



American International University-Bangladesh (AIUB)

Title : Prison Management System (Project)

Course : Introduction to Database

Section : B

Submitted To : Rifat Tasnim Anannya

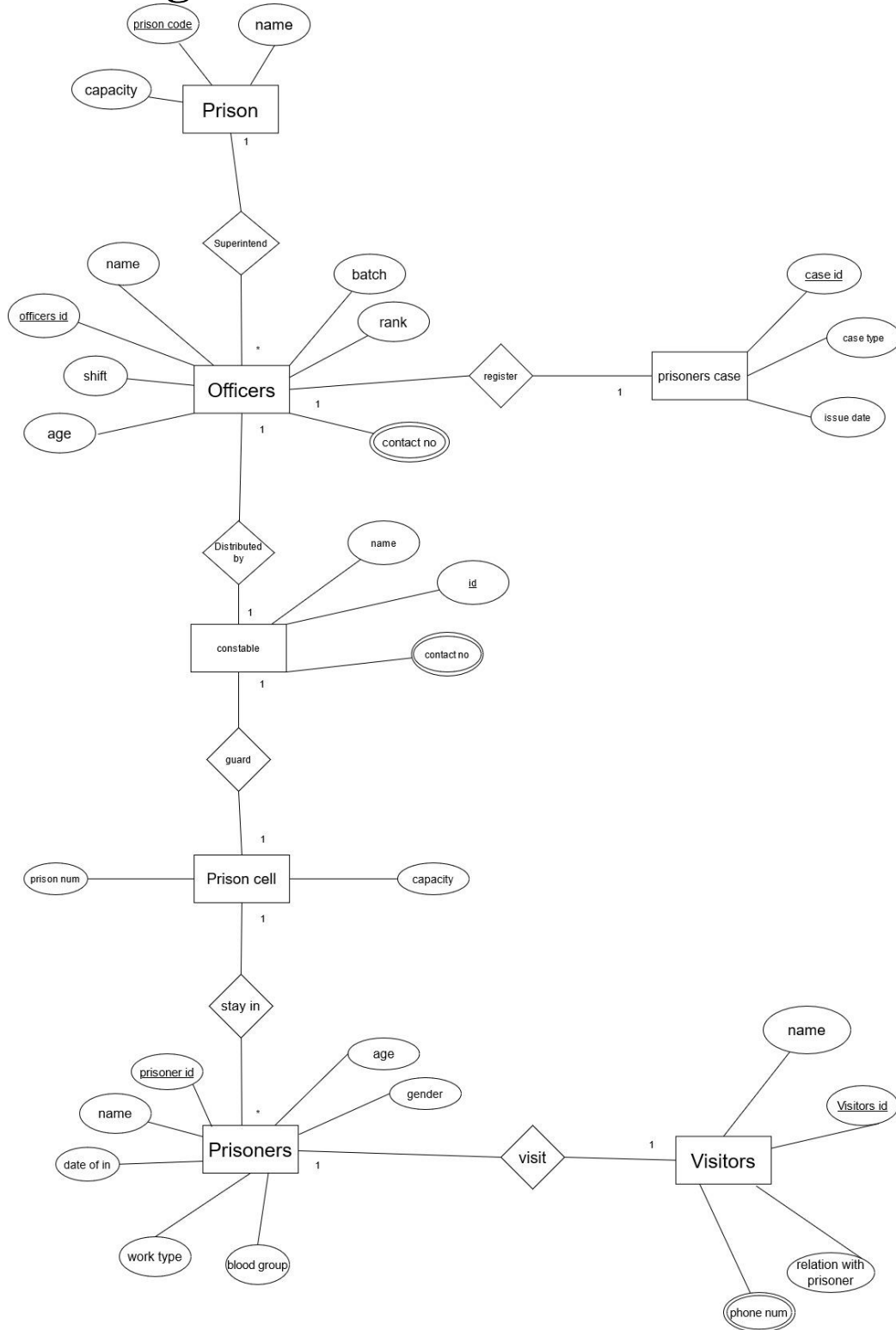
Submitted By :

Name	ID	Contribution
Maliha Tasnuva	20-43852-2	Graph ,Description, Table creation, Data Insertion.
Limia Sadina Sathi	20-43851-2	Graph ,Description, Table creation, Data Insertion.
Md Ashaful Islam Emad	20-43710-2	Normalization, Table creation, Data Insertion.
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Mihir Kanti Roy	20-43785-2	Final Table, Table creation, Data Insertion.

