Prison Management System

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Course Details:

Course: Introduction to Database.

Section: M.

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CONTENTS

Introduction:

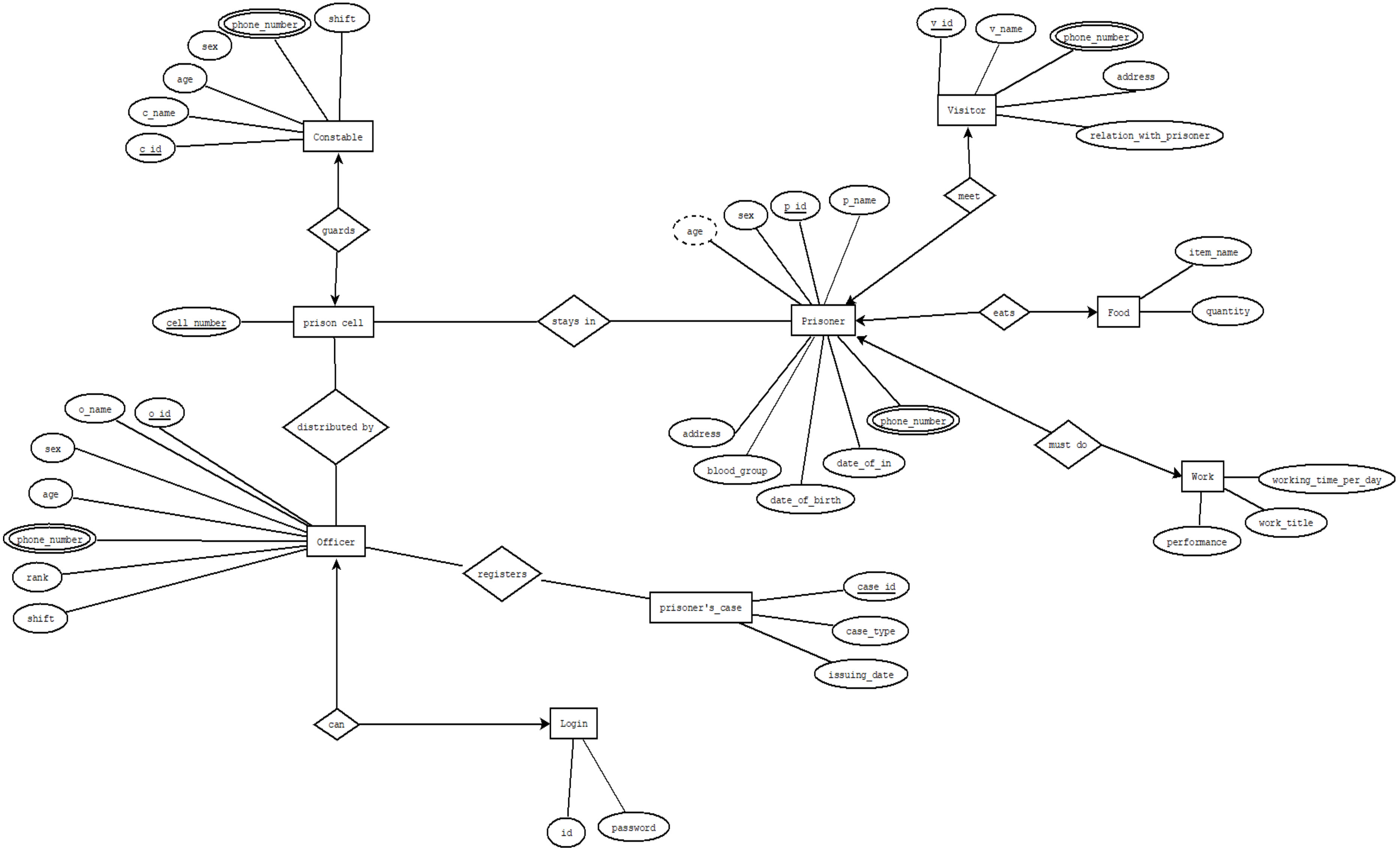
Prison, an institution for the confinement of persons who have been remanded (held) in custody by a judicial authority or who have been deprived of their liberty following conviction for a crime. A person found guilty of a felony or a misdemeanor may be required to serve a prison sentence. As there is crime everywhere in this world, the place prison is vastly using. Almost every city has prisons and prisoners. In today's world, managing the whole prison manually is tough as there are so much data and information. It takes a huge time to find out any criminal history, or to match with any data, or to find out any prisoner's personal details. So, to simplify this problem our team is designing a prison management system using a database where every prisoner all personal details such as name, age, blood group, date of in, everything will be stored and every prisoner will also uniquely identified by an id. Moreover, every single piece of information of visitors, constables, officers will be stored in the management system and the officers can log in using their own id and the password where they will have all the data access. We are very optimistic that our prison management system will work properly to solve the difficulties

Scenario Description:

In this prison management system, every prisoner will be uniquely identified by the prisoner's id. Prisoner's name, age, sex, address, blood group, phone number, date of birth, and date of in will be stored as well. The age depends on the date of birth and the phone number can be multiple. Prisoners will stay in prison cells. There is single-seated cell and multi seated cells one prisoner can stay in one room and multiple prisoners also can stay in one room. The database will store the cell number of prison cells. The prison cell will be distributed by an officer where an officer will distribute one or multiple cells between prisoners.

An officer will be identified by the officer's id. Moreover, the officer's name, sex, age, phone number (multiple), rank, and shift will be stored in the prison management system. Each officer can register one or more prisoner's cases where he/she will identify cases using a unique case id. Case type and issuing date will be also stored in the prisoners' case document. Officer can login into the system using id and password where he/she will have every single access to the system. Prison cells need security so, cells will be guarded by the constable. One constable will guard one cell. Each constable will be identified by the constable id, also the constable name, age, sex, phone number, and shift will be stored. Phone numbers can be multiple. Every prisoner's food is well defined by the item name and quantity. Prisoners must do work. Work title, per day working time, and performance will be stored. There are always visitors who come to meet with prisoners so , for security purposes , every visitor will have one unique visitor id and the management system will store the visitor's name, address, relationship with the prisoner, and one or more phone numbers. Each prisoner can meet only one visitor and one visitor can meet one prisoner at a time.

ER Diagram:


phone_number
shift
sex
age
c_name
c_id
Constable
guards
v_id
v_name
phone_number
address
Visitor
relation_with_prisoner
meet
sex
p_id
p_name
age
cell_number
prison cell
stays in
Prisoner
eats
Food
item_name
quantity
distributed by
o_name
o_id
sex
age
phone_number
rank
shift
Officer
address
blood_group
date_of_birth
date_of_in
phone_number
must do
Work
working_time_per_day
work_title
performance
registers
prisoner's_case
case_id
case_type
issuing_date
can
Login
id
password

NORMALIZATION

Eats

UNF

Eats(item_name, quantity, age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number)

1NF

phone_number is a multi valued attribute.

1.item_name, quantity, age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

2NF

1.item_name, quantity

2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

3NF

There is no transitive dependency. Relation already in 3NF.

1.item_name, quantity

2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

Table Creation

1.item_name, quantity , a_id

2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number , a_id

Meet

UNF

Meet(age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number, v_id, v_name, address, relation_with_prisoner)

1NF

phone number is a multi valued attribute.

1. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number, v_id, v_name, address, relation_with_prisoner

2NF

1. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number
2. phone_number, v_id, v_name, address, relation_with_prisoner

3NF

There is no transitive dependency, Relation already in 3NF

1. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number,

2 phone_number, v_id, v_name, address, relation_with_prisoner,

Table Creation

1. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number,
2. phone_number, v_id, v_name, address, relation_with_prisoner,aid

Must do

UNF

must do(working_time_per_day, work_title, performance, age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number)

1NF

Phone number is a multi valued attribute .

1. working_time_per_day, work_title, performance, age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

2NF

1. working_time_per_day, work_title, performance
2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

3NF

There is no transitive dependency. Relation already in 3NF

1. working_time_per_day, work_title, performance

2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

Table Creation

1. working_time_per_day, work_title, performance, a_id

Stays In

UNF

1. Stays in(cell_number, age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number)

1NF

Phone number is a multi valued attribute.

1. cell_number, age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

2NF

1.cell_number

2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

3NF

There is no transitive dependency. Relation already in 3NF.

1. cell_number
2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number

Table Creation

1. cell_number, p_id

Guards

UNF

Guards(cell_number,c_id, c_name, age, sex, phone_number, shift)

1NF

Phone number is a multi valued attribute.

1. cell_number,c_id, c_name, age, sex, phone_number, shift

2NF

1.cell_number

2. c_id, c_name, age, sex, phone_number, shift

3NF

There is no transitive dependency. Relation already in 3NF.

1.cell_number

2. c_id, c_name, age, sex, phone_number, shift

Table Creation

1.cell_number, c_id

2. c_id, c_name, age, sex, phone_number, shift

Distributed by

UNF

Distributed by(cell_number, shift, rank, phone_number, age, sex, o_name, o_id)

1NF

Phone number is a multi valued attribute.

1. cell_number, shift, rank, phone_number, age, sex, o_name, o_id

2NF

1. cell_number
2. shift, rank, phone_number, age, sex, o_name, o_id

3NF

There is no transitive dependency. Relation already in 3NF.

Table Creation

1. cell_number, o_id
2. shift, rank, phone_number, age, sex, o_name, o_id

Can

UNF

Can(shift, rank, phone_number, age, sex, o_name, o_id, id, password)

1NF

Phone number is a multi valued attribute.

1. shift, rank, phone_number, age, sex, o_name, o_id, id, password.

2NF

1. shift, rank, phone_number, age, sex, o_name, o_id
2. id, password

3NF

There is no transitive dependency. Relation already in 3NF.

1. shift, rank, phone_number, age, sex, o_name, o_id
2. id, password

Table Creation

1. shift, rank, phone_number, age, sex, o_name, o_id
2. id, password, o_id

Registers

UNF

1. Registers(shift, rank, phone_number, age, sex, o_name, o_id, case_id, case_type, issuing_date)

1NF

Phone number is a multi valued attribute.

1. shift, rank, phone_number, age, sex, o_name, o_id, case_id, case_type, issuing_date

2NF

1. shift, rank, phone_number, age, sex, o_name, o_id,
2. case_id, case_type, issuing_date

3NF

There is no transitive dependency. Relation already in 3NF

1. shift, rank, phone_number, age, sex, o_name, o_id,
2. case_id, case_type, issuing_date

Table Creation

1. shift, rank, phone_number, age, sex, o_name, o_id,

2. case_id, case_type, issuing_date, o_id

Final Tables

1. item_name, quantity , a_id
2. age, sex, p_id, p_name, address, blood_group, date_of_birth, date_of_in, phone_number , a_id
3. phone_number, v_id, v_name, address, phone number, relation_with_prisoner,aid
4. working_time_per_day, work_title, performance, p_id
5. cell_number, p_id
6. p_id, c_id
7. c_id, c_name, age, sex, phone_number, shift
8. c_id, o_id
9. shift, rank, phone_number, age, sex, o_name, o_id
10. id, password, o_id
11. case_id, case_type, issuing_date, o_id

Schema Diagram:

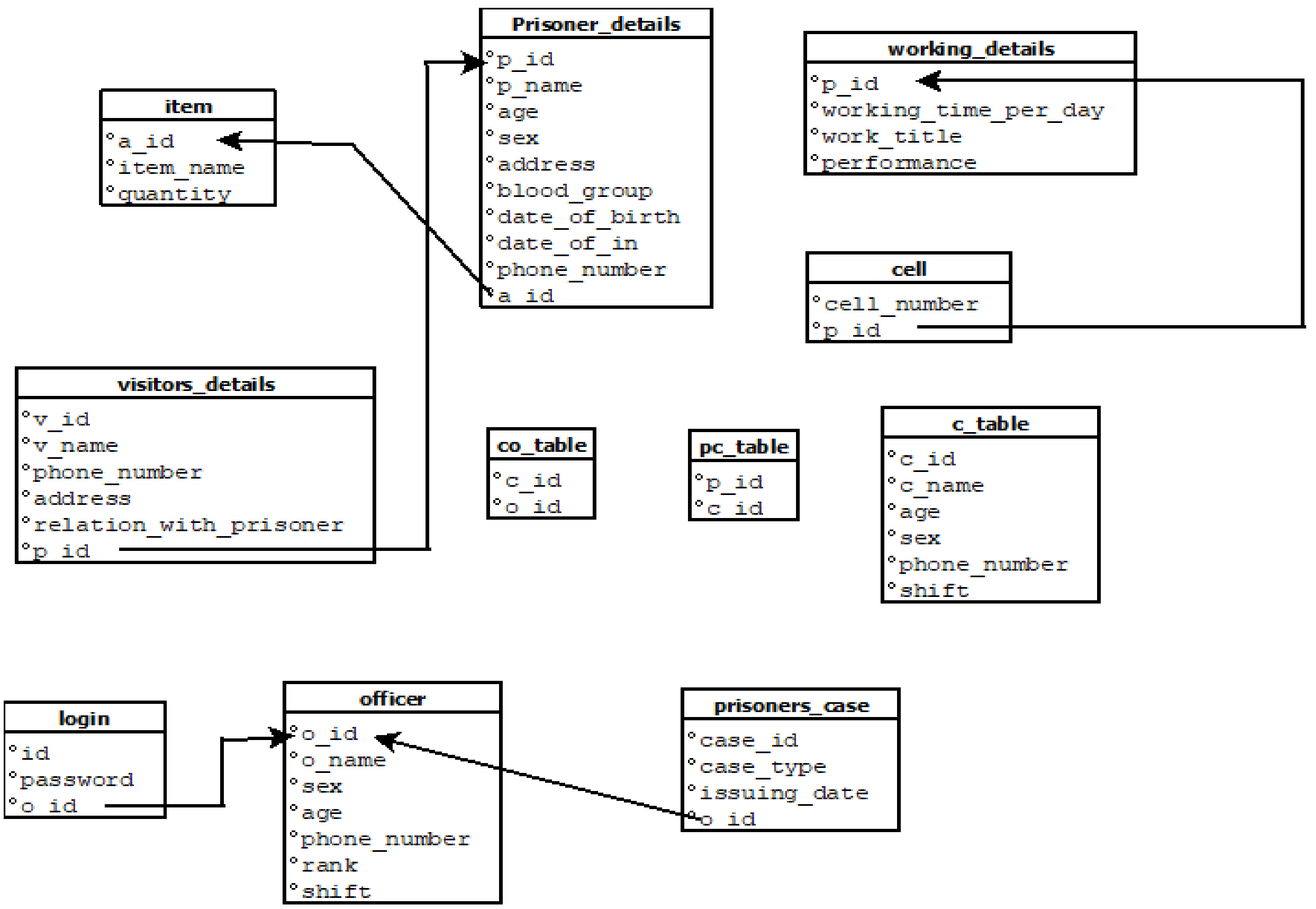


Table Creation

1.

create table item(

a_id number (10) primary key,

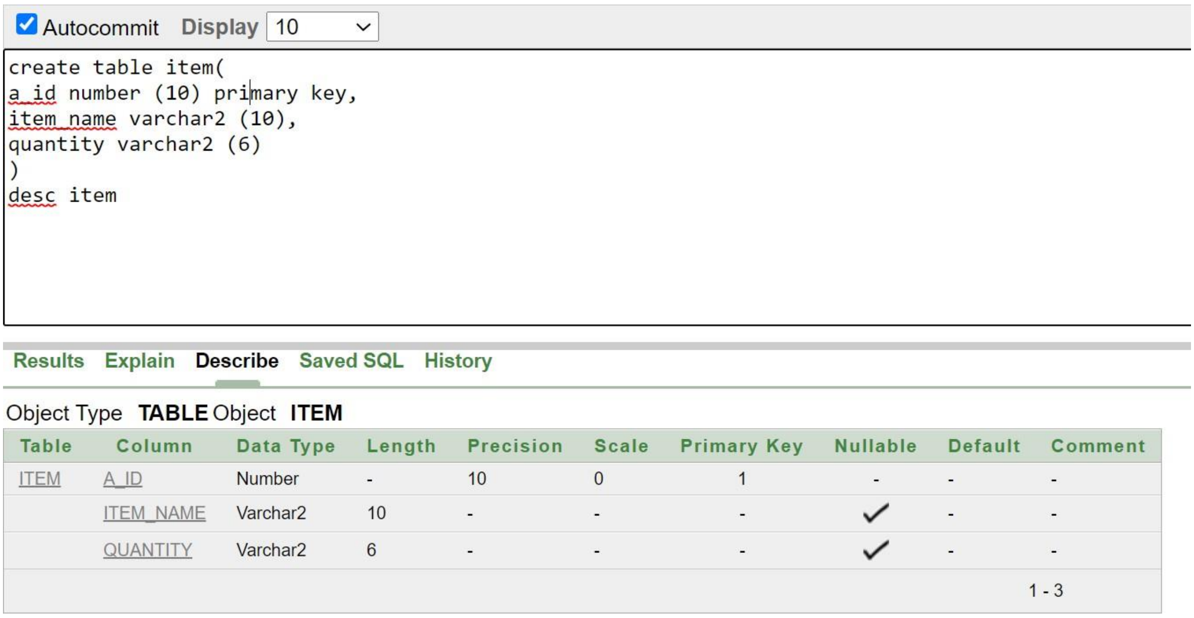
item_name varchar2 (10),

quantity varchar2 (6)

