PHASE 3: PROJECT

SAN FRANCISCO CRIME INCIDENTS AND TREND ANALYSIS

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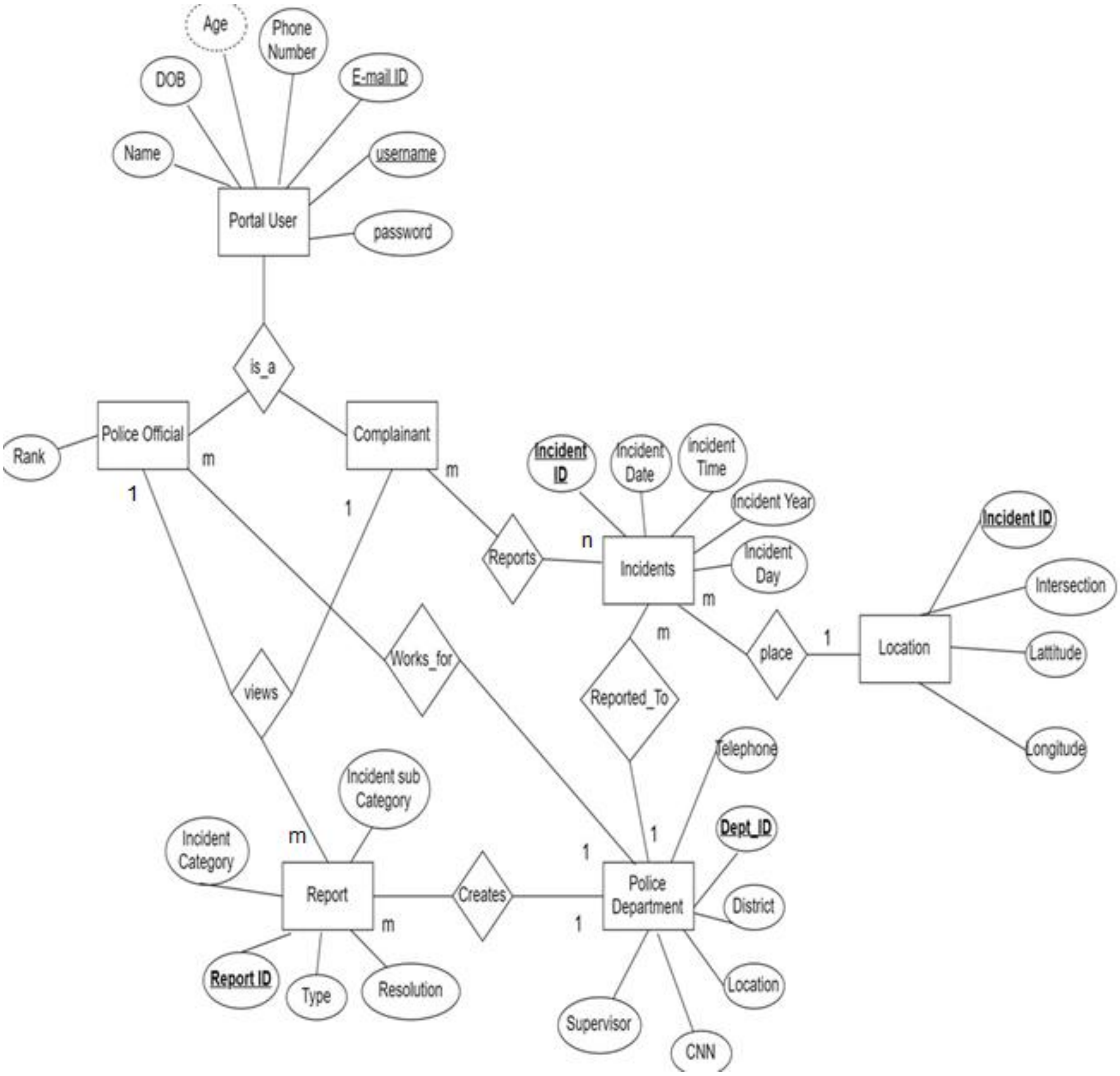
GROUP 11

