Final Project

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Overview

This project is created with a vision to utilize the dataset for analyzing the crime in Boston and predicting safer routes to the citizens. The main point of interest is in discovering if is it possible to predict potential criminal events for a specific time and place in the future. And if depending on that we can find out which route to be taken for travelling in our day to day lives. The dataset can be utilized for the various purpose related to people's safety.

Abstract

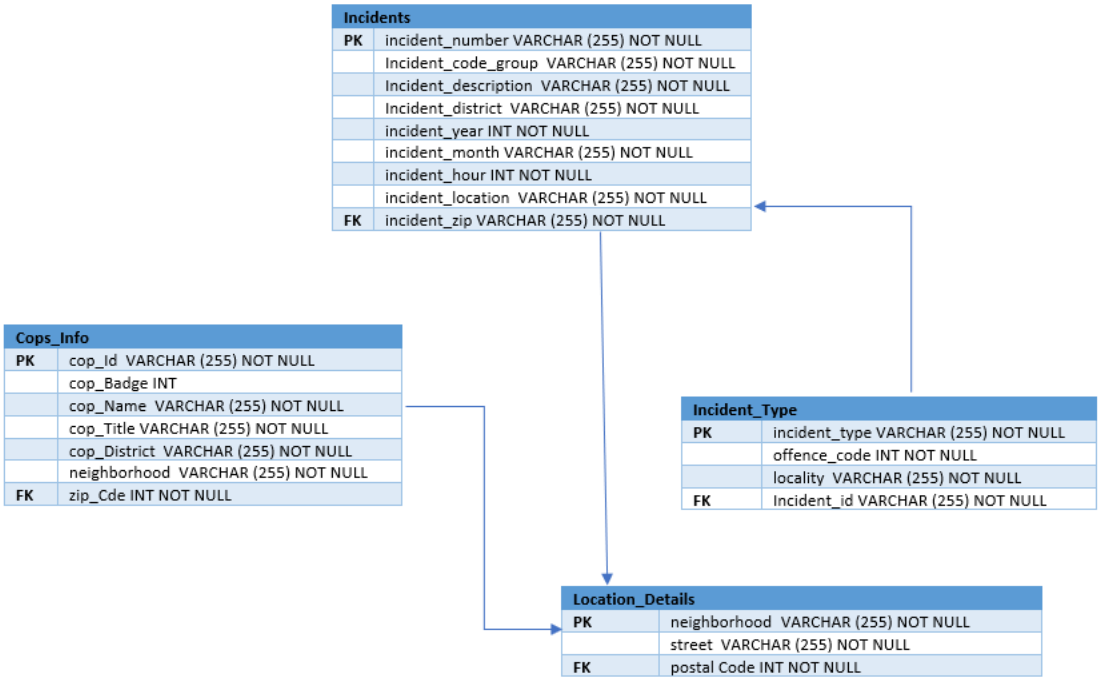
Looking at the crime statistics though the average crime rate in Boston is declining each year and the declining rate can be made faster by utilizing the data gathered to benefit different groups such as city officials, law enforcement, home buyers, travelers etc.

Goal

The scope of this project is to address below queries.

1. What is count of the total number of incidents occurred in Boston in last 5 years?
2. What are the top 5 neighborhoods in Boston with highest crime incidents?
3. How many harassment incidents reported on Boston streets?
4. Who are the officers deputed for Roxbury neighborhood in Boston?
5. What is the most common incident on Adams Street in a one-year period?
6. Which is the most unsafe street in Boston?
7. Which year marks the highest number of incidents in Boston?
8. Between what hours of day most incidents happen in Boston?
9. How many incidents reported after midnight night?

UML Diagram



Incidents	
PK	incident_number VARCHAR (255) NOT NULL
	Incident_code_group VARCHAR (255) NOT NULL
	Incident_description VARCHAR (255) NOT NULL
	Incident_district VARCHAR (255) NOT NULL
	incident_year INT NOT NULL
	incident_month VARCHAR (255) NOT NULL
	incident_hour INT NOT NULL
	incident_location VARCHAR (255) NOT NULL
FK	incident_zip VARCHAR (255) NOT NULL

Cops_Info	
PK	cop_Id VARCHAR (255) NOT NULL
	cop_Badge INT
	cop_Name VARCHAR (255) NOT NULL
	cop_Title VARCHAR (255) NOT NULL
	cop_District VARCHAR (255) NOT NULL
	neighborhood VARCHAR (255) NOT NULL
FK	zip_Cde INT NOT NULL