)

Alter table item modify(item_name varchar2 (20))

Alter table item modify(quantity varchar2 (20))



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```
create table item(
a_id number (10) primary key,
item_name varchar2 (10),
quantity varchar2 (6)
)
desc item
```

Object Type **TABLE** Object **ITEM**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ITEM	A_ID	Number	-	10	0	1	-	-	-
	ITEM_NAME	Varchar2	10	-	-	-	✓	-	-
	QUANTITY	Varchar2	6	-	-	-	✓	-	-

1 - 3

2.

create table Prisoner_details

(age number(20), sex varchar2(20),

p_id number(10) primary key,

p_name varchar2(20),

address varchar2(20),

blood_group varchar2(5),

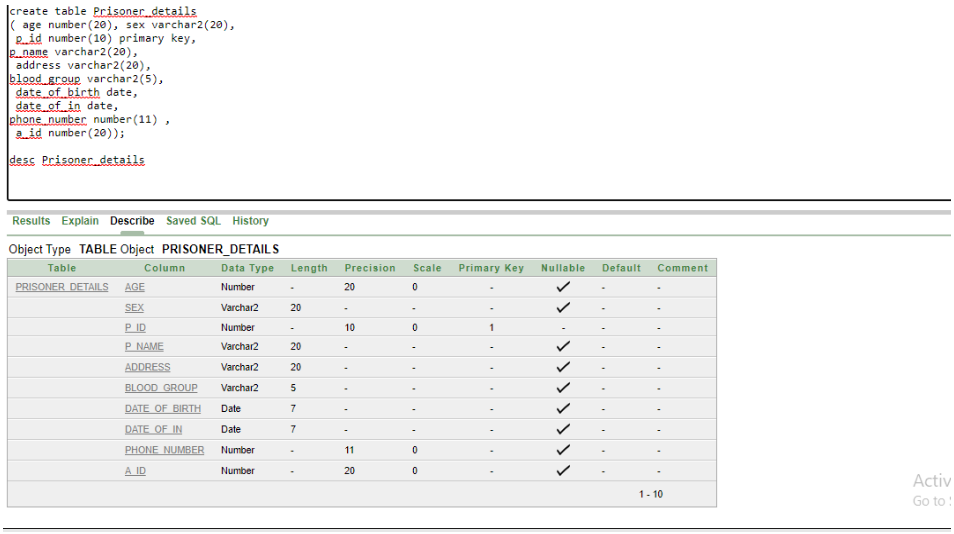
date_of_birth date,

date_of_in date,

phone_number number(11) ,

a_id number(20));

alter table Prisoner_details add constraint a_id_fk foreign key(a_id) references item (a_id)



```
create table Prisoner_details
( age number(20), sex varchar2(20),
 p_id number(10) primary key,
p_name varchar2(20),
 address varchar2(20),
blood_group varchar2(5),
 date_of_birth date,
 date_of_in date,
phone_number number(11) ,
 a_id number(20));

desc Prisoner_details
```

Object Type TABLE Object PRISONER_DETAILS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PRISONER_DETAILS	AGE	Number	-	20	0	-	✓	-	-
	SEX	Varchar2	20	-	-	-	✓	-	-
	P_ID	Number	-	10	0	1	-	-	-
	P_NAME	Varchar2	20	-	-	-	✓	-	-
	ADDRESS	Varchar2	20	-	-	-	✓	-	-
	BLOOD_GROUP	Varchar2	5	-	-	-	✓	-	-
	DATE_OF_BIRTH	Date	7	-	-	-	✓	-	-
	DATE_OF_IN	Date	7	-	-	-	✓	-	-
	PHONE_NUMBER	Number	-	11	0	-	✓	-	-
	A_ID	Number	-	20	0	-	✓	-	-

1 - 10

3.

create table Visitors_details(

v_id number (10) primary key,

v_name varchar2(10),

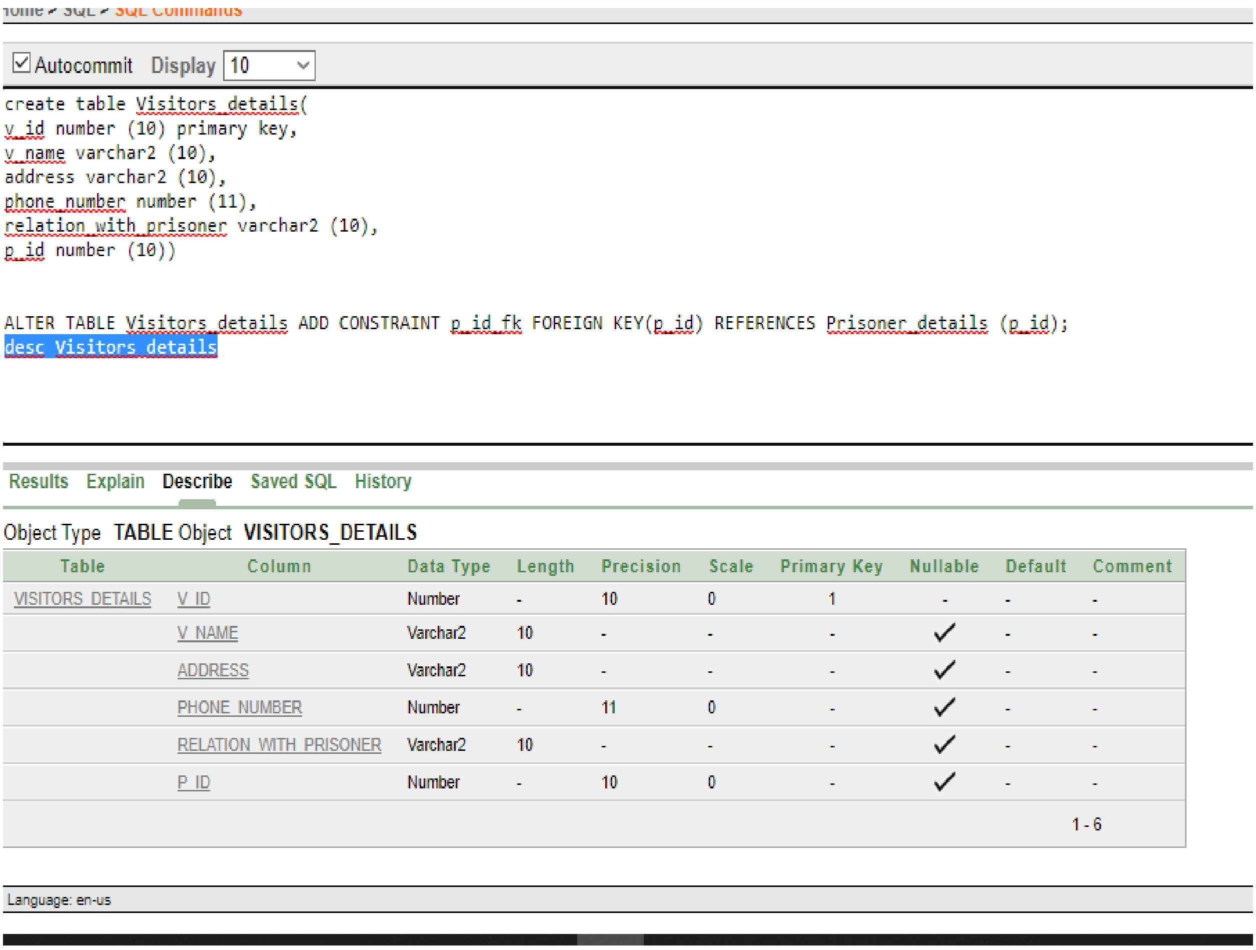
address varchar2 (10),

phone_number number (11),

relation_with_prisoner varchar2 (10),

p_id number (10))

ALTER TABLE Visitors_details ADD CONSTRAINT p_id_fk FOREIGN KEY(p_id) REFERENCES Prisoner_details (p_id);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Results Explain Describe Saved SQL History

```
create table Visitors_details(
v_id number (10) primary key,
v_name varchar2 (10),
address varchar2 (10),
phone_number number (11),
relation_with_prisoner varchar2 (10),
p_id number (10))


ALTER TABLE Visitors_details ADD CONSTRAINT p_id_fk FOREIGN KEY(p_id) REFERENCES Prisoner_details (p_id);
desc Visitors_details
```

Object Type TABLE Object VISITORS_DETAILS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
VISITORS_DETAILS	V_ID	Number	-	10	0	1	-	-	-
	V_NAME	Varchar2	10	-	-	-	✓	-	-
	ADDRESS	Varchar2	10	-	-	-	✓	-	-
	PHONE_NUMBER	Number	-	11	0	-	✓	-	-
	RELATION_WITH_PRISONER	Varchar2	10	-	-	-	✓	-	-
	P_ID	Number	-	10	0	-	✓	-	-

1 - 6

Language: en-us

4.

create table working_details(

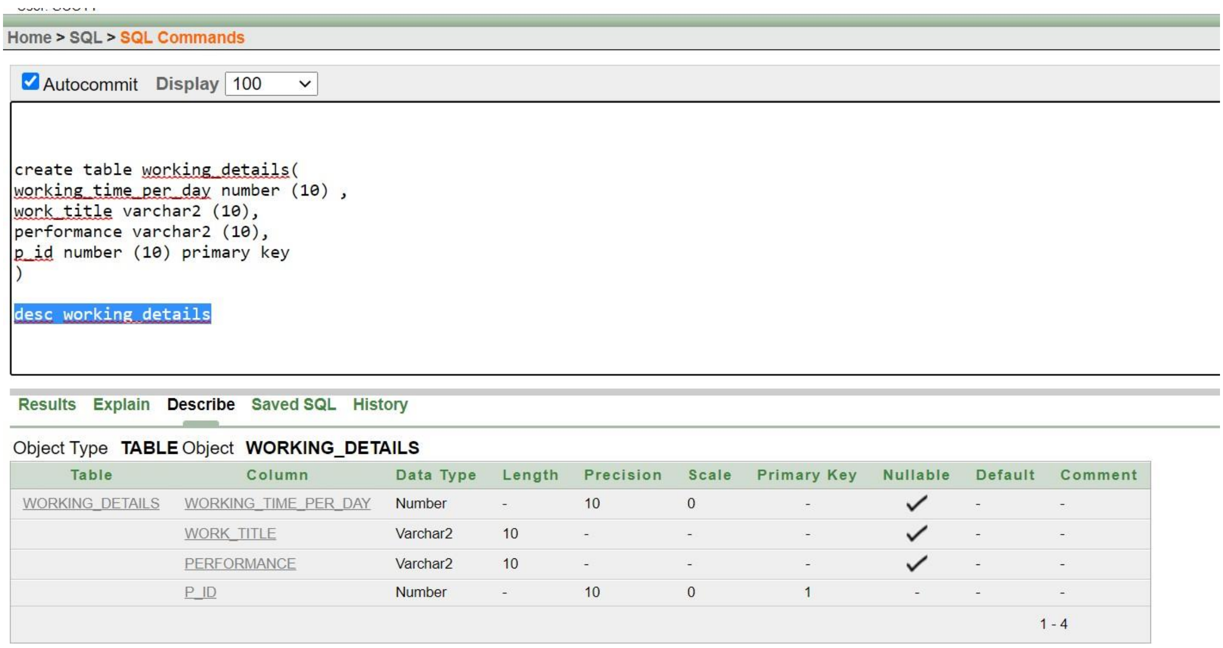
working_time_per_day number (10) ,

work_title varchar2 (10),

performance varchar2 (10),

p_id number(10) primary key

)



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```
create table working_details(
working_time_per_day number (10) ,
work_title varchar2 (10),
performance varchar2 (10),
p_id number (10) primary key
)

desc working_details
```

Object Type **TABLE** Object **WORKING_DETAILS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
WORKING_DETAILS	WORKING_TIME_PER_DAY	Number	-	10	0	-	✓	-	-
	WORK_TITLE	Varchar2	10	-	-	-	✓	-	-
	PERFORMANCE	Varchar2	10	-	-	-	✓	-	-
	P_ID	Number	-	10	0	1	-	-	-

1 - 4

5.

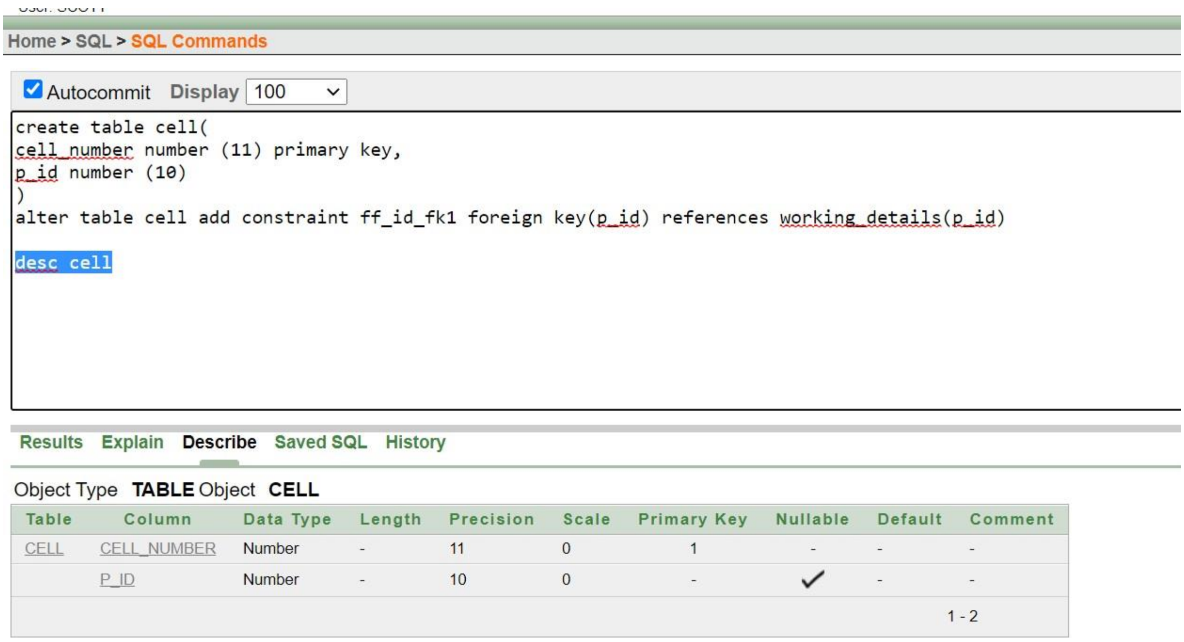
create table cell(

cell_number number (11) primary key,

p_id number (10)

)

alter table cell add constraint ff_id_fk1 foreign key(p_id) references working_details(p_id)