Diagram Entities of the ER Diagram with their attributes

➢ User	
• Name	Name of the User
• DOB	Date of Birth
• Age	Age of User
• phone_number	Contact Information
• Email	Email of user
• User_ID	Unique ID to Login
• Password	Password for login
➢ Police Official (is a User)	
• Rank	Rank of Official
➢ Complainant (is a User)	
➢ Incidents	
• Incident_ID	Unique ID
• Incident Date	Date of incident
• Incident Day	Day of incident
• Incident Time	Time of incident
• Incident Year	Year of incident
➢ Report	
• Report ID	Unique report Number
• Incident_Category	Type of crime
• Incident_Subcategory	Subtype of crime
• Resolution Resolved/Active/inactive	Case
• Type	Type of Report
➢ Location	
• Incident_ID	Foreign Key of Incident
• Longitude	Longitude of crime scene
• Latitude	Latitude of crime scene
• Intersection	Depicts PD affinity
➢ Police Department	
• Department ID	Unique Dept ID
• District	District of PD
• Location	Address of PD
• CNN	Identifier of the intersection
• Telephone	Contact Info
• Supervisor	Head of PD

Modified Entity Relationship Model



Reasons for modification in the ER Model

Change of Cardinality: As per dataset, one or many Complainant can report one or many Incidents. For example, one or many people can report multiple incidents happened with them to the police department.

Database Schema

The database schema construction follows the construction of the ER model.

The database schema for the application is listed below:

1) Portal User (User_ID: integer, Email: string, Phone_number: integer, password: string, DOB: date, Name: string)

2) Police Official (User_ID: integer, Dept_ID: integer, Rank: string)

3) Complainant (User_ID: integer)

4) Incidents (Incident_ID: integer, Dept_ID: integer, Incident Date: date, Incident Day: date, Incident Time: date, Incident Year: date)

5) Report (Report ID: integer, Dept_ID: integer, Incident_Category: string,

Incident_Subcategory: string, Resolution: string, Type: string)

6) Location (Incident_ID: integer, Longitude: integer, Latitude: integer, Intersection: string)

7) Police Department (Dept_ID: integer, District: string,

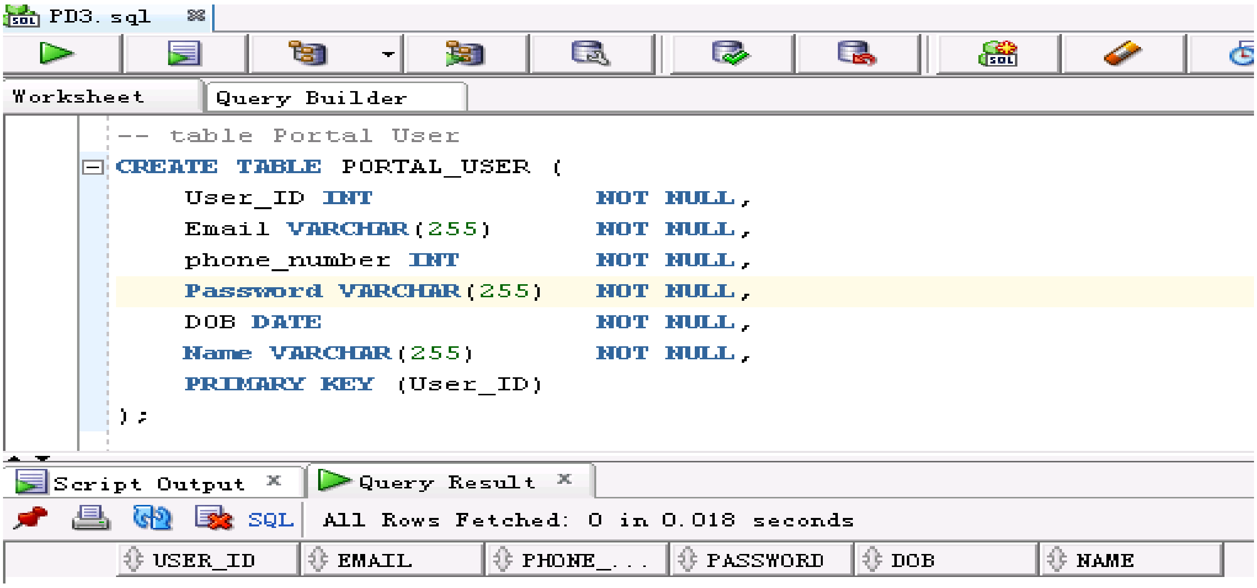
Location: string, CNN: integer, Telephone: integer, Supervisor: string)