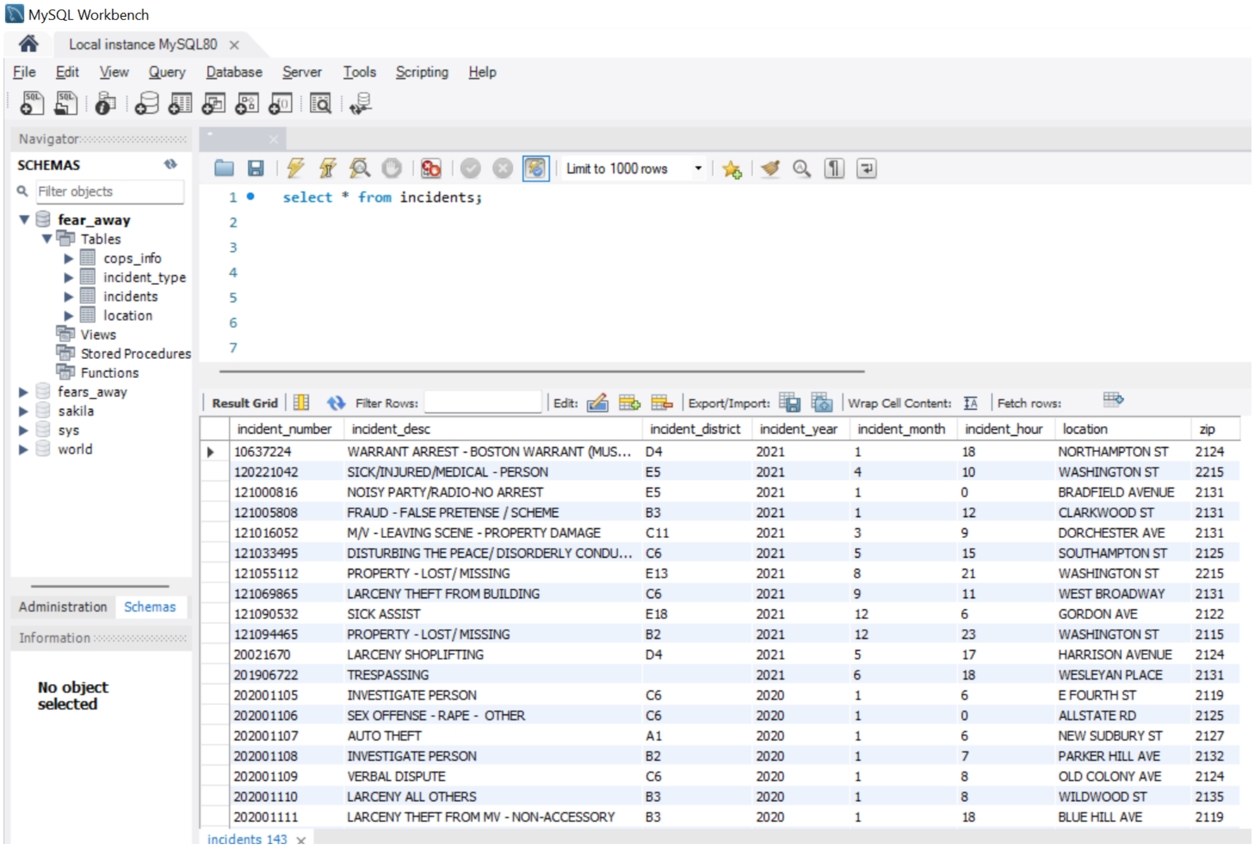
Incident_Type	
PK	incident_type VARCHAR (255) NOT NULL
	offence_code INT NOT NULL
	locality VARCHAR (255) NOT NULL
FK	Incident_id VARCHAR (255) NOT NULL

Location_Details	
PK	neighborhood VARCHAR (255) NOT NULL
	street VARCHAR (255) NOT NULL
FK	postal Code INT NOT NULL

Table description

The project Fears Away consists of 4 tables.