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```
create table cell(
cell_number number (11) primary key,
p_id number (10)
)
alter table cell add constraint ff_id_fk1 foreign key(p_id) references working_details(p_id)

desc cell
```

Object Type **TABLE** Object **CELL**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CELL	CELL_NUMBER	Number	-	11	0	1	-	-	-
	P_ID	Number	-	10	0	-	✓	-	-

1 - 2

6.

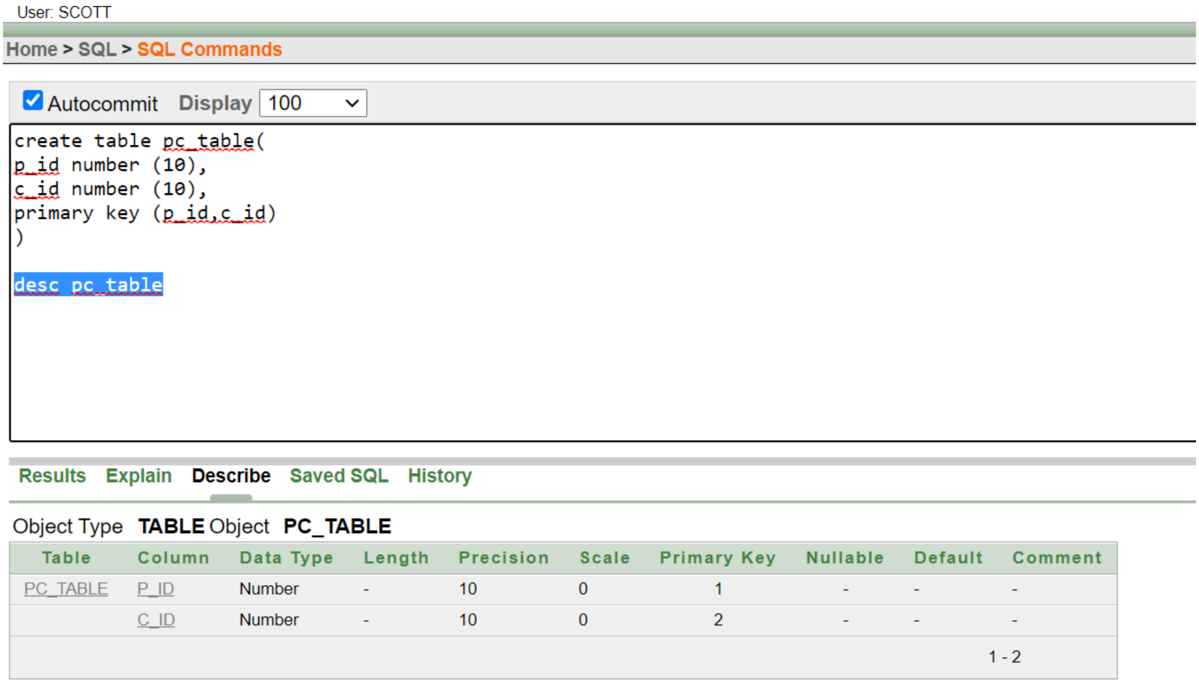
create table pc_table(

p_id number(10),

c_id number (10),

primary key (p_id,c_id)

)



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```
create table pc_table(
p_id number (10),
c_id number (10),
primary key (p_id,c_id)
)

desc pc_table
```

Object Type **TABLE** Object **PC_TABLE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PC_TABLE	P_ID	Number	-	10	0	1	-	-	-
	C_ID	Number	-	10	0	2	-	-	-

1 - 2

7.

create table c_table(

c_id number (10) primary key,

c_name varchar2(10),

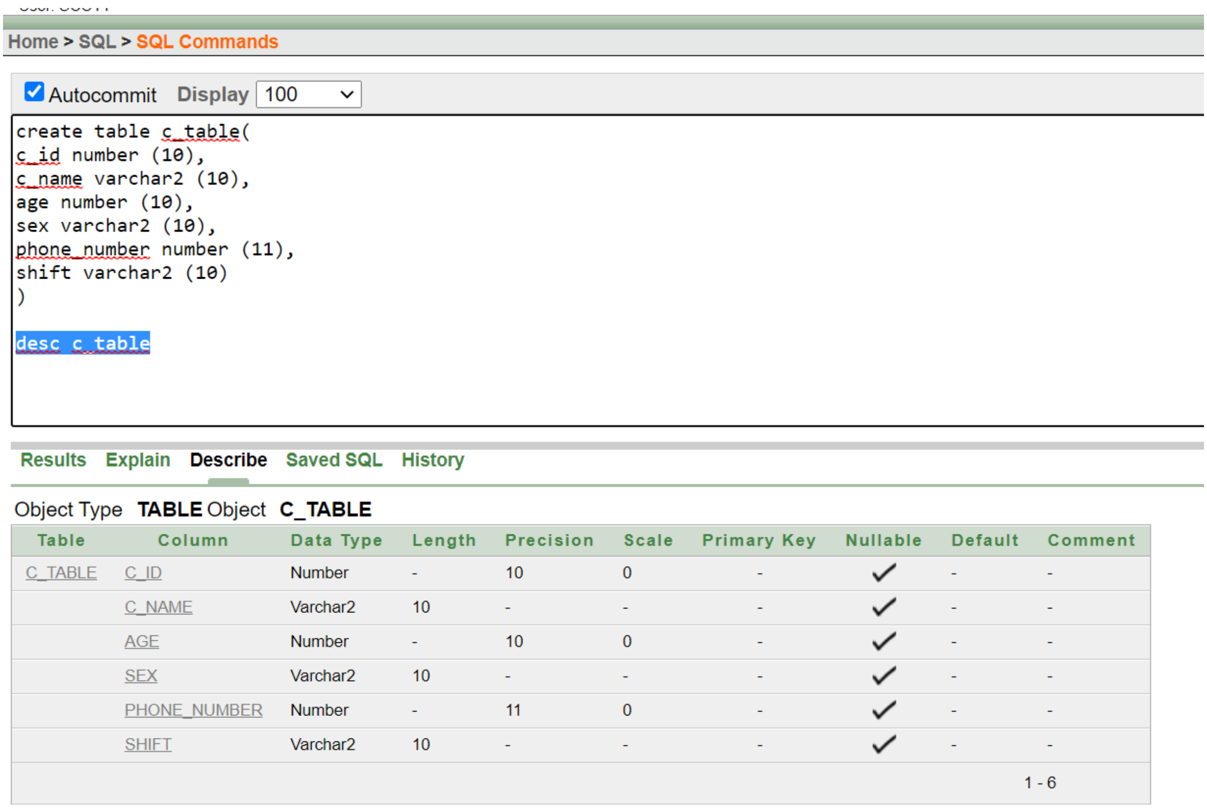
age number (10),

sex varchar2 (10),

phone_number number (11),

shift varchar2 (10)

)



```
create table c_table(
c_id number (10),
c_name varchar2 (10),
age number (10),
sex varchar2 (10),
phone_number number (11),
shift varchar2 (10)
)

desc c_table
```

Object Type **TABLE** Object **C_TABLE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
C_TABLE	C_ID	Number	-	10	0	-	✓	-	-
	C_NAME	Varchar2	10	-	-	-	✓	-	-
	AGE	Number	-	10	0	-	✓	-	-
	SEX	Varchar2	10	-	-	-	✓	-	-
	PHONE_NUMBER	Number	-	11	0	-	✓	-	-
	SHIFT	Varchar2	10	-	-	-	✓	-	-

1 - 6

8.

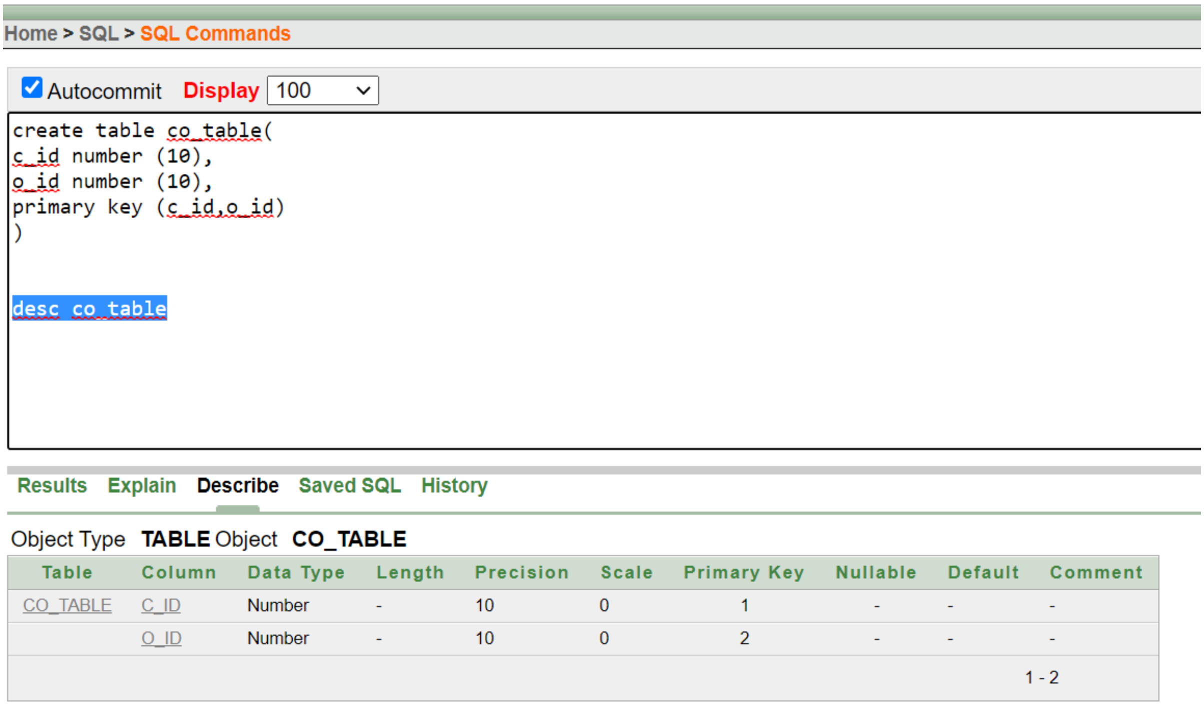
create table co_table(

c_id number(10),

o_id number (10),

primary key (c_id,o_id)

)



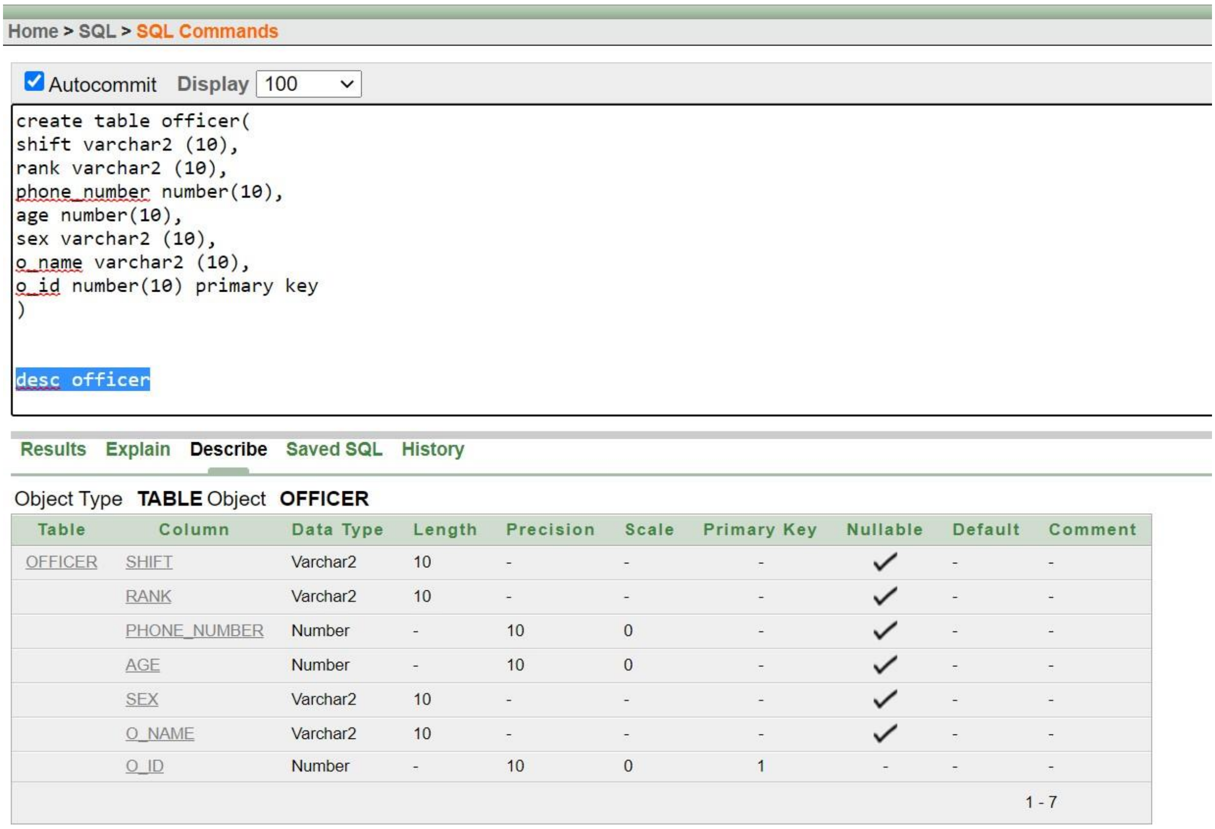
```
create table co_table(
c_id number (10),
o_id number (10),
primary key (c_id,o_id)
)


desc co_table
```

Object Type **TABLE** Object **CO_TABLE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CO_TABLE	C_ID	Number	-	10	0	1	-	-	-
	O_ID	Number	-	10	0	2	-	-	-
									1 - 2

9.

```
create table officer(
shift varchar2 (10),
rank varchar2 (10),
phone_number number(10),
age number(10),
sex varchar2 (10),
o_name varchar2 (10),
o_id number(10) primary key
)
```



```
create table officer(
shift varchar2 (10),
rank varchar2 (10),
phone_number number(10),
age number(10),
sex varchar2 (10),
o_name varchar2 (10),
o_id number(10) primary key
)


desc officer
```

Object Type **TABLE** Object **OFFICER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OFFICER	SHIFT	Varchar2	10	-	-	-	✓	-	-
	RANK	Varchar2	10	-	-	-	✓	-	-
	PHONE_NUMBER	Number	-	10	0	-	✓	-	-
	AGE	Number	-	10	0	-	✓	-	-
	SEX	Varchar2	10	-	-	-	✓	-	-
	O_NAME	Varchar2	10	-	-	-	✓	-	-
	O_ID	Number	-	10	0	1	-	-	-

1 - 7

10.

create table login(

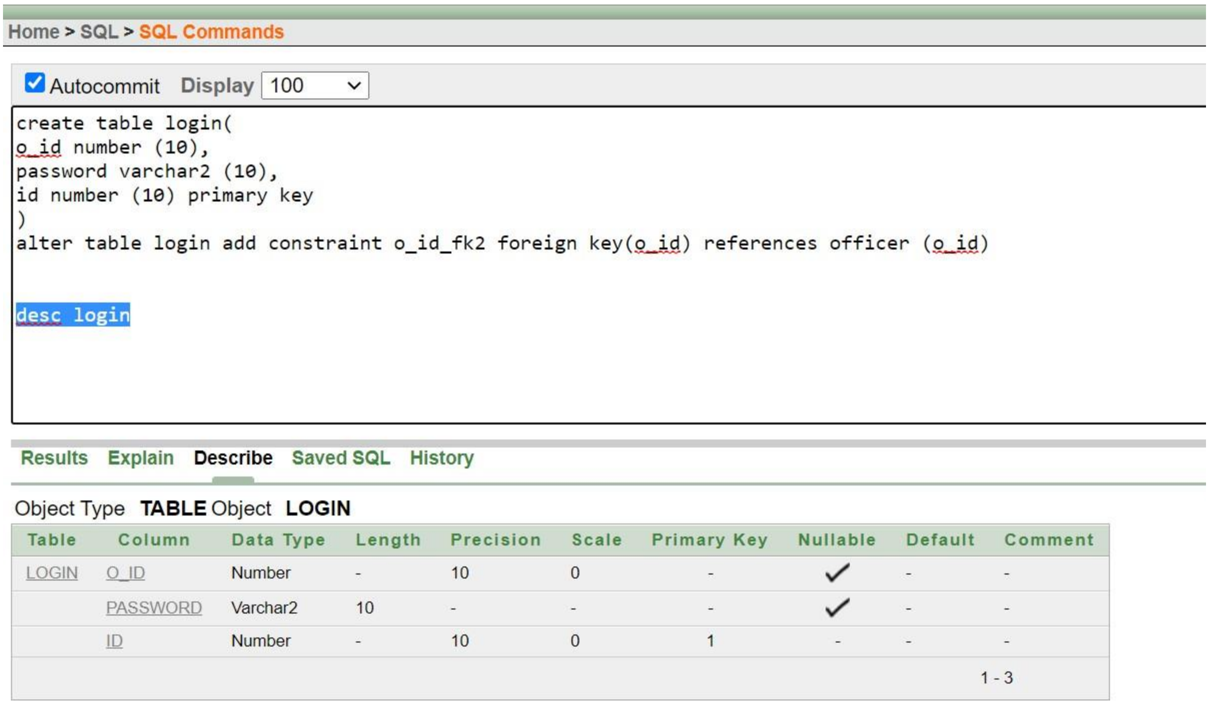
o_id number (10),

password varchar2 (10),

id number (10) primary key

)

alter table login add constraint o_id_fk2 foreign key(o_id) references officer (o_id)



Home > SQL > SQL Commands
☑ Autocommit Display 100
Results Explain Describe Saved SQL History

```
create table login(
o_id number (10),
password varchar2 (10),
id number (10) primary key
)
alter table login add constraint o_id_fk2 foreign key(o_id) references officer (o_id)


desc login
```

Object Type TABLE Object LOGIN

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
LOGIN	O_ID	Number	-	10	0	-	✓	-	-
	PASSWORD	Varchar2	10	-	-	-	✓	-	-
	ID	Number	-	10	0	1	-	-	-
								1 - 3	

11.