8) Reports (User_ID: integer, Incident_ID: integer)

- ## Portal User

Relational Schema:

Portal_User (User_ID: integer, Email: string, Phone_number: integer, password: string, DOB: date, Name: string)



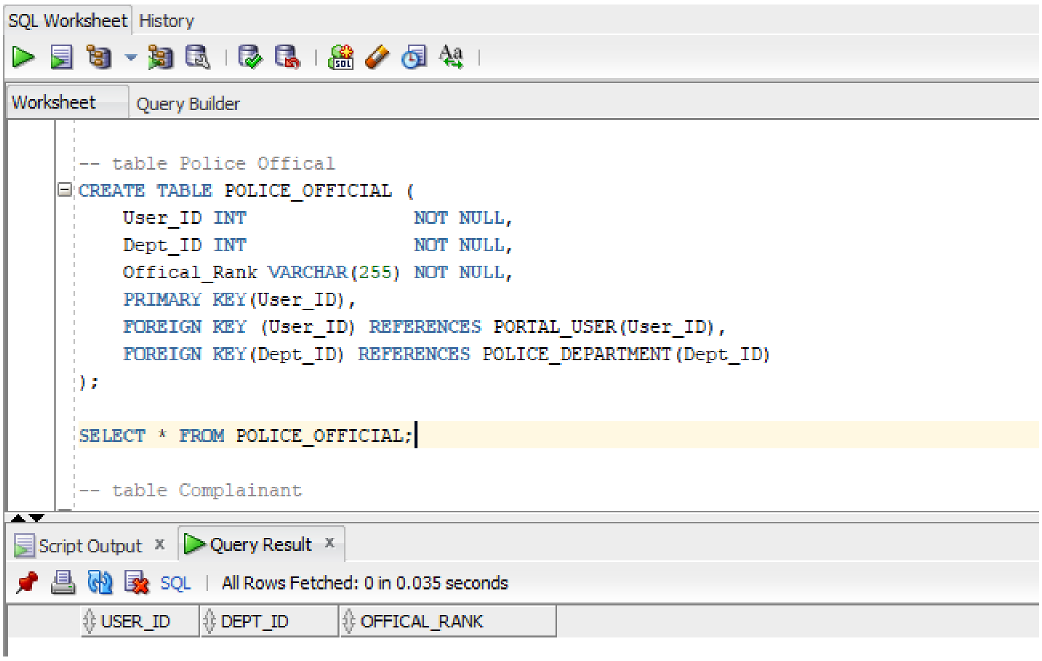
```
-- table Portal User
CREATE TABLE PORTAL_USER (
     User_ID INT                  NOT NULL,
     Email VARCHAR(255)           NOT NULL,
     phone_number INT             NOT NULL,
     Password VARCHAR(255)        NOT NULL,
     DOB DATE                     NOT NULL,
     Name VARCHAR(255)            NOT NULL,
     PRIMARY KEY (User_ID)
);
```

```
All Rows Fetched: 0 in 0.018 seconds
USER_ID  EMAIL  PHONE_...  PASSWORD  DOB  NAME
```

- ## Police Official

Relational Schema:

Police_Official (User_ID: integer, Dept_ID: integer, Rank: string)