Description:

- ❖ Prisons are containing uniquely prison code, name and capacity.
- ❖ An officer will be identified by the officer's id, name, age, contact number (multiple), batch, rank, and shift. Each prison superintends by many officers.
- ❖ Each officer can register one prisoner case using a unique case id. Case type and issuing date will be also stored in the prisoners' case. Officers distributing constable.
- ❖ Prison cells will be guarded by the constable. Each constable will be identified by the constable id, name, contact number (multiple) will be stored.
- ❖ Every prisoner will be uniquely identified by the prisoner's id, name, age, gender, blood group, date of in and work type will be stored as well. Prisoners will stay in prison cells. Every prison cells contains prison number, capacity.
- ❖ Every prisoner will have one unique visitor and the management system will store the visitor id, name, relationship with the prisoner, and one or more phone numbers. Each prisoner can meet one visitor at a time.

ER Diagram:



Normalization:

Superintend (Prison code, name, capacity, officer's id, name, age, contact no, batch, rank, shift).

1NF: Contact no is a multivalued attribute.

2NF:

Prison code, name, capacity.

Officers id, name, age, contact no, batch, rank, shift.

3NF:

Prison code, name, capacity.

Officers id, name, age, batch, rank, shift.

Officers id, contact no.

TABLES FROM SUPERINTEND:

1. Prison code, name, capacity
2. Officers id, name, age, batch, rank, shift, prison code
3. Officers id, contact no - composite pk.

Register (Officers id, name, age, contact no, batch, rank, shift, case id, case type, issue date).

1NF: Contact no is a multivalued attribute.

2NF:

Officers id, name, age, contact no, batch, rank, shift.

Case id, case type, issue date.

3NF:

Officers id, name, age, batch, rank, shift.

Officers id, contact no.

Case id, case type, issue date.

Tables from Register:

1. Officers id, name, age, batch, rank, shift, case id.
2. Officers id, contact no.
3. Case id, case type, issue date.

Distributed by (Officers id, name, age, contact no, batch, rank, shift, Id, name, contact no).

1NF: Contact no is a multivalued attribute's.

2NF:

Officers id, name, age, contact no, batch, rank, shift.
Id, name, contact no.

3NF:

Officers id, name, age, batch, rank, shift.
Officers id, contact no.
Id, name, contact no.
Id, contact no.

Tables from Distributed by:

1. Officers id, name, age, batch, rank, shift, id.
2. Officers id, contact no.
3. Id, name, contact no.
4. Id, contact no.

Guard (Id, name, contact no, number, capacity).

1NF: Contact no is a multivalued attribute's.

2NF:

Id, name, contact no.
Number, capacity.

3NF:

Id, name.
Id, contact no.
Number, capacity.

Tables from guard:

1. Id, name, contact no, number.
2. Id, contact no.
3. Number, capacity.

Stay in (Number, capacity, prisoner id, name, date of in, age, gender, blood group, work type, eat).

1NF: There is no multivalued attributes.

2NF:

Number, capacity.

Prisoner id, name, date of in, age, gender, blood group, work type, eat.

3NF:

Number, capacity.

Prisoner id, name, date of in, age, gender, blood group, work type, eat.

Tables from Stay in:

1. Number, capacity.
2. Prisoner id, name, date of in, age, gender, blood group, work type, Number.

Visit (Prisoner id, name, date of in, age, gender, blood group, work type, eat, visitor's id, name, phone number, relation with prisoner).

1NF: Phone number is a multivalued attribute.

2NF:

Prisoner id, name, date of in, age, gender, blood group, work type, eat.

Visitors id, name, phone number, relation with prisoner.

3NF:

Prisoner id, name, date of in, age, gender, blood group, work type, eat.

Visitors id, name, relation with prisoner.

Visitors id, phone number.

Tables from Visit

1. Prisoner id, name, date of in, age, gender, blood group, work type, visitors id.
2. Visitors id, name, relation with prisoner.
3. Visitors id, phone number.

Final Table:

Prison code, name, capacity, - prison.

Officers id, contact no - composite pk- officer contact (one- many).

Officers id, name, age, batch, rank, shift, case id, constable id, Prison code - officer's.

Case id, case type, issue date- prisoners case.