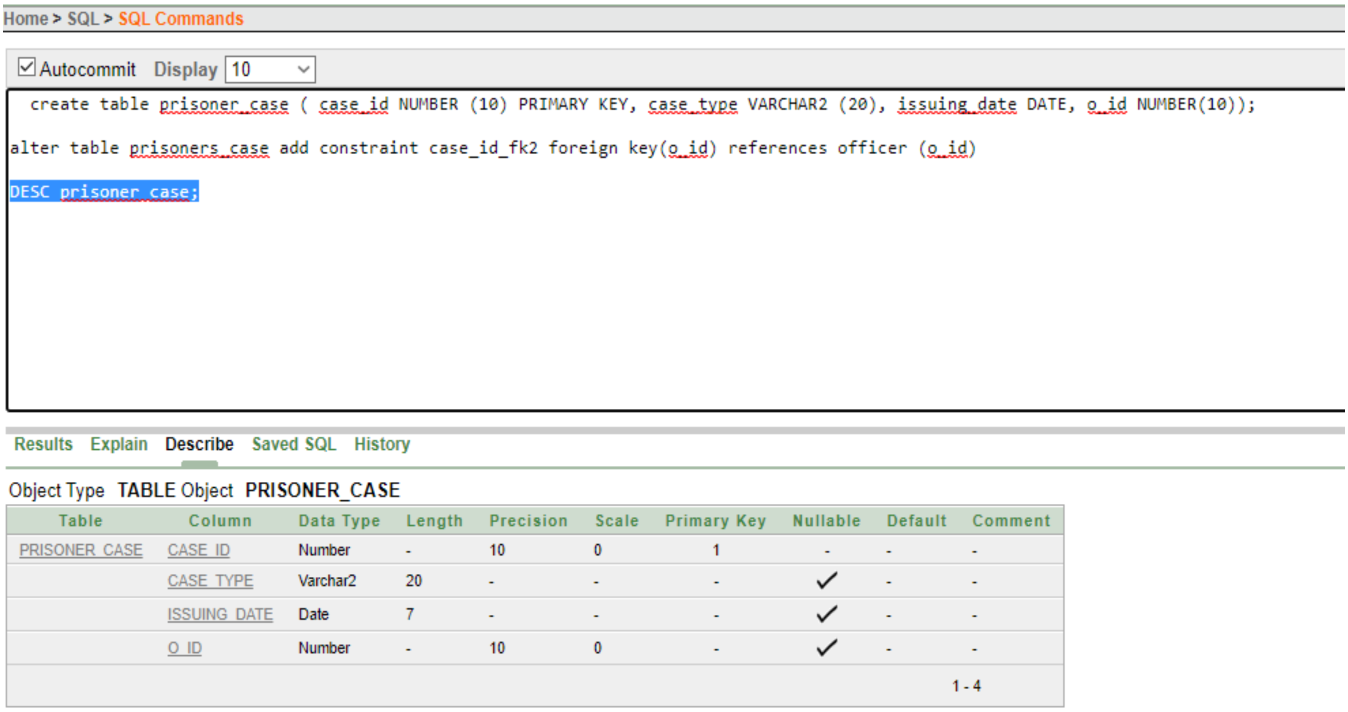
create table prisoner_case (

case_id NUMBER (10) PRIMARY KEY,

case_type VARCHAR2 (20),

issuing_date DATE, o_id NUMBER(10));

alter table prisoner_case add constraint case_id_fk2 foreign key(o_id) references officer (o_id)



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```
 create table prisoner_case ( case_id NUMBER (10) PRIMARY KEY, case_type VARCHAR2 (20), issuing_date DATE, o_id NUMBER(10));

alter table prisoners_case add constraint case_id_fk2 foreign key(o_id) references officer (o_id)

DESC prisoner_case;
```

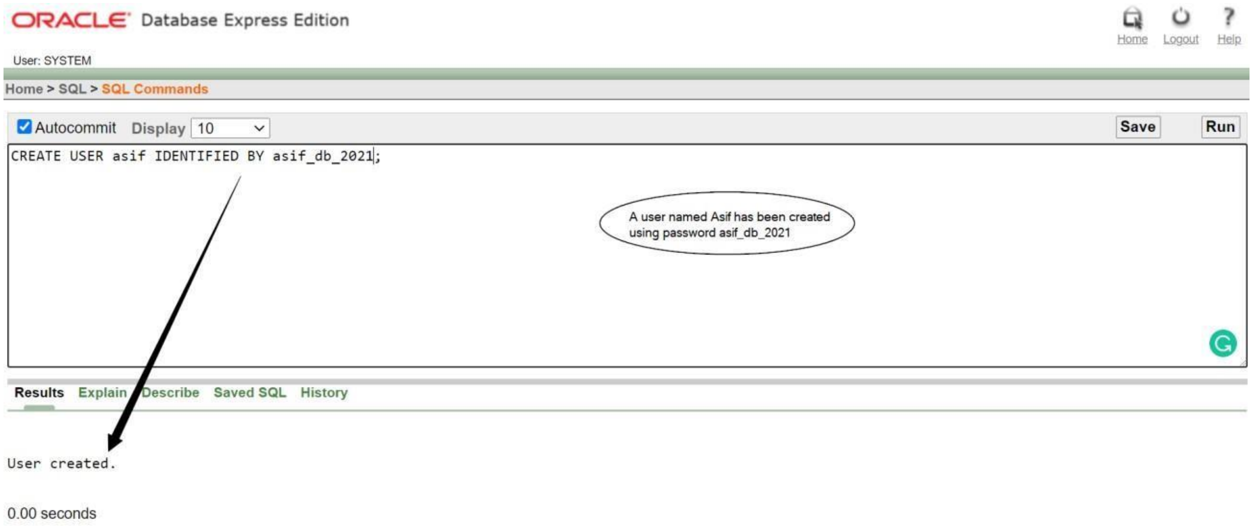
Object Type TABLE Object PRISONER_CASE

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PRISONER_CASE	CASE_ID	Number	-	10	0	1	-	-	-
	CASE_TYPE	Varchar2	20	-	-	-	✓	-	-
	ISSUING_DATE	Date	7	-	-	-	✓	-	-
	O_ID	Number	-	10	0	-	✓	-	-

1 - 4

User Creation and Role Assigning:

Step 1: CREATE USER asif IDENTIFIED BY asif_db_2021;



ORACLE Database Express Edition
Home Logout Help
User: SYSTEM
Home > SQL > SQL Commands
Autocommit Display 10
Save Run
Results Explain Describe Saved SQL History

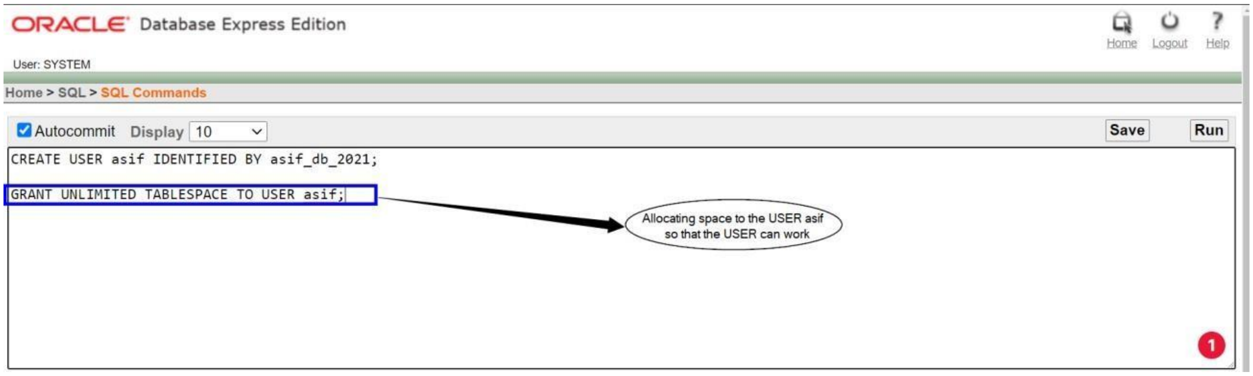
```
CREATE USER asif IDENTIFIED BY asif_db_2021;
```

A user named Asif has been created using password asif_db_2021

```
User created.
```

0.00 seconds

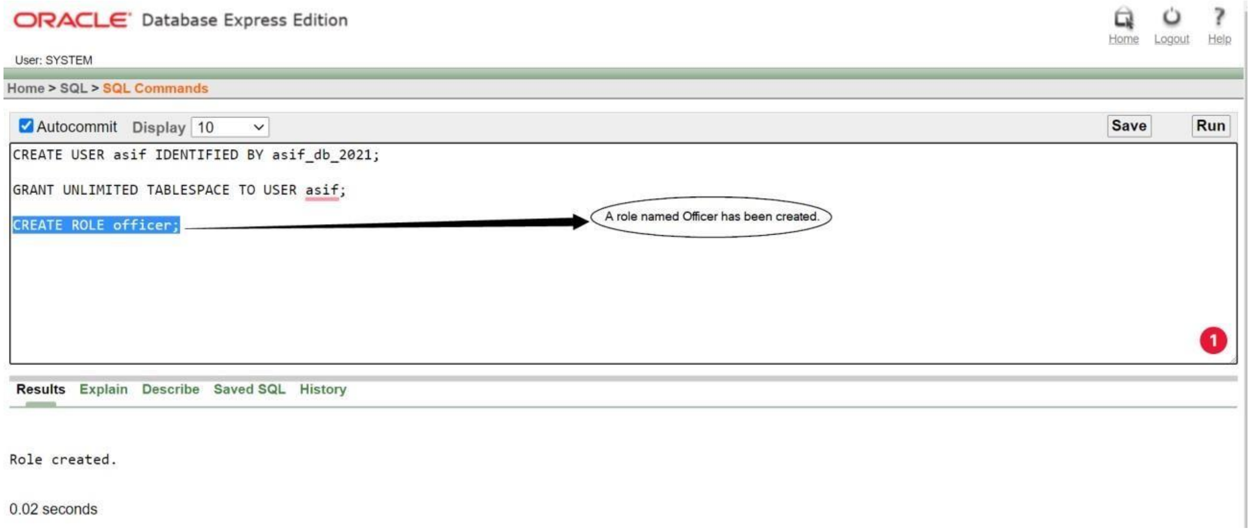
Step 2: GRANT UNLIMITED TABLESPACE TO USER asif;



```
CREATE USER asif IDENTIFIED BY asif_db_2021;

GRANT UNLIMITED TABLESPACE TO USER asif;
```

Allocating space to the USER asif so that the USER can work

Step 3: CREATE ROLE officer;



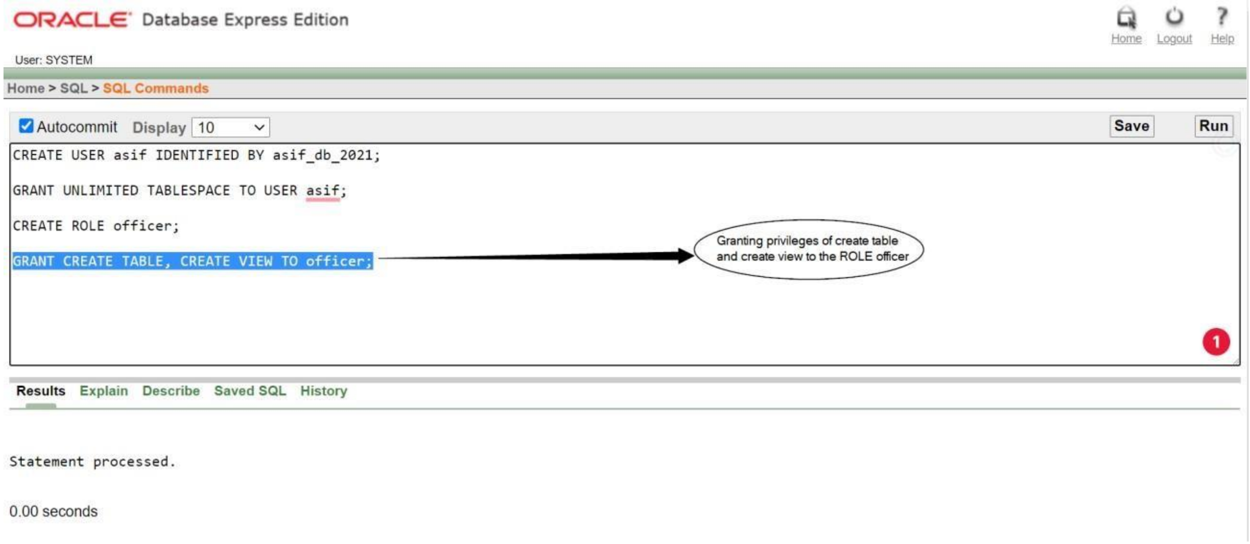
```
CREATE USER asif IDENTIFIED BY asif_db_2021;

GRANT UNLIMITED TABLESPACE TO USER asif;

CREATE ROLE officer;
```

A role named Officer has been created.

```
Role created.
```

0.02 seconds

Step 4: GRANT CREATE TABLE, CREATE VIEW TO officer;



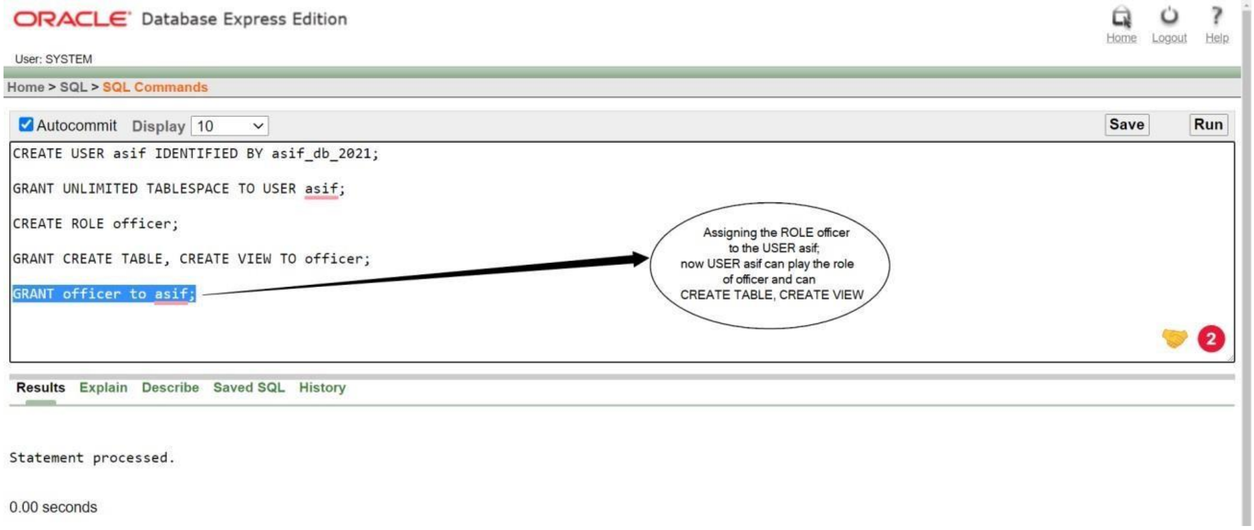
```
CREATE USER asif IDENTIFIED BY asif_db_2021;

GRANT UNLIMITED TABLESPACE TO USER asif;

CREATE ROLE officer;

GRANT CREATE TABLE, CREATE VIEW TO officer;
```

Granting privileges of create table and create view to the ROLE officer

```
Statement processed.
```

0.00 seconds

Step 5: GRANT officer to asif;



ORACLE Database Express Edition
Home Logout Help
User: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 10
Save
Run
Results Explain Describe Saved SQL History

```
CREATE USER asif IDENTIFIED BY asif_db_2021;

GRANT UNLIMITED TABLESPACE TO USER asif;

CREATE ROLE officer;