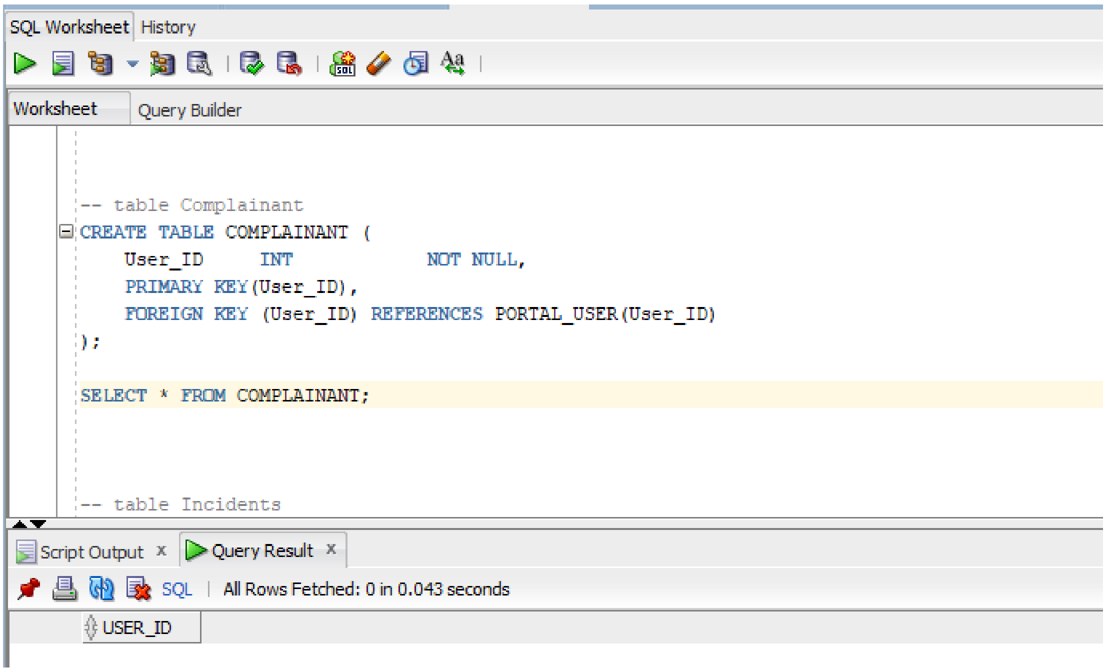
```
-- table Police Offical
CREATE TABLE POLICE_OFFICIAL (
    User_ID INT               NOT NULL,
    Dept_ID INT               NOT NULL,
    Offical_Rank VARCHAR(255) NOT NULL,
    PRIMARY KEY(User_ID),
    FOREIGN KEY (User_ID) REFERENCES PORTAL_USER(User_ID),
    FOREIGN KEY(Dept_ID) REFERENCES POLICE_DEPARTMENT(Dept_ID)
);

SELECT * FROM POLICE_OFFICIAL;

-- table Complainant
```

```
All Rows Fetched: 0 in 0.035 seconds
USER_ID  DEPT_ID  OFFICAL_RANK
```

- ## Complainant

Relational Schema:

Complainant (<u>User_ID: integer</u>)