Constable Id, mobile no –constable contact (one –many).

Constable Id, name, contact no, number- constable.

Number, capacity - prison cell- (one-many).

Prisoner id, name, date of in, age, gender, blood group, work type, Number, case id,
Visitor's id- Prisoners.

Visitor's id, name, relation with prisoner- Visitors.

Visitor's id, phone number - visitor contact (one-many).

Table creation:

Prison Table:

The screenshot shows the Oracle Database Express Edition SQL Commands window. The SQL command entered is:

```
create prison;
alter table prison modify (name not null);
alter table prison add constraint sue unique(name);
```

The command is executed, and the results are displayed below. The object type is TABLE, and the object name is PRISON. The table structure is as follows:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PRISON	PRISON_CODE	Number	-	12	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	-	-	-
	CARCITY	Number	-	10	0	-	✓	-	-

The bottom of the window shows the application version: Application Express 2.1.9.0.0.39, Copyright © 1999, 2005, Oracle. All rights reserved.

Officer's Table:

The screenshot shows the Oracle Database Express Edition SQL Commands window. The SQL command entered is:

```
alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id);
alter table prisoners add constraint case_id_fk foreign key(case_id)
references prisoners_case(case_id);
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number);

create prison;
create prisoners;
create prisoners_case;
create constatable;
create prisoners;
create visitors;
create prison_cell;
create officer_contact;
create constatable_contact;
create constatable_contact;
```

The command is executed, and the results are displayed below. The object type is TABLE, and the object name is OFFICERS. The table structure is as follows:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OFFICERS	OFFICERS_ID	Number	-	20	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	✓	-	-
	AGE	Number	-	4	0	-	✓	-	-
	BATCH	Number	-	12	0	-	✓	-	-
	BANK	Varchar2	10	-	-	-	✓	-	-
	SHIFT	Varchar2	20	-	-	-	✓	-	-
	CASE_ID	Number	-	12	0	-	✓	-	-
	CONSTATABLE_ID	Number	-	12	0	-	✓	-	-
	PRISON_CODE	Number	-	12	0	-	✓	-	-

The bottom of the window shows the application version: Application Express 2.1.9.0.0.39, Copyright © 1999, 2005, Oracle. All rights reserved.

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The screenshot shows the Oracle Database Express Edition SQL Command window. The SQL commands entered are:

```

alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id)
alter table prisoners add constraint case_id_fk foreign key(case_id)
references prisoners_case(case_id)
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number)

--
-- Prisons
--
-- Officers
--
-- Prisoners case
--
CONSTABLE
--
-- Prisoners
--
-- Visitors
--
-- Prison cell
--
-- Officers contact
--
-- Constable contact
--

```

The results show the table structure for CONSTABLE:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CONSTABLE	CONSTABLE_ID	Number	-	12	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	✓	-	-
	PRISON_NUMBER	Number	-	12	0	-	✓	-	-

1-3

Prisoner's Table:

The screenshot shows the Oracle Database Express Edition SQL Command window. The SQL commands entered are:

```
alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id)
alter table prisoners add constraint case_id_fk foreign key(case_id )
references prisoners_case(case_id )
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number)
```

The command window also shows a list of tables: prison, officers, prisoners_case, constable, prisoners, visitors, prison_cell, officer_contact, constable_contact, and constable_contact.

Below the SQL commands, the 'Describe' tab is selected, showing the structure of the PRISONERS table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PRISONERS	PRISONERS_ID	Number	-	12	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	✓	-	-
	AGE	Number	-	4	0	-	✓	-	-
	GENDER	Varchar2	12	-	-	-	✓	-	-
	BLOOD_GROUP	Varchar2	4	-	-	-	✓	-	-
	DATE_OF_B	Date	7	-	-	-	✓	-	-
	WORK_TYPE	Varchar2	12	-	-	-	✓	-	-
	VISITORS_ID	Number	-	12	0	-	✓	-	-
	PRISON_NUMBER	Number	-	12	0	-	✓	-	-
	CASE_ID	Number	-	12	0	-	✓	-	-

The bottom of the window shows the Oracle logo and the text 'Application Express 2.1.0.00.39 Copyright © 1999, 2005, Oracle. All rights reserved.'