GRANT CREATE TABLE, CREATE VIEW TO officer;

GRANT officer to asif;
```

Assigning the ROLE officer
to the USER asif;
now USER asif can play the role
of officer and can
CREATE TABLE, CREATE VIEW

```
Statement processed.
```

0.00 seconds

Data Insertion

1.

Alter table item modify(item_name varchar2 (20))

Alter table item modify(quantity varchar2 (20))

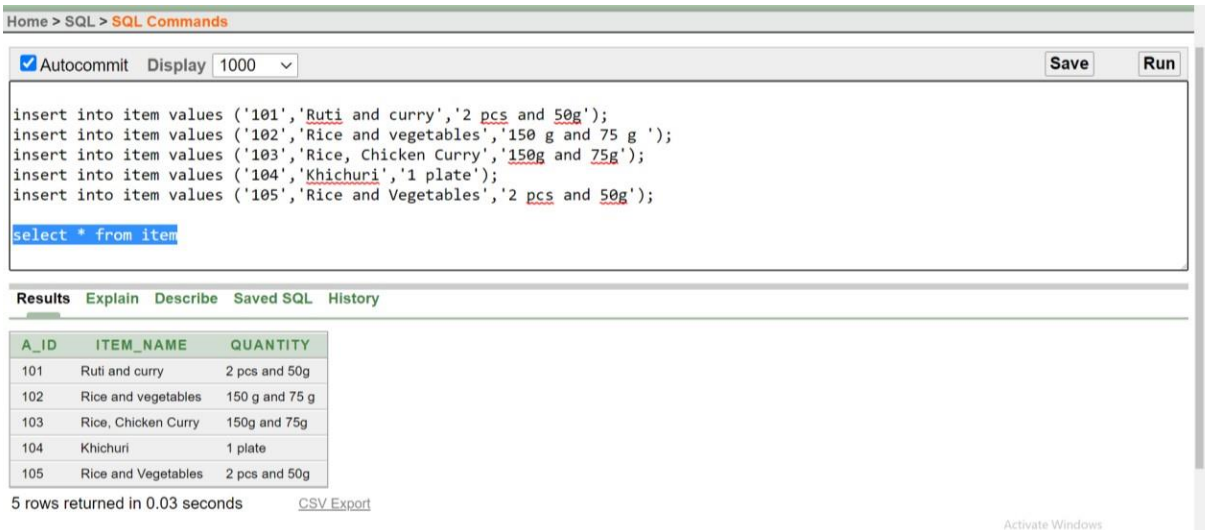
insert into item values ('101','Ruti and curry','2 pcs and 50g');

insert into item values ('102','Rice and vegetables','150 g and 75 g ');

insert into item values ('103','Rice, Chicken Curry','150g and 75g');

insert into item values ('104','Khichuri','1 plate');

insert into item values ('105','Rice and Vegetables','2 pcs and 50g');



```
insert into item values ('101','Ruti and curry','2 pcs and 50g');
insert into item values ('102','Rice and vegetables','150 g and 75 g ');
insert into item values ('103','Rice, Chicken Curry','150g and 75g');
insert into item values ('104','Khichuri','1 plate');
insert into item values ('105','Rice and Vegetables','2 pcs and 50g');

select * from item
```

A_ID	ITEM_NAME	QUANTITY
101	Ruti and curry	2 pcs and 50g
102	Rice and vegetables	150 g and 75 g
103	Rice, Chicken Curry	150g and 75g
104	Khichuri	1 plate
105	Rice and Vegetables	2 pcs and 50g

5 rows returned in 0.03 seconds

2.

insert into Prisoner_details (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)

values(50 , 'Male',10195,'Rafiqul Islam','Khulna','b+','15 Feb 1970', '15 Jan 2012',0196548735,101);

insert into Prisoner_details (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id) values(55 , 'Male',10112,'Shafik Islam','Rajshahi','a+','13 Feb 1965', '15 Jan 2019',0196557985,102);

insert into Prisoner_details (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)

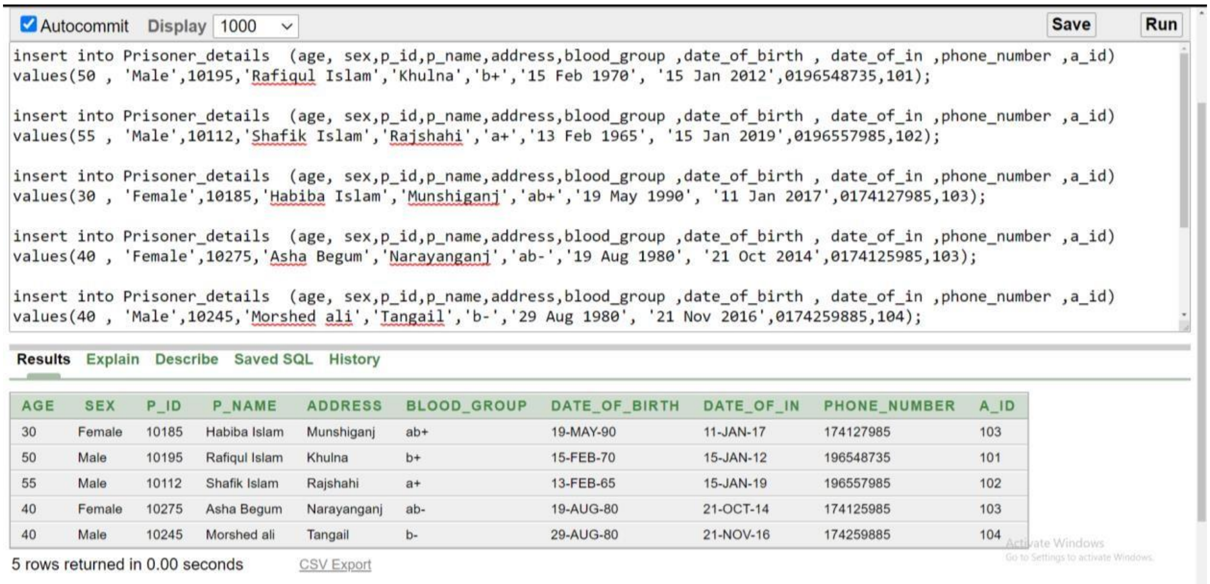
values(30 , 'Female',10185,'Habiba Islam','Munshiganj','ab+','19 May 1990', '11 Jan 2017',0174127985,103);

insert into Prisoner_details (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)

values(40 , 'Female',10275,'Asha Begum','Narayanganj','ab-','19 Aug 1980', '21 Oct 2014',0174125985,103);

insert into Prisoner_details (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)

values(40 , 'Male',10245,'Morshed ali','Tangail','b-','29 Aug 1980', '21 Nov 2016',0174259885,104);



```
insert into Prisoner_details  (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)
values(50 , 'Male',10195,'Rafiqul Islam','Khulna','b+','15 Feb 1970', '15 Jan 2012',0196548735,101);

insert into Prisoner_details  (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)
values(55 , 'Male',10112,'Shafik Islam','Rajshahi','a+','13 Feb 1965', '15 Jan 2019',0196557985,102);

insert into Prisoner_details  (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)
values(30 , 'Female',10185,'Habiba Islam','Munshiganj','ab+','19 May 1990', '11 Jan 2017',0174127985,103);

insert into Prisoner_details  (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)
values(40 , 'Female',10275,'Asha Begum','Narayanganj','ab-','19 Aug 1980', '21 Oct 2014',0174125985,103);

insert into Prisoner_details  (age, sex,p_id,p_name,address,blood_group ,date_of_birth , date_of_in ,phone_number ,a_id)
values(40 , 'Male',10245,'Morshed ali','Tangail','b-','29 Aug 1980', '21 Nov 2016',0174259885,104);
```

AGE	SEX	P_ID	P_NAME	ADDRESS	BLOOD_GROUP	DATE_OF_BIRTH	DATE_OF_IN	PHONE_NUMBER	A_ID
30	Female	10185	Habiba Islam	Munshiganj	ab+	19-MAY-90	11-JAN-17	174127985	103
50	Male	10195	Rafiqul Islam	Khulna	b+	15-FEB-70	15-JAN-12	196548735	101
55	Male	10112	Shafik Islam	Rajshahi	a+	13-FEB-65	15-JAN-19	196557985	102
40	Female	10275	Asha Begum	Narayanganj	ab-	19-AUG-80	21-OCT-14	174125985	103
40	Male	10245	Morshed ali	Tangail	b-	29-AUG-80	21-NOV-16	174259885	104

5 rows returned in 0.00 seconds

3.

Alter table Visitors_details modify(v_name varchar2 (20))

Alter table Visitors_details modify(Address varchar2 (20))

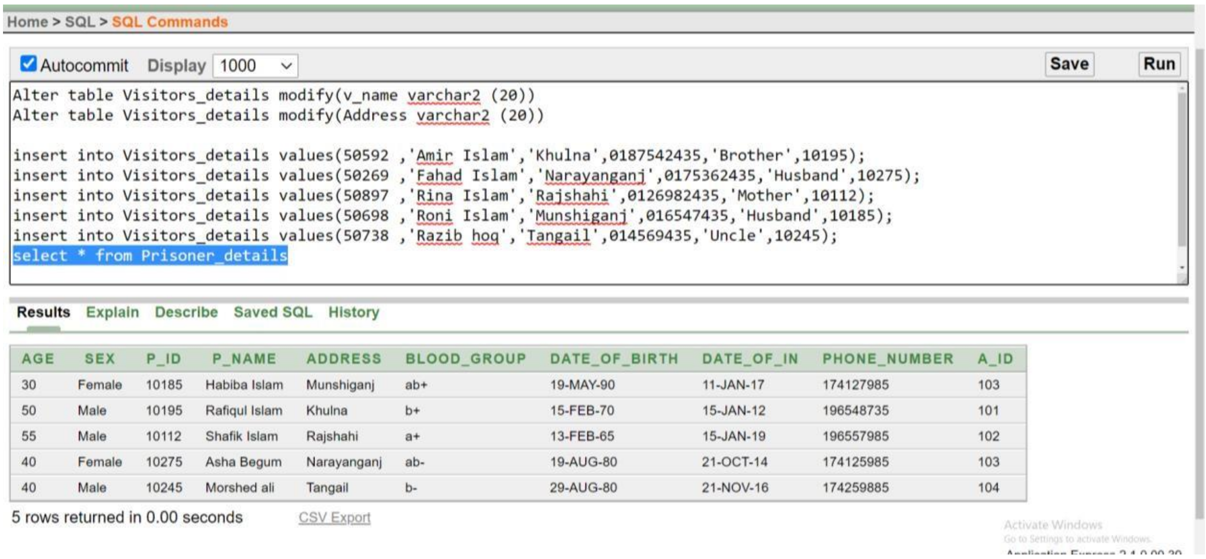
insert into Visitors_details values(50592 ,'Amir Islam','Khulna',0187542435,'Brother',10195);

insert into Visitors_details values(50269 ,'Fahad Islam','Narayanganj',0175362435,'Husband',10275);

insert into Visitors_details values(50897 ,'Rina Islam','Rajshahi',0126982435,'Mother',10112);

insert into Visitors_details values(50698 ,'Roni Islam','Munshiganj',016547435,'Husband',10185);

insert into Visitors_details values(50738 ,'Razib hoq','Tangail',014569435,'Uncle',10245);



```
Alter table Visitors_details modify(v_name varchar2 (20))
Alter table Visitors_details modify(Address varchar2 (20))

insert into Visitors_details values(50592 ,'Amir Islam','Khulna',0187542435,'Brother',10195);
insert into Visitors_details values(50269 ,'Fahad Islam','Narayanganj',0175362435,'Husband',10275);
insert into Visitors_details values(50897 ,'Rina Islam','Rajshahi',0126982435,'Mother',10112);
insert into Visitors_details values(50698 ,'Roni Islam','Munshiganj',016547435,'Husband',10185);
insert into Visitors_details values(50738 ,'Razib hoq','Tangail',014569435,'Uncle',10245);
select * from Prisoner_details
```

AGE	SEX	P_ID	P_NAME	ADDRESS	BLOOD_GROUP	DATE_OF_BIRTH	DATE_OF_IN	PHONE_NUMBER	A_ID
30	Female	10185	Habiba Islam	Munshiganj	ab+	19-MAY-90	11-JAN-17	174127985	103
50	Male	10195	Rafiqul Islam	Khulna	b+	15-FEB-70	15-JAN-12	196548735	101
55	Male	10112	Shafik Islam	Rajshahi	a+	13-FEB-65	15-JAN-19	196557985	102
40	Female	10275	Asha Begum	Narayanganj	ab-	19-AUG-80	21-OCT-14	174125985	103
40	Male	10245	Morshed ali	Tangail	b-	29-AUG-80	21-NOV-16	174259885	104

5 rows returned in 0.00 seconds

4.

Alter table working_details modify(working_time_per_day varchar (10))

Alter table working_details modify(work_title varchar (20))

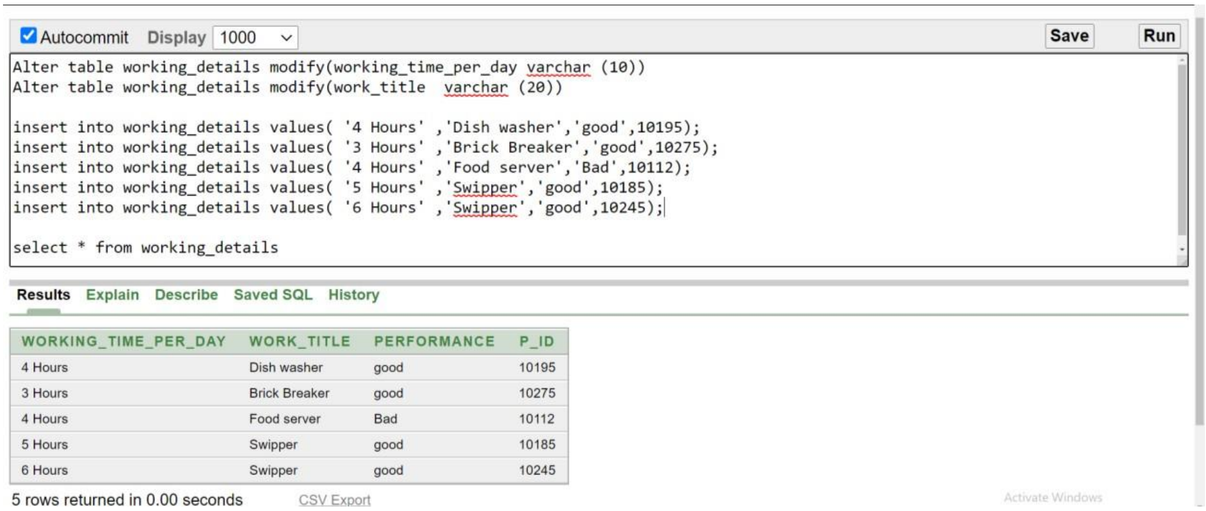
insert into working_details values('4 Hours' ,'Dish washer','good',10195);

insert into working_details values('3 Hours' ,'Brick Breaker','good',10275);

insert into working_details values('4 Hours' ,'Food server','Bad',10112);

insert into working_details values('5 Hours' ,'Swipper','good',10185);

insert into working_details values('6 Hours' ,'Swipper','good',10245);