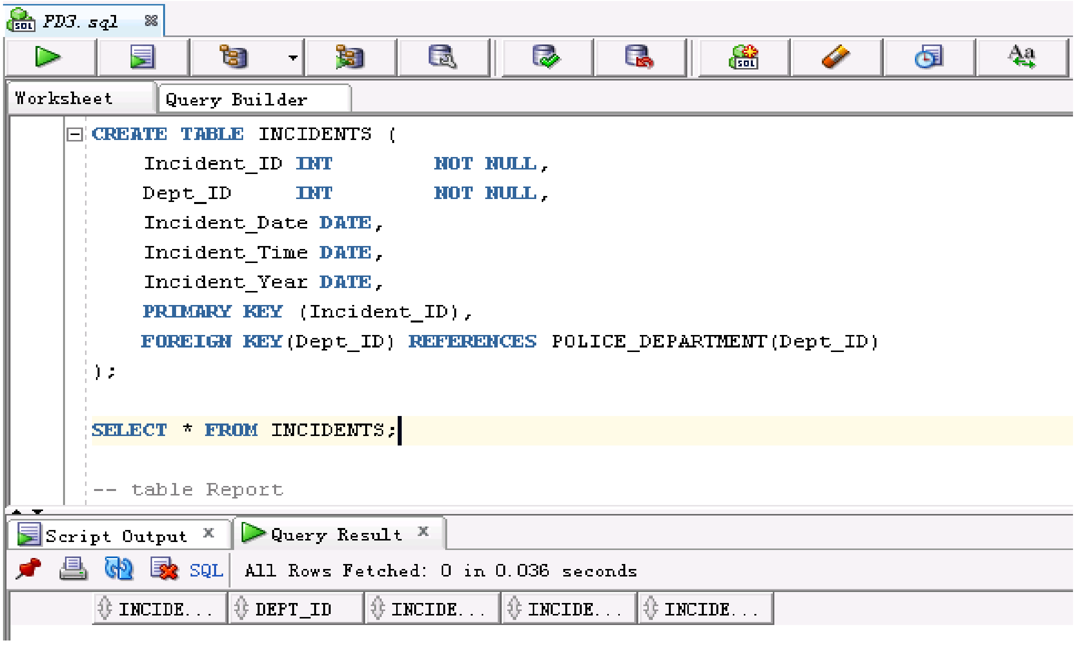
```
-- table Complainant
CREATE TABLE COMPLAINANT (
    User_ID      INT            NOT NULL,
    PRIMARY KEY(User_ID),
    FOREIGN KEY (User_ID) REFERENCES PORTAL_USER(User_ID)
);

SELECT * FROM COMPLAINANT;


-- table Incidents
```

```
All Rows Fetched: 0 in 0.043 seconds
USER_ID
```

- ## Incidents

Relational Schema:

Incidents (<u>Incident_ID: integer</u>, <u>Dept_ID: integer</u>, Incident Date: date, Incident Day: date, Incident Time: date, Incident Year: date)



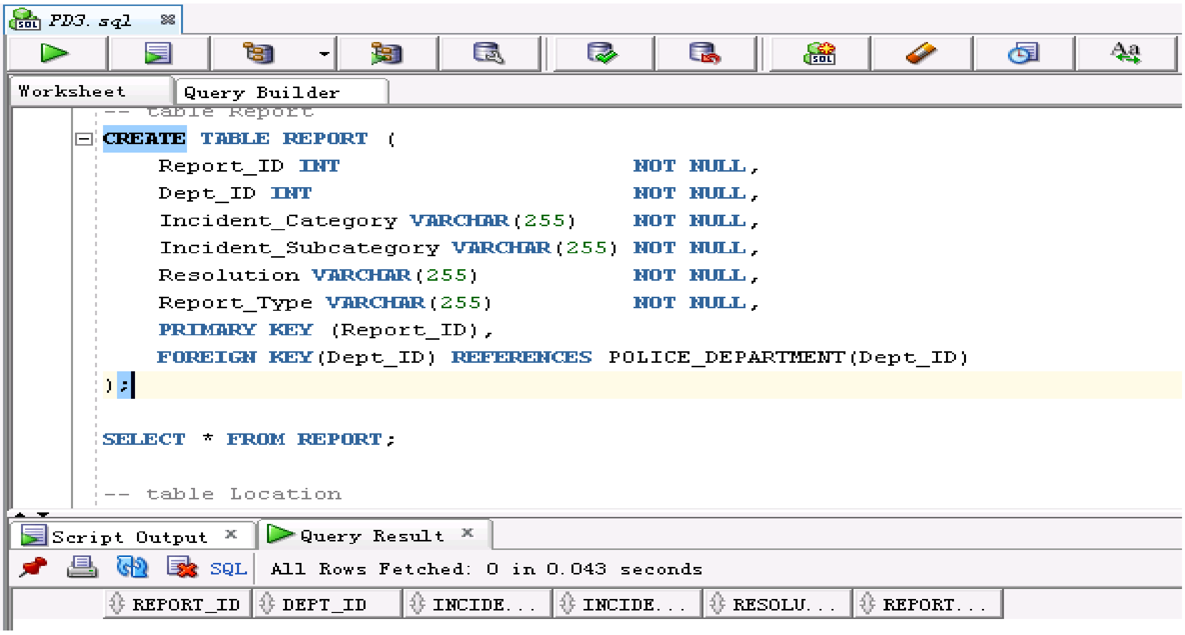
```
CREATE TABLE INCIDENTS (
    Incident_ID INT         NOT NULL,
    Dept_ID     INT         NOT NULL,
    Incident_Date DATE,
    Incident_Time DATE,
    Incident_Year DATE,
    PRIMARY KEY (Incident_ID),
    FOREIGN KEY(Dept_ID) REFERENCES POLICE_DEPARTMENT(Dept_ID)
);

SELECT * FROM INCIDENTS;

-- table Report
```

```
All Rows Fetched: 0 in 0.036 seconds
INCIDE...  DEPT_ID  INCIDE...  INCIDE...  INCIDE...
```