Visitor's Table:

The screenshot shows the Oracle Database Express Edition SQL Command window. The SQL commands entered are:

```
alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id)
alter table prisoners add constraint case_id_fk foreign key(case_id )
references prisoners_case(case_id )
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number)
```

The command window also shows a list of tables: prison, officers, prisoners_case, constable, prisoners, visitors, prison_cell, officer_contact, constable_contact, and constable_contact.

Below the SQL commands, the 'Describe' tab is selected, showing the structure of the VISITORS table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
VISITORS	VISITORS_ID	Number	-	12	0	1	-	-	-
	NAME	Varchar2	20	-	-	-	✓	-	-
	RELATION_WITH_PRISONER	Varchar2	12	-	-	-	✓	-	-

The bottom of the window shows the Oracle logo and the text 'Application Express 2.1.0.00.39 Copyright © 1999, 2005, Oracle. All rights reserved.'

Prison Cell Table:

The screenshot shows the Oracle Database Express Edition SQL Command window. The SQL commands entered are:

```
alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id)
alter table prisoners add constraint case_id_fk foreign key(case_id )
references prisoners_case(case_id )
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number)
```

The command is executed, and the results are displayed below. The results show the table structure for PRISON_CELL:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
PRISON_CELL	PRISON_NUMBER	Number	-	12	0	1	-	-	-
	CAPACITY	Number	-	12	0	-	✓	-	-

The bottom of the window shows the system tray with the date and time: 1:15 AM 8/15/2021.

Officer's Contact Table:

The screenshot shows the Oracle Database Express Edition SQL Command window. The SQL commands entered are:

```
alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id)
alter table prisoners add constraint case_id_fk foreign key(case_id )
references prisoners_case(case_id )
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number)
```

The command is executed, and the results are displayed below. The results show the table structure for OFFICER_CONTACT:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
OFFICER_CONTACT	OFFICER_ID	Number	-	20	0	1	-	-	-
	CONTACT_NO	Number	-	14	0	2	-	-	-

The bottom of the window shows the system tray with the date and time: 1:15 AM 8/15/2021.

Constable Contact Table:

The screenshot shows the Oracle Database Express Edition SQL Commands window. The SQL script executed is as follows:

```
alter table prisoners add constraint visitors_id_fk foreign key(visitors_id)
references visitors(visitors_id)
alter table prisoners add constraint case_id_fk foreign key(case_id )
references prisoners_case(case_id )
alter table prisoners add constraint prison_number_fk foreign key(prison_number)
references prison_cell(prison_number)
```

The results pane shows the table structure for the CONSTABLE_CONTACT table:

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CONSTABLE_CONTACT	CONSTABLE_ID	Number	-	20	0	1	-	-	-
	MOBILE_NO	Number	-	14	0	2	-	-	-
									1-2

The bottom of the window shows the Windows taskbar with the time 1:15 AM on 8/15/2021.

Constable Contact Table:

This is a duplicate of the first screenshot, showing the same Oracle Database Express Edition SQL Commands window with the same SQL script and table structure results for the CONSTABLE_CONTACT table.

Insertion:

Prison Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following text:

```
select *  
from prison  
  
insert into constable values (2255,'RAJU',2)  
insert into constable values (3366,'POINT',3)
```

The Results tab displays a table with 4 rows returned in 0.00 seconds. The table has columns: PRISON_CODE, NAME, and CAPACITY.

PRISON_CODE	NAME	CAPACITY
101	DHAKA	200
102	SYLHET	100
103	CHITTAGONG	300
104	RANGPUR	400

Language: en-us
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Officer's Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following text:

```
select *  
from officers  
  
insert into visitors values (10101,'SAJOTI','BROTHER')
```

The Results tab displays a table with 4 rows returned in 0.00 seconds. The table has columns: OFFICERS_ID, NAME, AGE, BATCH, RANK, SHIFT, CASE_ID, CONSTABLE_ID, and PRISON_CODE.