```
Alter table working_details modify(working_time_per_day varchar (10))
Alter table working_details modify(work_title  varchar (20))

insert into working_details values( '4 Hours' ,'Dish washer','good',10195);
insert into working_details values( '3 Hours' ,'Brick Breaker','good',10275);
insert into working_details values( '4 Hours' ,'Food server','Bad',10112);
insert into working_details values( '5 Hours' ,'Swipper','good',10185);
insert into working_details values( '6 Hours' ,'Swipper','good',10245);

select * from working_details
```

WORKING_TIME_PER_DAY	WORK_TITLE	PERFORMANCE	P_ID
4 Hours	Dish washer	good	10195
3 Hours	Brick Breaker	good	10275
4 Hours	Food server	Bad	10112
5 Hours	Swipper	good	10185
6 Hours	Swipper	good	10245

5 rows returned in 0.00 seconds

5.

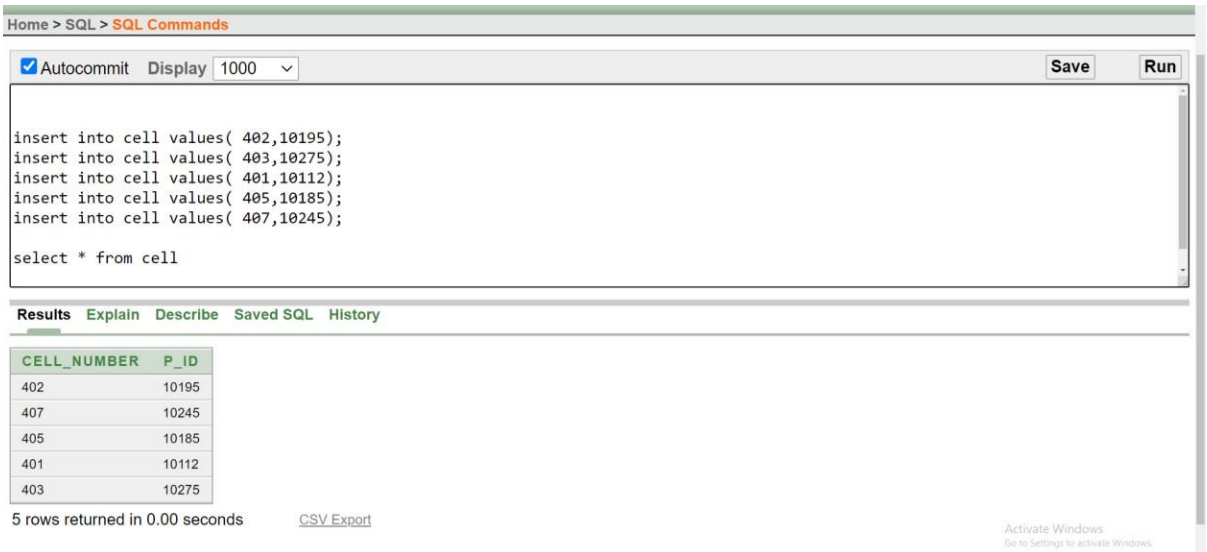
insert into cell values(402,10195);

insert into cell values(403,10275);

insert into cell values(401,10112);

insert into cell values(405,10185);

insert into cell values(407,10245);



```
insert into cell values( 402,10195);
insert into cell values( 403,10275);
insert into cell values( 401,10112);
insert into cell values( 405,10185);
insert into cell values( 407,10245);

select * from cell
```

CELL_NUMBER	P_ID
402	10195
407	10245
405	10185
401	10112
403	10275

5 rows returned in 0.00 seconds

6.

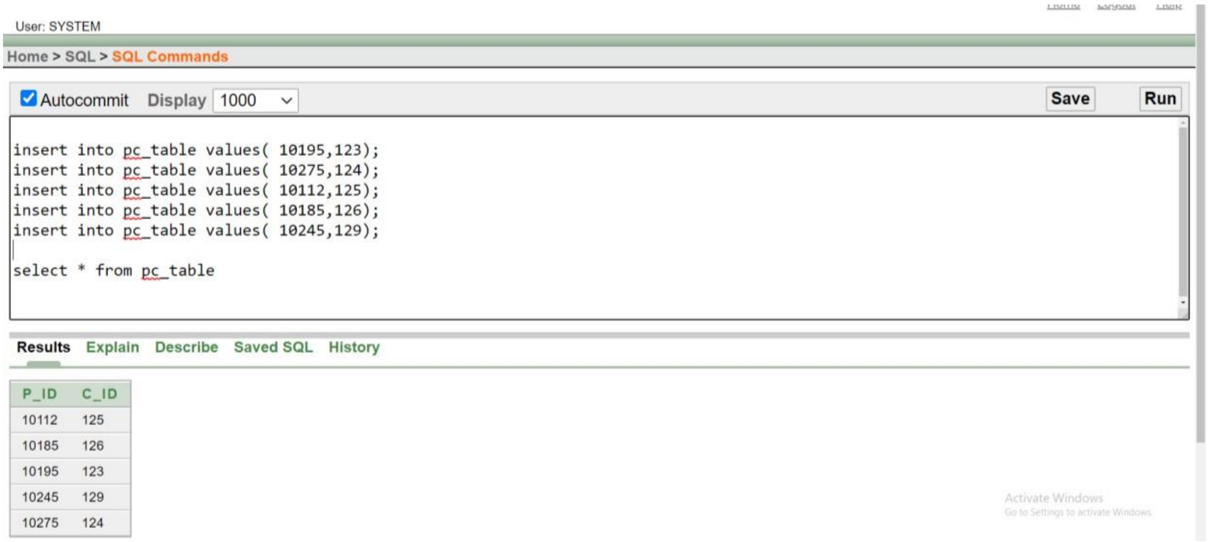
insert into pc_table values(10195,123);

insert into pc_table values(10275,124);

insert into pc_table values(10112,125);

insert into pc_table values(10185,126);

insert into pc_table values(10245,129);



```
insert into pc_table values( 10195,123);
insert into pc_table values( 10275,124);
insert into pc_table values( 10112,125);
insert into pc_table values( 10185,126);
insert into pc_table values( 10245,129);

select * from pc_table
```

P_ID	C_ID
10112	125
10185	126
10195	123
10245	129
10275	124

7.

Alter table c_table modify(c_name varchar2 (20))

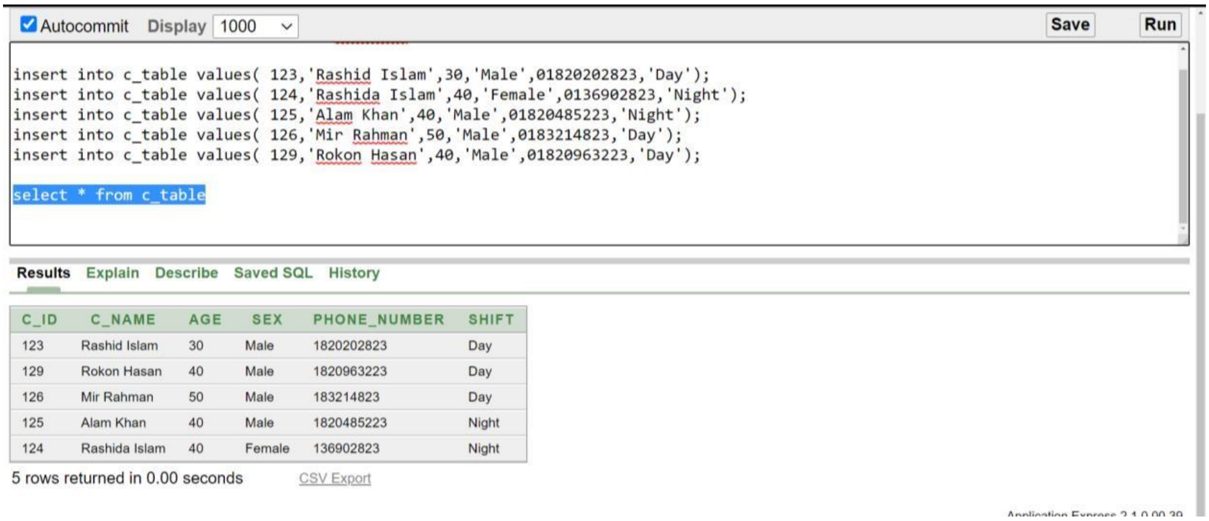
insert into c_table values(123,'Rashid Islam',30,'Male',01820202823,'Day');

insert into c_table values(124,'Rashida Islam',40,'Female',0136902823,'Night');

insert into c_table values(125,'Alam Khan',40,'Male',01820485223,'Night');

insert into c_table values(126,'Mir Rahman',50,'Male',0183214823,'Day');

insert into c_table values(129,'Rokon Hasan',40,'Male',01820963223,'Day');


☑ Autocommit Display 1000
Save
Run
Results Explain Describe Saved SQL History
CSV Export
Application Express 2.1.0.00.39

```
insert into c_table values( 123,'Rashid Islam',30,'Male',01820202823,'Day');
insert into c_table values( 124,'Rashida Islam',40,'Female',0136902823,'Night');
insert into c_table values( 125,'Alam Khan',40,'Male',01820485223,'Night');
insert into c_table values( 126,'Mir Rahman',50,'Male',0183214823,'Day');
insert into c_table values( 129,'Rokon Hasan',40,'Male',01820963223,'Day');

select * from c_table
```

C_ID	C_NAME	AGE	SEX	PHONE_NUMBER	SHIFT
123	Rashid Islam	30	Male	1820202823	Day
129	Rokon Hasan	40	Male	1820963223	Day
126	Mir Rahman	50	Male	183214823	Day
125	Alam Khan	40	Male	1820485223	Night
124	Rashida Islam	40	Female	136902823	Night

5 rows returned in 0.00 seconds

8.

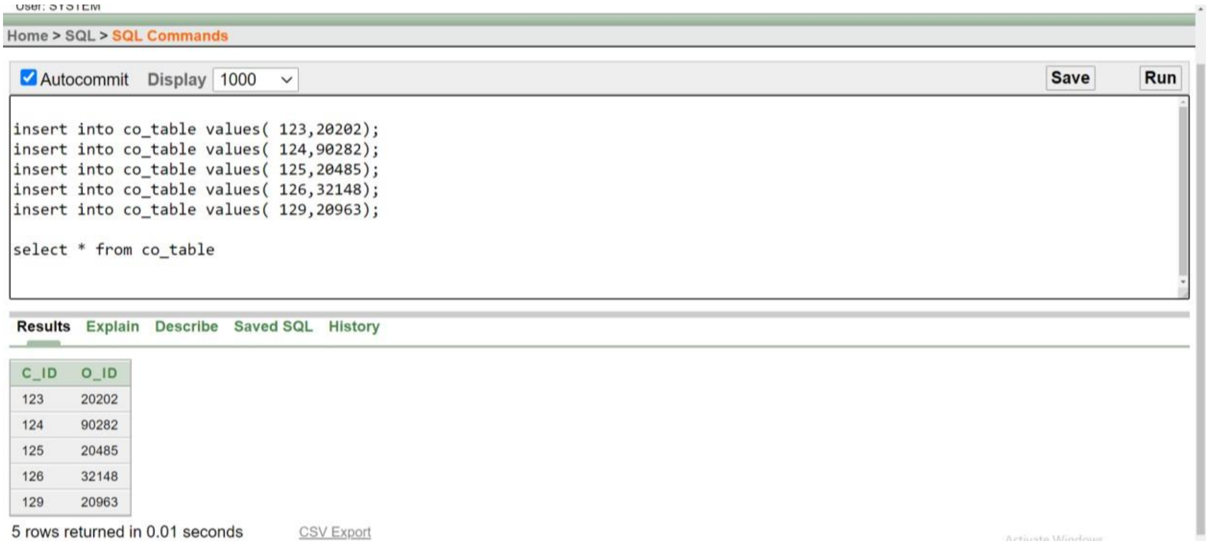
insert into co_table values(123,20202);

insert into co_table values(124,90282);

insert into co_table values(125,20485);

insert into co_table values(126,32148);

insert into co_table values(129,20963);


User: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 1000
Save
Run
Results Explain Describe Saved SQL History
CSV Export

```
insert into co_table values( 123,20202);
insert into co_table values( 124,90282);
insert into co_table values( 125,20485);
insert into co_table values( 126,32148);
insert into co_table values( 129,20963);

select * from co_table
```

C_ID	O_ID
123	20202
124	90282
125	20485
126	32148
129	20963

5 rows returned in 0.01 seconds

9.

Alter table officer modify(rank varchar2 (25))

Alter table officer modify(o_name varchar2 (20))

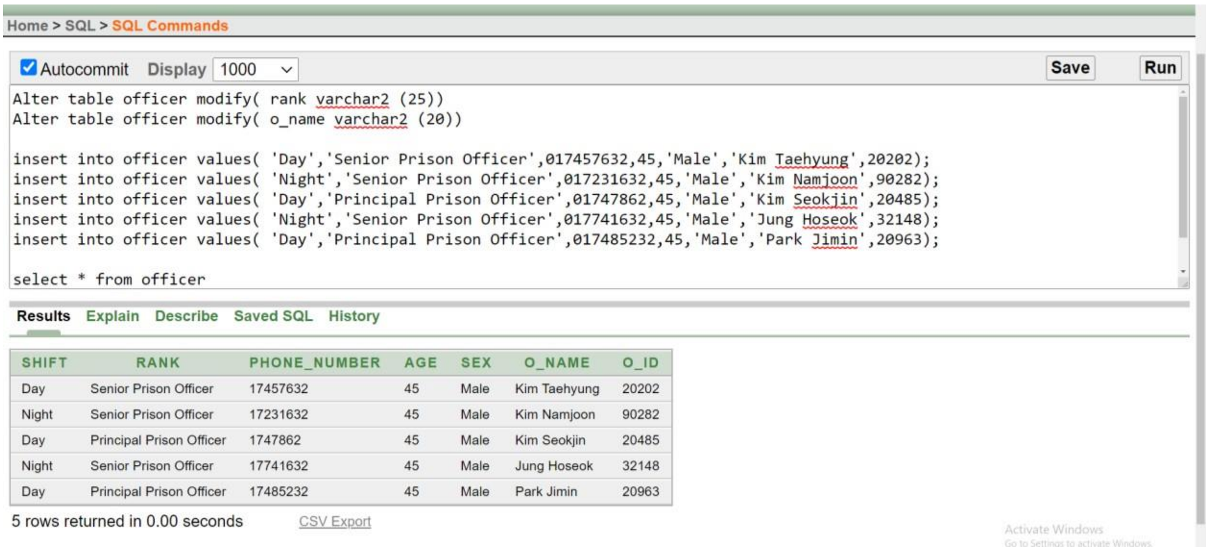
insert into officer values('Day','Senior Prison Officer',017457632,45,'Male','Kim Taehyung',20202);

insert into officer values('Night','Senior Prison Officer',017231632,45,'Male','Kim Namjoon',90282);

insert into officer values('Day','Principal Prison Officer',01747862,45,'Male','Kim Seokjin',20485);

insert into officer values('Night','Senior Prison Officer',017741632,45,'Male','Jung Hoseok',32148);

insert into officer values('Day','Principal Prison Officer',017485232,45,'Male','Park Jimin',20963);



```
Alter table officer modify( rank varchar2 (25))
Alter table officer modify( o_name varchar2 (20))

insert into officer values( 'Day','Senior Prison Officer',017457632,45,'Male','Kim Taehyung',20202);
insert into officer values( 'Night','Senior Prison Officer',017231632,45,'Male','Kim Namjoon',90282);
insert into officer values( 'Day','Principal Prison Officer',01747862,45,'Male','Kim Seokjin',20485);
insert into officer values( 'Night','Senior Prison Officer',017741632,45,'Male','Jung Hoseok',32148);
insert into officer values( 'Day','Principal Prison Officer',017485232,45,'Male','Park Jimin',20963);

select * from officer
```

SHIFT	RANK	PHONE_NUMBER	AGE	SEX	O_NAME	O_ID
Day	Senior Prison Officer	17457632	45	Male	Kim Taehyung	20202
Night	Senior Prison Officer	17231632	45	Male	Kim Namjoon	90282
Day	Principal Prison Officer	1747862	45	Male	Kim Seokjin	20485
Night	Senior Prison Officer	17741632	45	Male	Jung Hoseok	32148
Day	Principal Prison Officer	17485232	45	Male	Park Jimin	20963

5 rows returned in 0.00 seconds

10.

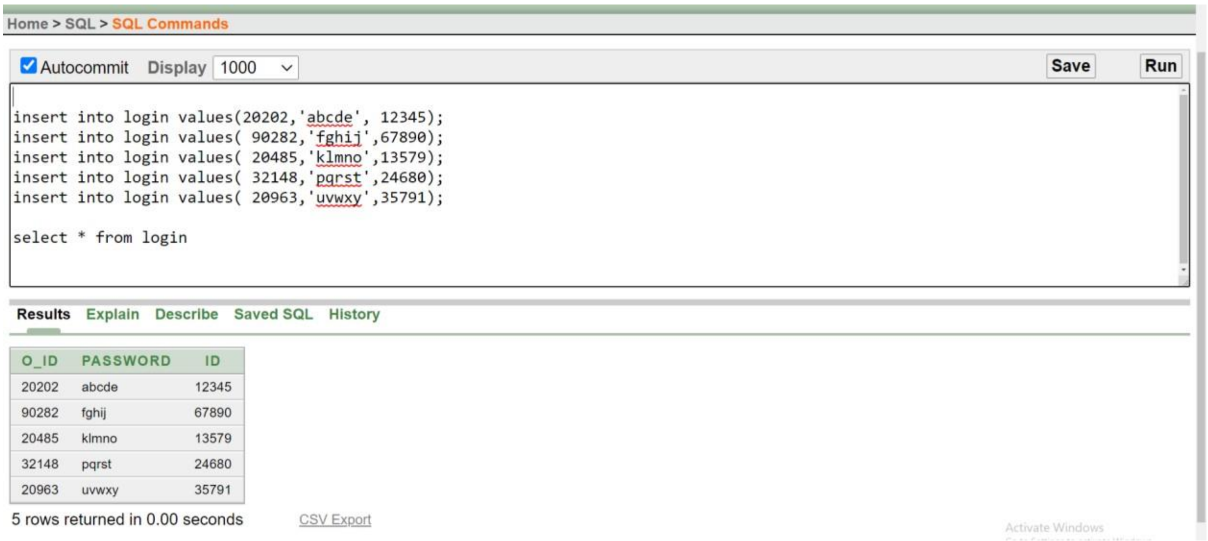
insert into login values(20202,'abcde', 12345);

insert into login values(90282,'fghij',67890);

insert into login values(20485,'klmno',13579);

insert into login values(32148,'pqrst',24680);

insert into login values(20963,'uvwxy',35791);



☑ Autocommit Display 1000