- Report

Relational Schema:

Report (Report_ID: integer, Dept_ID: integer, Incident_Category: string, Incident_Subcategory: string, Resolution: string, Type: string)



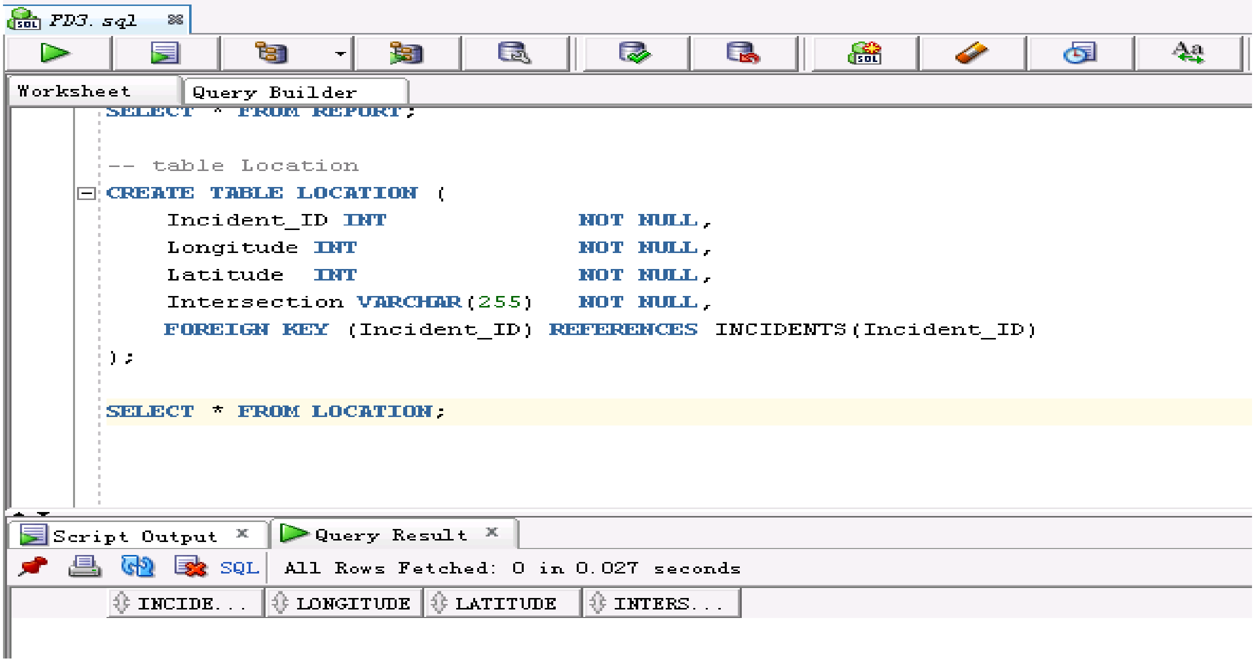
```
-- table Report
CREATE TABLE REPORT (
    Report_ID INT                          NOT NULL,
    Dept_ID INT                            NOT NULL,
    Incident_Category VARCHAR(255)         NOT NULL,
    Incident_Subcategory VARCHAR(255)      NOT NULL,
    Resolution VARCHAR(255)                NOT NULL,
    Report_Type VARCHAR(255)               NOT NULL,
    PRIMARY KEY (Report_ID),
    FOREIGN KEY(Dept_ID) REFERENCES POLICE_DEPARTMENT(Dept_ID)
);

SELECT * FROM REPORT;

-- table Location
```

```
All Rows Fetched: 0 in 0.043 seconds
REPORT_ID  DEPT_ID  INCIDE...  INCIDE...  RESOLU...  REPORT...
```

