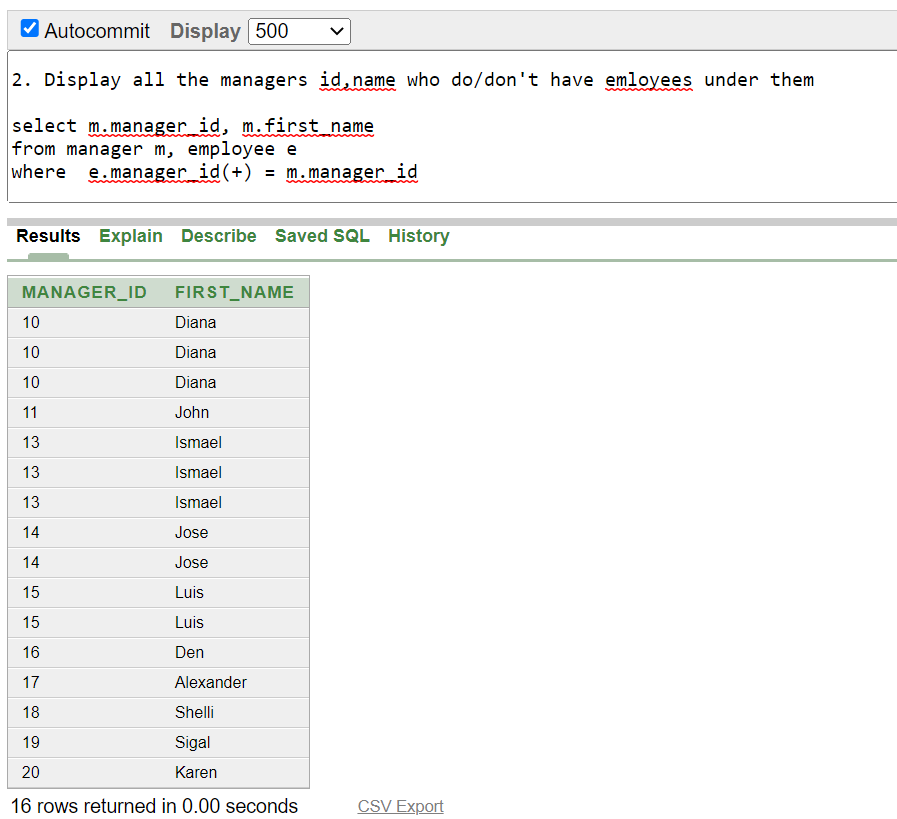
Description automatically generated with medium confidence

2. Display all the managers id,name who do/don't have emloyees under them

select m.manager\_id, m.first\_name

from manager m, employee e

where e.manager\_id(+) = m.manager\_id



**# Subquery:**

1.Display the first name and salary for all employee who earn more than employee id 205

select first\_name ,salary from employee

where salary>(select salary from employee

where employee\_id = 205)

Graphical user interface, text, application, email

Description automatically generated

2.Display the last name and hire date for all employee who was hired after employee number 206

select first\_name ,hire\_date from employee

where hire\_date<(select hire\_date from employee

where employee\_id = 206)

Graphical user interface, text, application, email

Description automatically generated

3.Display the first name, last name, and phone\_number all employee whose manager name is Luis

select first\_name,last\_name,phone\_number

from employee

where manager\_id in(select manager\_id

from manager where first\_name='Luis')

Graphical user interface, text, application, email

Description automatically generated

4.Display the first name,last name, salary for all employees who earn less than the average salary

select first\_name,last\_name,salary

from employee

where salary<(select avg(salary) from employee)

Graphical user interface, text, application, email

Description automatically generated

5.

select first\_name,last\_name,hire\_date

from employee

where manager\_id=(select manager\_id

from manager where

manager\_id=(select manager\_id from parking\_spot

where address='Bashundhara A block Rd No 4'))

Table

Description automatically generated with medium confidence

**# Single row function:**

1.

select first\_name, concat(first\_name,last\_name), length(first\_name),

instr(first\_name, 'C')

from employee

where lower(first\_name) = 'mccainy'

Graphical user interface, text, application, email

Description automatically generated

2.

select employee\_id, round((sysdate - hire\_date),3) Employment\_days

from employee

Graphical user interface, text, application, email

Description automatically generated

3.

select first\_name,to\_char(hire\_date,'DD Month YYYY') as hiredate

from employee

Graphical user interface, text, application, email

Description automatically generated

4.

select first\_name, salary,

decode(first\_name, 'Timothy', salary\*3.1,

'Randall',salary\*2.15,

'Sarah',salary\*1.20,

salary) revised\_salary

from employee

Graphical user interface, application

Description automatically generated

5.display the hire date, month before and after the hire\_date in the from employee

select hire\_date, to\_char(add\_months(hire\_date, -1), 'DD-MON-YYYY') "Previous month",

to\_char(add\_months(hire\_date, 1), 'DD-MON-YYYY') "Next month"

from employee

where employee\_id=205

Graphical user interface, text, application, email

Description automatically generated

**# Group function:**

1.

select avg(salary), max(salary),

min(salary), sum(salary)

from employee

Graphical user interface, text, application

Description automatically generated

2.

select count(space\_type)

from parking\_space

where space\_type = 'Small'

Graphical user interface, text, application, email

Description automatically generated

3.

select manager\_id,avg(salary) from employee

group by manager\_id

order by manager\_id

Graphical user interface, text, application

Description automatically generated

4.

select manager\_id,max(salary) from employee

group by manager\_id

having max(salary)>5000

order by manager\_id

Table

Description automatically generated with low confidence

5.

select max(avg(salary))

from employee

group by manager\_id

Graphical user interface, text, application

Description automatically generated

**View:**

create view slip\_details (customer\_name,issue\_date,expair\_date,spot\_id,space\_id,space\_type,spot\_address)

as select c.first\_name,p.issue\_date,p.expair\_date,sp.spot\_id,s.space\_id,s.space\_type,sp.address

from customers c,parking\_slip p,parking\_space s,parking\_spot sp

where c.customer\_id = p.customer\_id and s.space\_id = p.space\_id

and s.spot\_id=sp.spot\_id

select \* from slip\_details

Table

Description automatically generated with medium confidence

**# General:**

1.Display 5 hourls small type parking space rate

select hourly\_rate\*5 from rate

where type='Small'

Graphical user interface, text, application, email

Description automatically generated

2.

select first\_name ||' '||last\_name as employee\_name,

phone\_number,

hire\_date

from employee

where hire\_date between '13-APR-20' and '17-JAN-21'

Graphical user interface, text, application, email

Description automatically generated

3.

select first\_name,

hire\_date

from employee

where hire\_date like '%20'

Graphical user interface, text

Description automatically generated

4.

select first\_name,email,address,phone\_number

from customers

where find\_id is not null

Graphical user interface, text, application

Description automatically generated

5.

select first\_name,last\_name,phone\_number,salary

from employee

where salary >=7000

Table

Description automatically generated with medium confidence