```
insert into login values(20202,'abcde', 12345);
insert into login values( 90282,'fghij',67890);
insert into login values( 20485,'klmno',13579);
insert into login values( 32148,'pqrst',24680);
insert into login values( 20963,'uvwxy',35791);

select * from login
```

O_ID	PASSWORD	ID
20202	abcde	12345
90282	fghij	67890
20485	klmno	13579
32148	pqrst	24680
20963	uvwxy	35791

5 rows returned in 0.00 seconds

11.

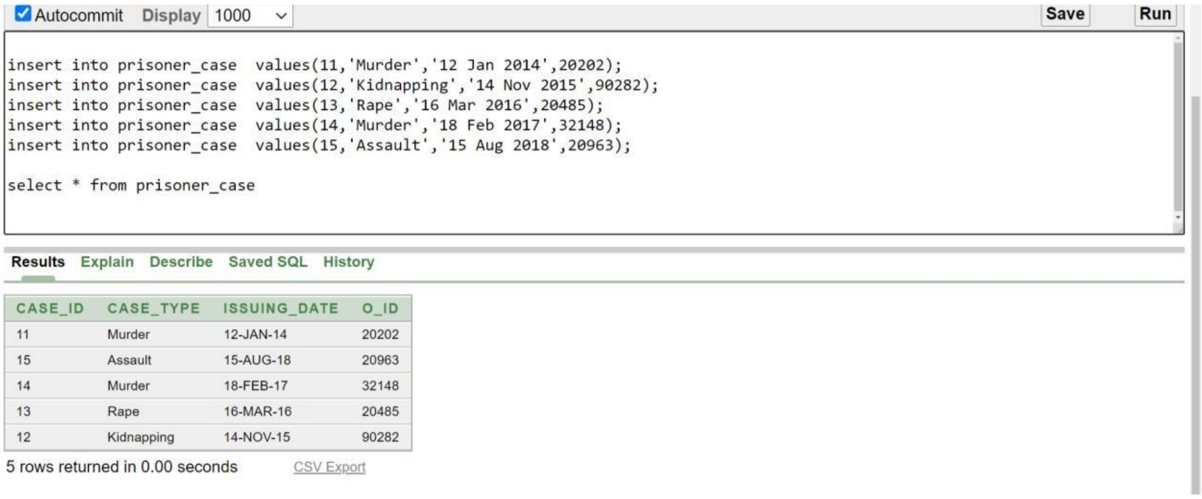
insert into prisoner_case values(11,'Murder','12 Jan 2014',20202);

insert into prisoner_case values(12,'Kidnapping','14 Nov 2015',90282);

insert into prisoner_case values(13,'Rape','16 Mar 2016',20485);

insert into prisoner_case values(14,'Murder','18 Feb 2017',32148);

insert into prisoner_case values(15,'Assault','15 Aug 2018',20963);



☑ Autocommit Display 1000

```
insert into prisoner_case  values(11,'Murder','12 Jan 2014',20202);
insert into prisoner_case  values(12,'Kidnapping','14 Nov 2015',90282);
insert into prisoner_case  values(13,'Rape','16 Mar 2016',20485);
insert into prisoner_case  values(14,'Murder','18 Feb 2017',32148);
insert into prisoner_case  values(15,'Assault','15 Aug 2018',20963);

select * from prisoner_case
```

CASE_ID	CASE_TYPE	ISSUING_DATE	O_ID
11	Murder	12-JAN-14	20202
15	Assault	15-AUG-18	20963
14	Murder	18-FEB-17	32148
13	Rape	16-MAR-16	20485
12	Kidnapping	14-NOV-15	90282

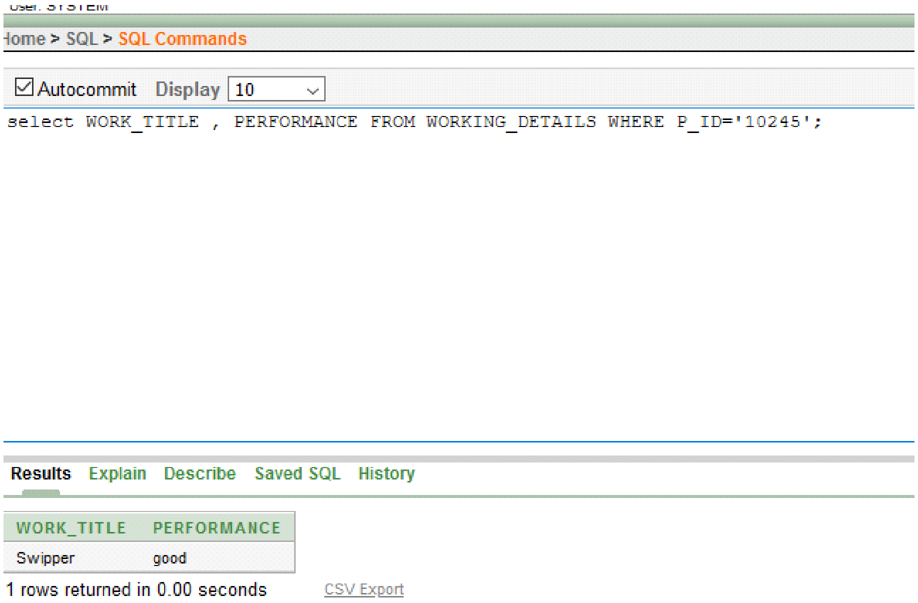
5 rows returned in 0.00 seconds

QUERY WRITING:

Single row:

1. display the work title and performance for p_id '10245'

- select WORK_TITLE , PERFORMANCE FROM WORKING_DETAILS WHERE P_ID='10245';.



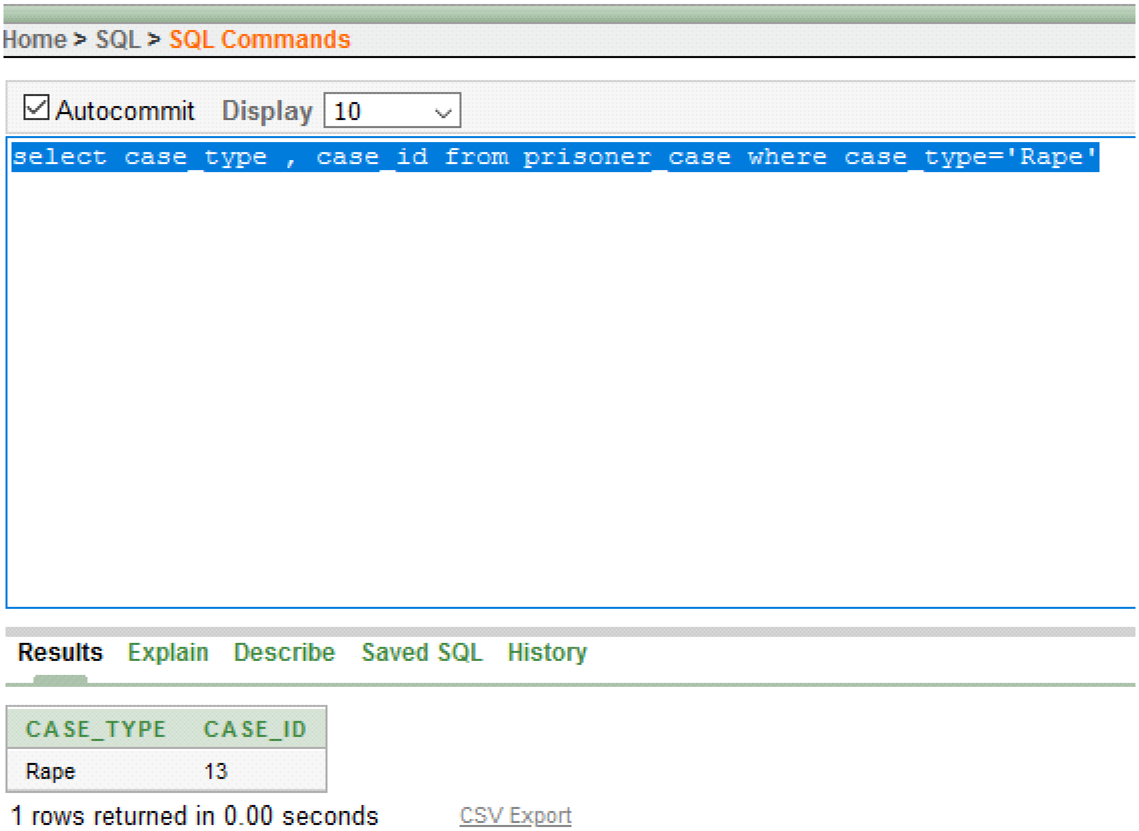
```
select WORK_TITLE , PERFORMANCE FROM WORKING_DETAILS WHERE P_ID='10245';
```

WORK_TITLE	PERFORMANCE
Swipper	good

1 rows returned in 0.00 seconds

2. display case id from prisoner case details where case type is RAPE

select case_type , case_id from prisoner_case where case_type='Rape'



☑ Autocommit Display 10

```
select case_type , case_id from prisoner_case where case_type='Rape'
```

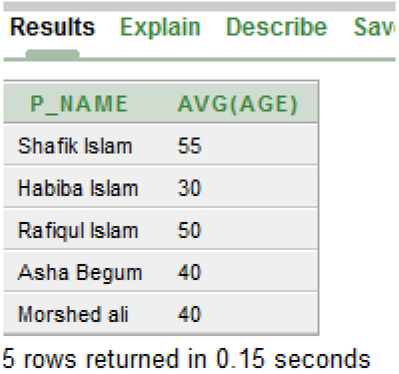
CASE_TYPE	CASE_ID
Rape	13

1 rows returned in 0.00 seconds

Group Function:

1. display prisoners name and average age and group them by names

select p_name,avg(age) from prisoner_details group by p_name;

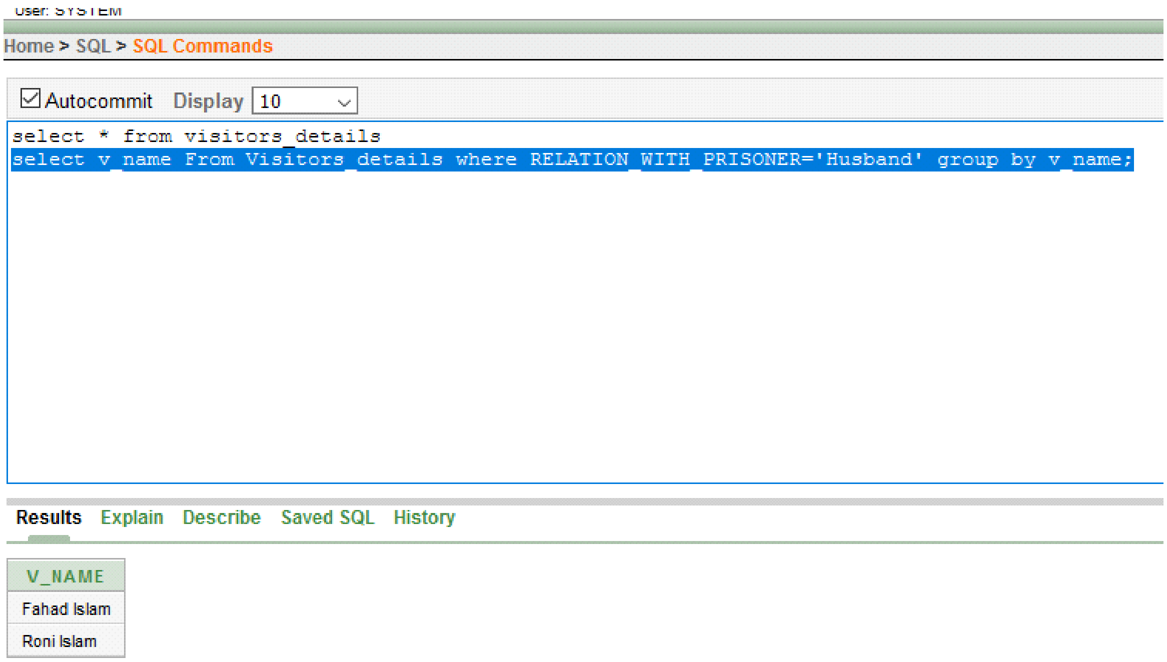


P_NAME	AVG(AGE)
Shafik Islam	55
Habiba Islam	30
Rafiqul Islam	50
Asha Begum	40
Morshed ali	40

5 rows returned in 0.15 seconds

2. display visitors name by group of thoose who has a realition of husband with prisoners

select v_name From Visitors_details where RELATION_WITH_PRISONER='Husband' group by v_name;


user: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 10
Results Explain Describe Saved SQL History

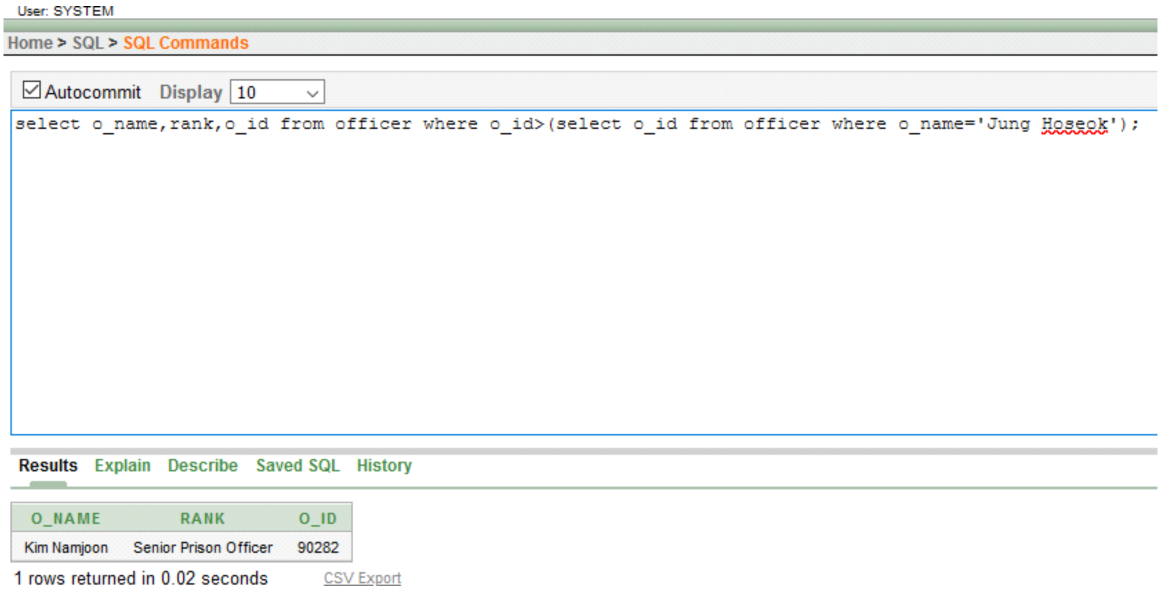
```
select * from visitors_details
select v_name From Visitors_details where RELATION_WITH_PRISONER='Husband' group by v_name;
```

V_NAME
Fahad Islam
Roni Islam

<u>Subquery:</u>

1. display officer name , rank and ID and whose officer id is bigger than Jung Hoseok's Id from officer table

select o_name,rank,o_id from officer where o_id>(select o_id from officer where o_name='Jung Hoseok');


User: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 10
Results Explain Describe Saved SQL History
CSV Export

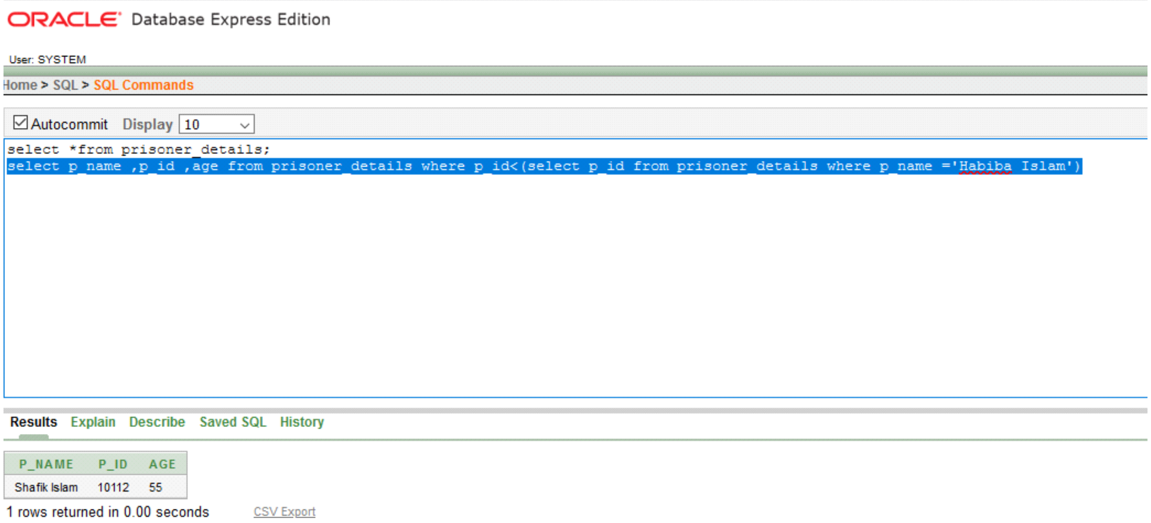
```
select o_name,rank,o_id from officer where o_id>(select o_id from officer where o_name='Jung Hoseok');
```

O_NAME	RANK	O_ID
Kim Namjoon	Senior Prison Officer	90282

1 rows returned in 0.02 seconds

2. display prisoner name, id and age and whose prisoner id is smaller than Habiba Islam's id from prisoner _details table

select p_name ,p_id ,age from prisoner_details where p_id<(select p_id from prisoner_details where p_name ='Habiba Islam')


ORACLE Database Express Edition
User: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 10
Results Explain Describe Saved SQL History
CSV Export