- Location

Relational Schema:

Location (Incident_ID: integer, Longitude: integer, Latitude: integer, Intersection: string)



```
SELECT * FROM REPORT;

-- table Location
CREATE TABLE LOCATION (
    Incident_ID INT                NOT NULL,
    Longitude INT                  NOT NULL,
    Latitude  INT                  NOT NULL,
    Intersection VARCHAR(255)      NOT NULL,
    FOREIGN KEY (Incident_ID) REFERENCES INCIDENTS(Incident_ID)
);

SELECT * FROM LOCATION;
```

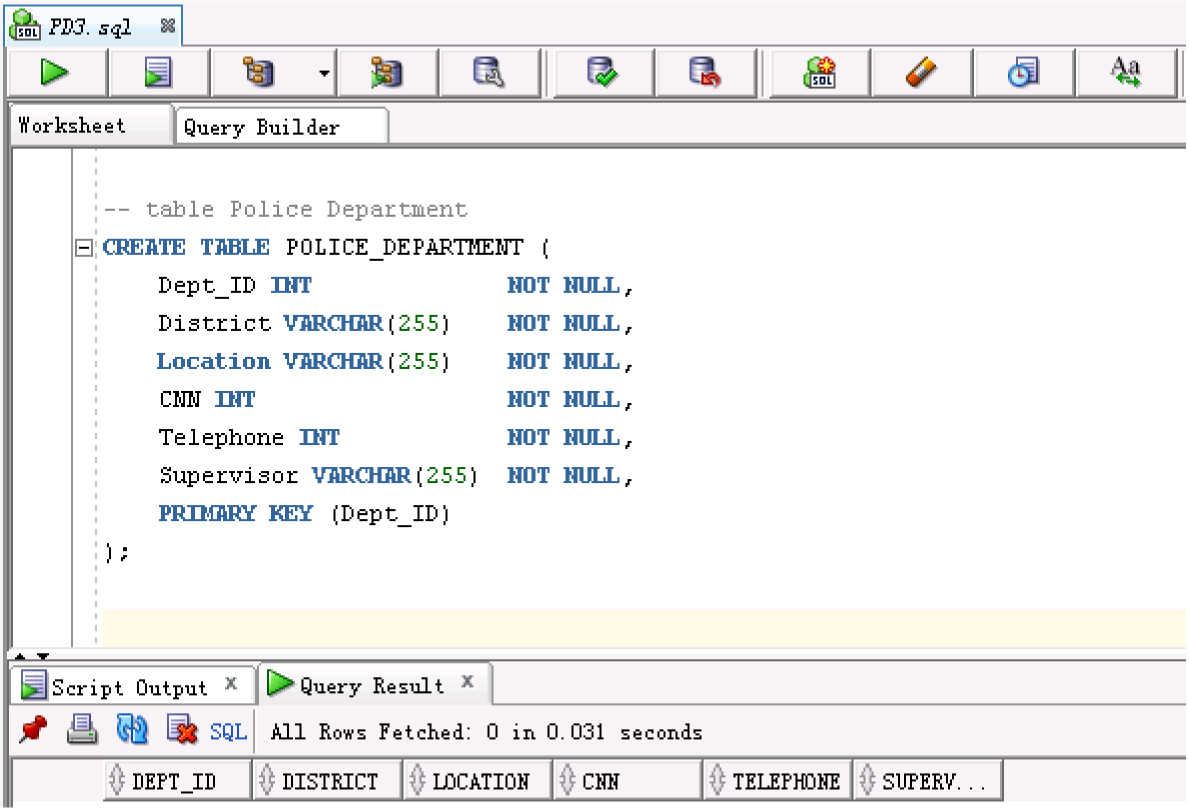
```
All Rows Fetched: 0 in 0.027 seconds
INCIDE...  LONGITUDE  LATITUDE  INTERS...
```