OFFICERS_ID	NAME	AGE	BATCH	RANK	SHIFT	CASE_ID	CONSTABLE_ID	PRISON_CODE
222	LIMIA	40	2000	INSPECTOR	DAY	444	2255	101
224	MALHA	45	2002	DEPUTY	DAY	446	3366	104
226	EMAD	55	1999	GENERAL	NIGHT	448	1144	103
228	MIHIR	60	1998	SUB-INS	NIGHT	450	4422	101

Language: en-us
Application Express 2.1.0.00.39
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Constable Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following SQL code:

```
select *  
from constable  
  
create sequence prisoners_case_seq
```

The Results tab displays the data from the Constable table:

CONSTABLE_ID	NAME	PRISON_NUMBER
2255	RAJU	2
3366	RONI	3
1144	SAKIB	4
4422	KARIM	5

4 rows returned in 0.00 seconds

Visitor's Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following SQL code:

```
insert into visitors values (10103,'SADINA','SISTER')  
insert into visitors values (10104,'KANTI','BROTHER')  
  
select *  
from visitors
```

The Results tab displays the data from the visitors table:

VISITORS_ID	NAME	RELATION_WITH_PRISONER
10104	KANTI	BROTHER
10101	SAJOTI	BROTHER
10102	ASHRAFUL	BROTHER
10103	SADINA	SISTER

4 rows returned in 0.00 seconds

Prisoner's Case Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
select *  
from prisoners case
```

The query has been executed, and the results are displayed in a table with 4 rows. The table has the following columns: CASE_ID, CASE_TYPE, and ISSUE_DATE.

CASE_ID	CASE_TYPE	ISSUE_DATE
444	MURDER	01-JAN-03
446	KIDNAP	22-MAR-05
448	HUJACK	12-JUN-09
450	EVETEASING	09-SEP-16

4 rows returned in 0.00 seconds

Prisoner Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
select *  
from prisoners
```

The query has been executed, and the results are displayed in a table with 4 rows. The table has the following columns: PRISONERS_ID, NAME, AGE, GENDER, BLOOD_GROUP, DATE_OF_IN, WORK_TYPE, VISITORS_ID, PRISON_NUMBER, and CASE_ID.

PRISONERS_ID	NAME	AGE	GENDER	BLOOD_GROUP	DATE_OF_IN	WORK_TYPE	VISITORS_ID	PRISON_NUMBER	CASE_ID
20438302	NOMAN	24	MALE	B+	14-FEB-15	Gardening	10101	20	444
3038765	RAMIM	26	MALE	A+	29-AUG-18	CLEANING	10102	30	446
4598765	MIM	30	FEMALE	O+	31-MAR-20	COOKING	10103	30	446
2359875	TASIN	31	FEMALE	AB-	31-MAR-20	LAUNDRY	10104	10	450

4 rows returned in 0.00 seconds

Prison Cell Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
select *  
from prison_cell
```

The Results window displays the following data:

PRISON_NUMBER	CAPACITY
20	2
30	3
40	4
10	1

4 rows returned in 0.00 seconds

Officer Contact Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window contains the following query:

```
select *  
from officer_contact
```

The Results window displays the following data:

OFFICER_ID	CONTACT_NO
222	1327891234
224	1322011234
226	1867464234
228	1867464234

4 rows returned in 0.00 seconds

Constable Contact Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window is active, displaying the following SQL commands:

```
select *  
from constable_contact  
  
insert into visitor_contact values (10101, 01567535349)  
insert into visitor_contact values (10102, 01456467564)
```

The results section shows 5 rows returned in 0.00 seconds. The data is as follows:

CONSTABLE_ID	MOBILE_NO
1144	1567453344
2255	1645634346
3366	1435342234
3366	1456322348
4422	1234234434

5 rows returned in 0.00 seconds

Visitor Contact Table:

The screenshot shows the Oracle Database Express Edition interface. The SQL Commands window is active, displaying the following SQL commands:

```
insert into visitor_contact values (10104, 01565434534)  
  
select *  
from visitor_contact
```

The results section shows 4 rows returned in 0.00 seconds. The data is as follows:

VISITORS_ID	PHONE_NUM
10101	1567535349
10102	1456467564
10103	1766879789
10104	1565434534

4 rows returned in 0.00 seconds

Some of Questions from this topic:

1. Display, Officers name, batch and Whose batch before 2000?
2. Display, Officers name, batch, shift, rank, age and Whose age is less than or equal to 60?
3. Display, Prison name, prison_code and name equal to null and not null?
4. Display, Prisoners name, date_of_in, age and Who are in '14-FEB-15' and '29-AUG-18'?
5. Write a query to display OFFICERS_ID name length and concatenate name and age?
6. Write a query to display OFFICERS_ID and maximum age of the OFFICERS whose max age is greater than 30
7. Create a view of PRISONERS_ID whose is 20438302?
8. Write a query for creating sequence?