```
select *from prisoner_details;
select p_name ,p_id ,age from prisoner_details where p_id<(select p_id from prisoner_details where p_name ='Habiba Islam')
```

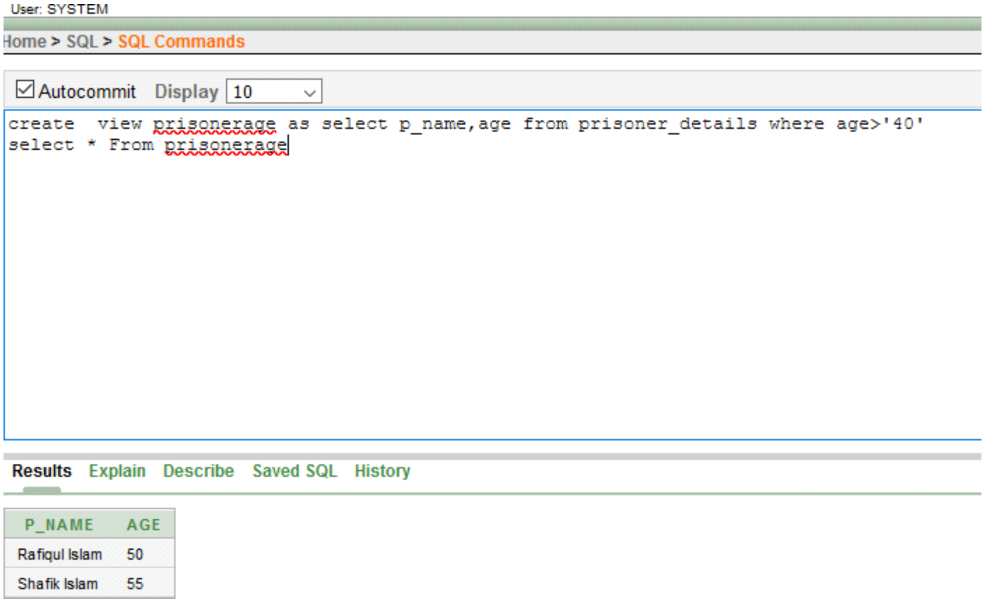
P_NAME	P_ID	AGE
Shafik Islam	10112	55

1 rows returned in 0.00 seconds

View:

1. create a view prisonerage ,that contains the details of prisoners with age greater than 40

create view prisonerage as select p_name,age from prisoner_details where age>'40'

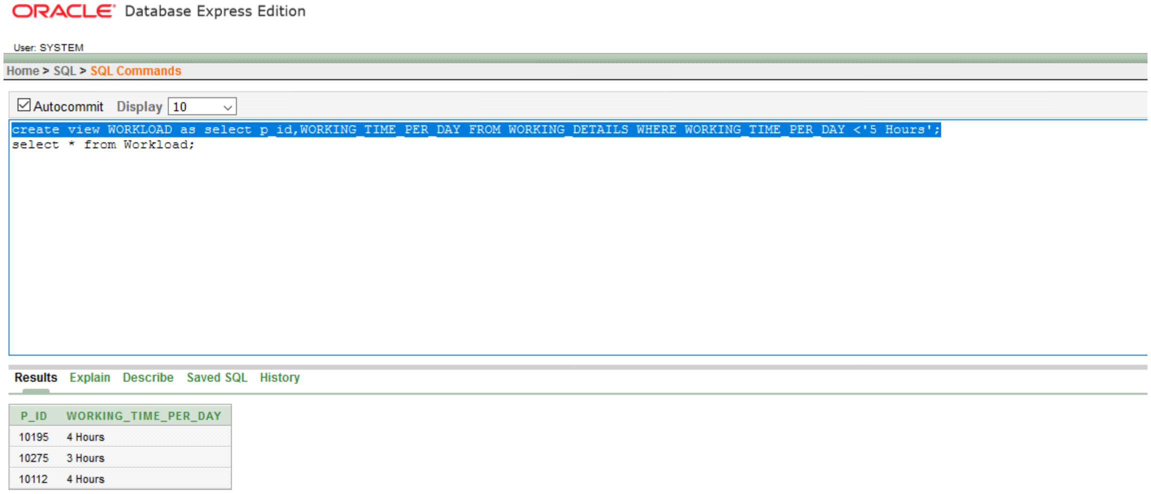

User: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 10
Results Explain Describe Saved SQL History

```
create  view prisonerage as select p_name,age from prisoner_details where age>'40'
select * From prisonerage
```

P_NAME	AGE
Rafiqul Islam	50
Shafik Islam	55

2. create a view WORKLOAD , that contains the id of prisoners who works less than 5 hours

create view WORKLOAD as select p_id,WORKING_TIME_PER_DAY FROM WORKING_DETAILS WHERE WORKING_TIME_PER_DAY <'5 Hours';


ORACLE Database Express Edition
User: SYSTEM
Home > SQL > SQL Commands
☑ Autocommit Display 10
Results Explain Describe Saved SQL History

```
create view WORKLOAD as select p_id,WORKING_TIME_PER_DAY FROM WORKING_DETAILS WHERE WORKING_TIME_PER_DAY <'5 Hours';
select * from Workload;
```

P_ID	WORKING_TIME_PER_DAY
10195	4 Hours
10275	3 Hours
10112	4 Hours

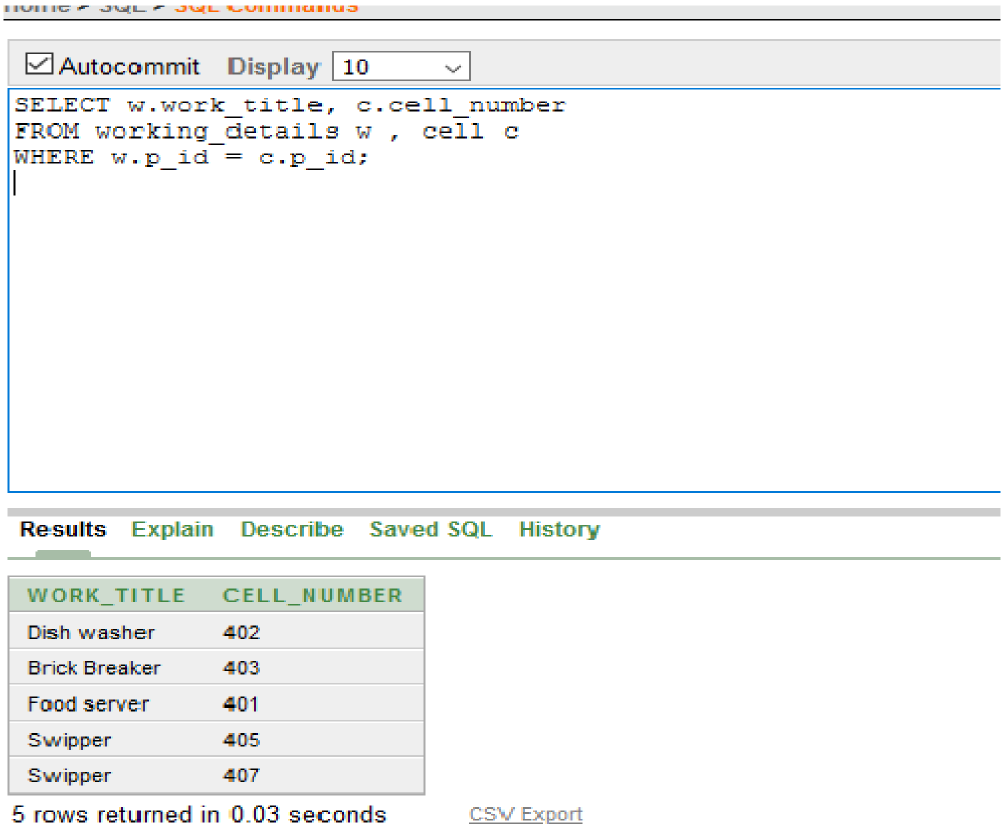
Join:

1. Joining the work title from working_details table and cell number from cell table using EQUIJOIN as working_details and cell table has direct relation.

SELECT w.work_title, c.cell_number

FROM working_details w , cell c

WHERE w.p_id = c.p_id;



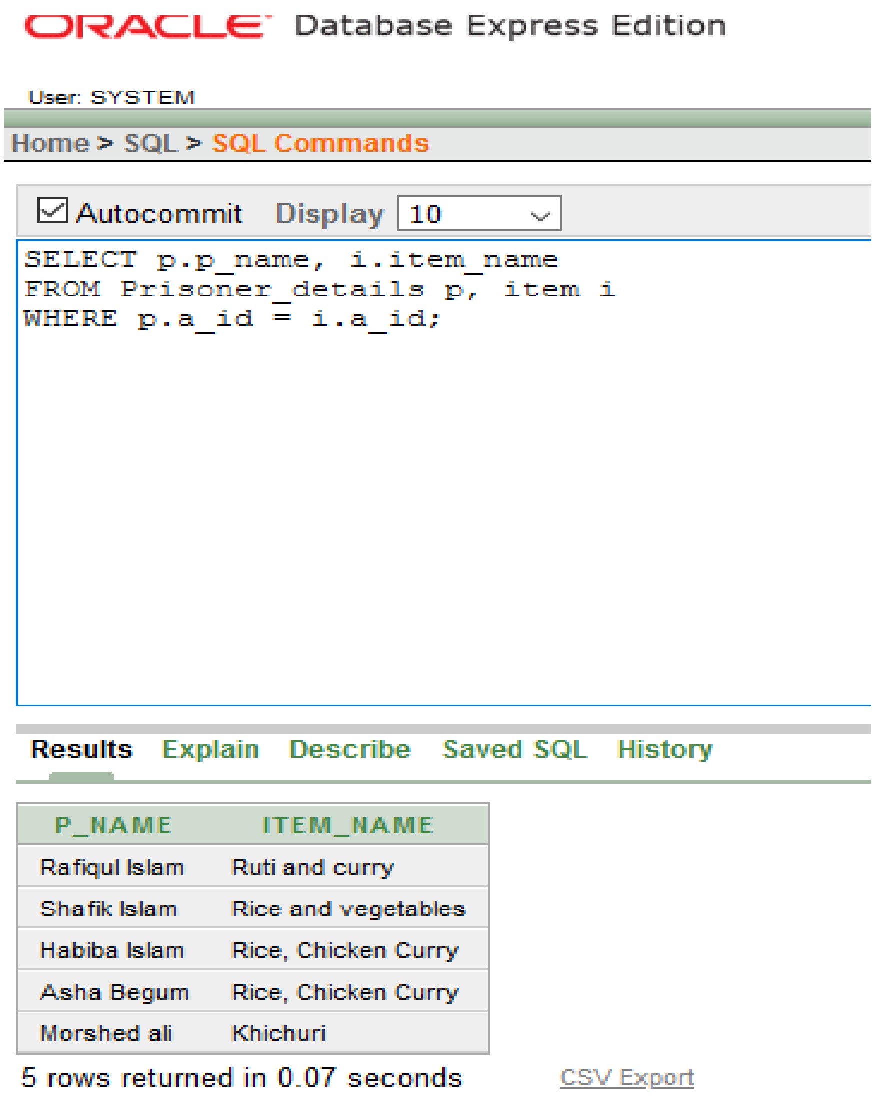
```
SELECT w.work_title, c.cell_number
FROM working_details w , cell c
WHERE w.p_id = c.p_id;
```

WORK_TITLE	CELL_NUMBER
Dish washer	402
Brick Breaker	403
Food server	401
Swipper	405
Swipper	407

5 rows returned in 0.03 seconds

2. Joining the prisoner name from Prisoner_details table and item name of allocated food from item table using EQUIJOIN as Prisoner_details and item table has direct relation.

```
SELECT p.p_name, i.item_name

FROM Prisoner_details p, item i

WHERE p.a_id = i.a_id;
```



☑ Autocommit Display 10

```
SELECT p.p_name, i.item_name
FROM Prisoner_details p, item i
WHERE p.a_id = i.a_id;
```

P_NAME	ITEM_NAME
Rafiqul Islam	Ruti and curry
Shafik Islam	Rice and vegetables
Habiba Islam	Rice, Chicken Curry
Asha Begum	Rice, Chicken Curry
Morshed ali	Khichuri

5 rows returned in 0.07 seconds

Relational Algebra:

1. Showing blood groups of male prisoners from Prisoner_details relation.

$$\pi_{blool\_group}(\sigma_{sex="MALE"}(Prisoner\_details))$$

BLOOD_GROUP
B+
A+
B-

2. Showing constables name who works at night shift from c_table relation.

$$\pi_{c\_name}\ (\sigma_{shift="NIGHT"}(c\_table))$$

C_NAME
Alam Khan
Rashida Islam

3. Showing the cell number of the prisoner whose p_id is 10195 from cell relation.

$$\pi_{cell\_number}\ (\sigma_{p\_id=10195}(cell))$$

CELL_NUMBER
402

4. Showing prisoners name who gets the food Ruti and curry from Prisoner_details relation.

$$\pi_{p\_name}\ (\sigma_{aid=101}(Prisoner\_details))$$

P_NAME
Rafiqul Islam

5. Showing those officers name who are Senior Prison Officer from officer relation.

$$\pi o\_name\ (\sigma rank=\text{"}Senior\ Prison\ Officer\text{"}(officer))$$

RANK
Kim Taehyung
Kim Namjoon
Jung Hoseok

Conclusion:

During the Prison Management System project work, we learnt the way to implement our theoretical knowledge to a real-life structure. We made a mind map where we structured our scenario and following that we drew the Entity-relationship model. After that, we normalized and got our final table to implement it on a database. We drew the schema diagram to visualize the tables and relations in a pictorial format. Then we created tables, manipulated the attributes where needed, and inserted data. Additionally, we learned important topics such as subqueries, joining, view, user creation, role creation, and most importantly relational algebra which is language independent.

We tried to make the Prison Management System in the best possible way so that this management system can be used at most of the prisons whereas there are some lackings such as we could include entities such as medical center, entertainment, sports and maybe more. We faced several problems during the work period but we solved them together in a group discussion where we got a very clear view about every topic and the foundation of the database. We hope in future we will perform more efficiently while doing this type of project using our learning and experience.