- Police Department

Relational Schema:

Police Department (Dept_ID: integer, District: string, Location: string, CNN: integer, Telephone: integer, Supervisor: string)

Screenshot:



```
-- table Police Department
CREATE TABLE POLICE_DEPARTMENT (
    Dept_ID INT                NOT NULL,
    District VARCHAR(255)      NOT NULL,
    Location VARCHAR(255)      NOT NULL,
    CNN INT                    NOT NULL,
    Telephone INT              NOT NULL,
    Supervisor VARCHAR(255)    NOT NULL,
    PRIMARY KEY (Dept_ID)
);
```

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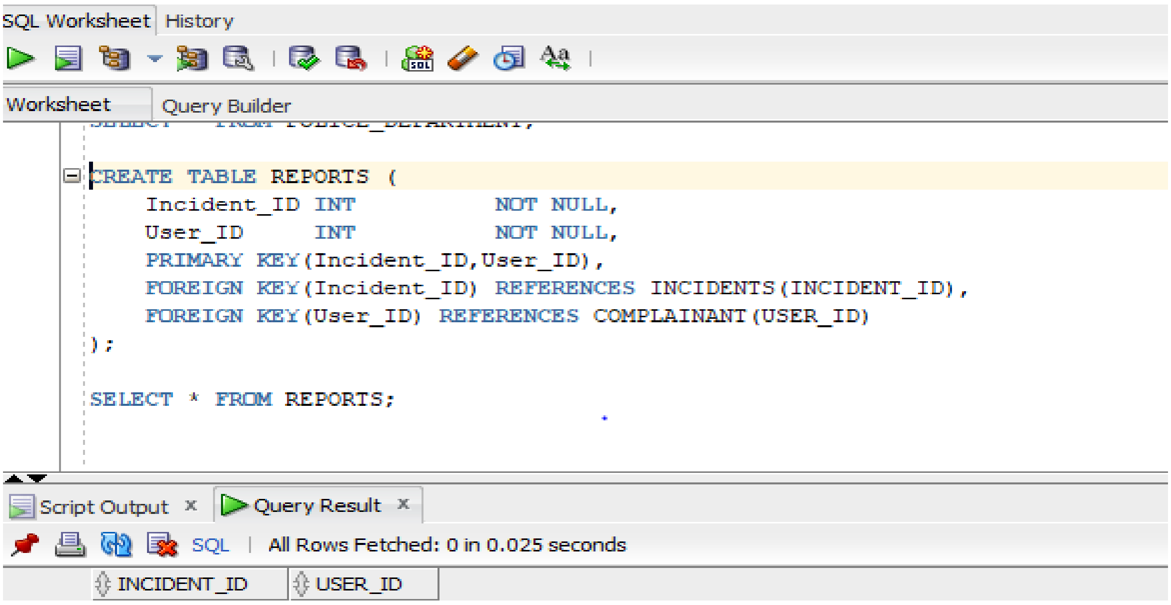
DEPT_ID	DISTRICT	LOCATION	CNN	TELEPHONE	SUPERV...

- Reports

Relational Schema:

Reports (User_ID: integer, Incident_ID: integer)

Screenshot:



```
SELECT * FROM POLICE_DEPARTMENT;

CREATE TABLE REPORTS (
    Incident_ID INT          NOT NULL,
    User_ID     INT          NOT NULL,
    PRIMARY KEY(Incident_ID,User_ID),
    FOREIGN KEY(Incident_ID) REFERENCES INCIDENTS(INCIDENT_ID),
    FOREIGN KEY(User_ID) REFERENCES COMPLAINANT(USER_ID)
);

SELECT * FROM REPORTS;
```

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INCIDENT_ID	USER_ID