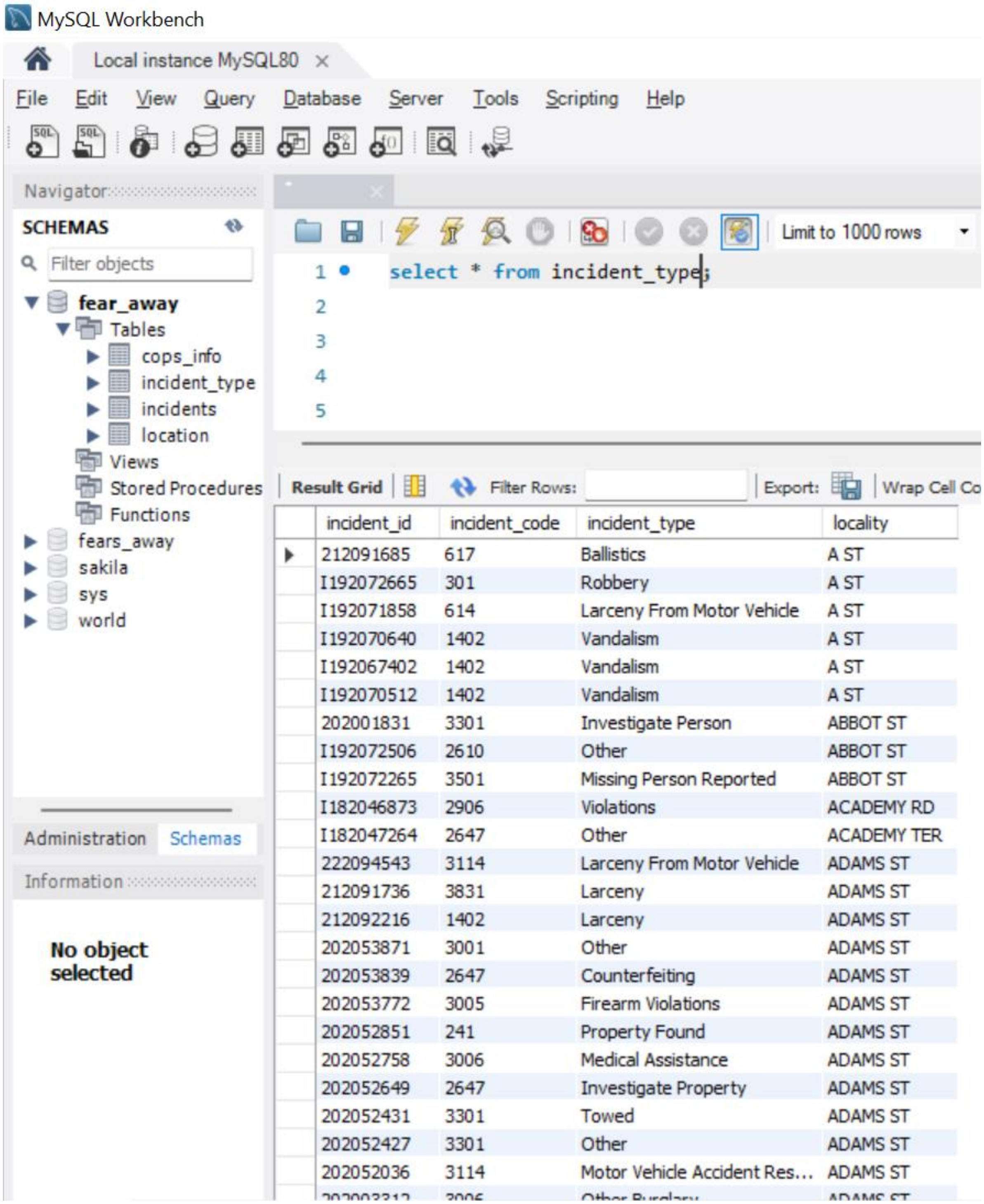
1. Incidents: This table contains all the data regarding crime incidents in Boston.



```
select * from incidents;
```

incident_number	incident_desc	incident_district	incident_year	incident_month	incident_hour	location	zip
10637224	WARRANT ARREST - BOSTON WARRANT (MUS...	D4	2021	1	18	NORTHAMPTON ST	2124
120221042	SICK/INJURED/MEDICAL - PERSON	E5	2021	4	10	WASHINGTON ST	2215
121000816	NOISY PARTY/RADIO-NO ARREST	E5	2021	1	0	BRADFIELD AVENUE	2131
121005808	FRAUD - FALSE PRETENSE / SCHEME	B3	2021	1	12	CLARKWOOD ST	2131
121016052	M/V - LEAVING SCENE - PROPERTY DAMAGE	C11	2021	3	9	DORCHESTER AVE	2131
121033495	DISTURBING THE PEACE/ DISORDERLY CONDU...	C6	2021	5	15	SOUTHAMPTON ST	2125
121055112	PROPERTY - LOST/ MISSING	E13	2021	8	21	WASHINGTON ST	2215
121069865	LARCENY THEFT FROM BUILDING	C6	2021	9	11	WEST BROADWAY	2131
121090532	SICK ASSIST	E18	2021	12	6	GORDON AVE	2122
121094465	PROPERTY - LOST/ MISSING	B2	2021	12	23	WASHINGTON ST	2115
20021670	LARCENY SHOPLIFTING	D4	2021	5	17	HARRISON AVENUE	2124
201906722	TRESPASSING		2021	6	18	WESLEYAN PLACE	2131
202001105	INVESTIGATE PERSON	C6	2020	1	6	E FOURTH ST	2119
202001106	SEX OFFENSE - RAPE - OTHER	C6	2020	1	0	ALLSTATE RD	2125
202001107	AUTO THEFT	A1	2020	1	6	NEW SUDBURY ST	2127
202001108	INVESTIGATE PERSON	B2	2020	1	7	PARKER HILL AVE	2132
202001109	VERBAL DISPUTE	C6	2020	1	8	OLD COLONY AVE	2124
202001110	LARCENY ALL OTHERS	B3	2020	1	8	WILDWOOD ST	2135
202001111	LARCENY THEFT FROM MV - NON-ACCESSORY	B3	2020	1	18	BLUE HILL AVE	2119

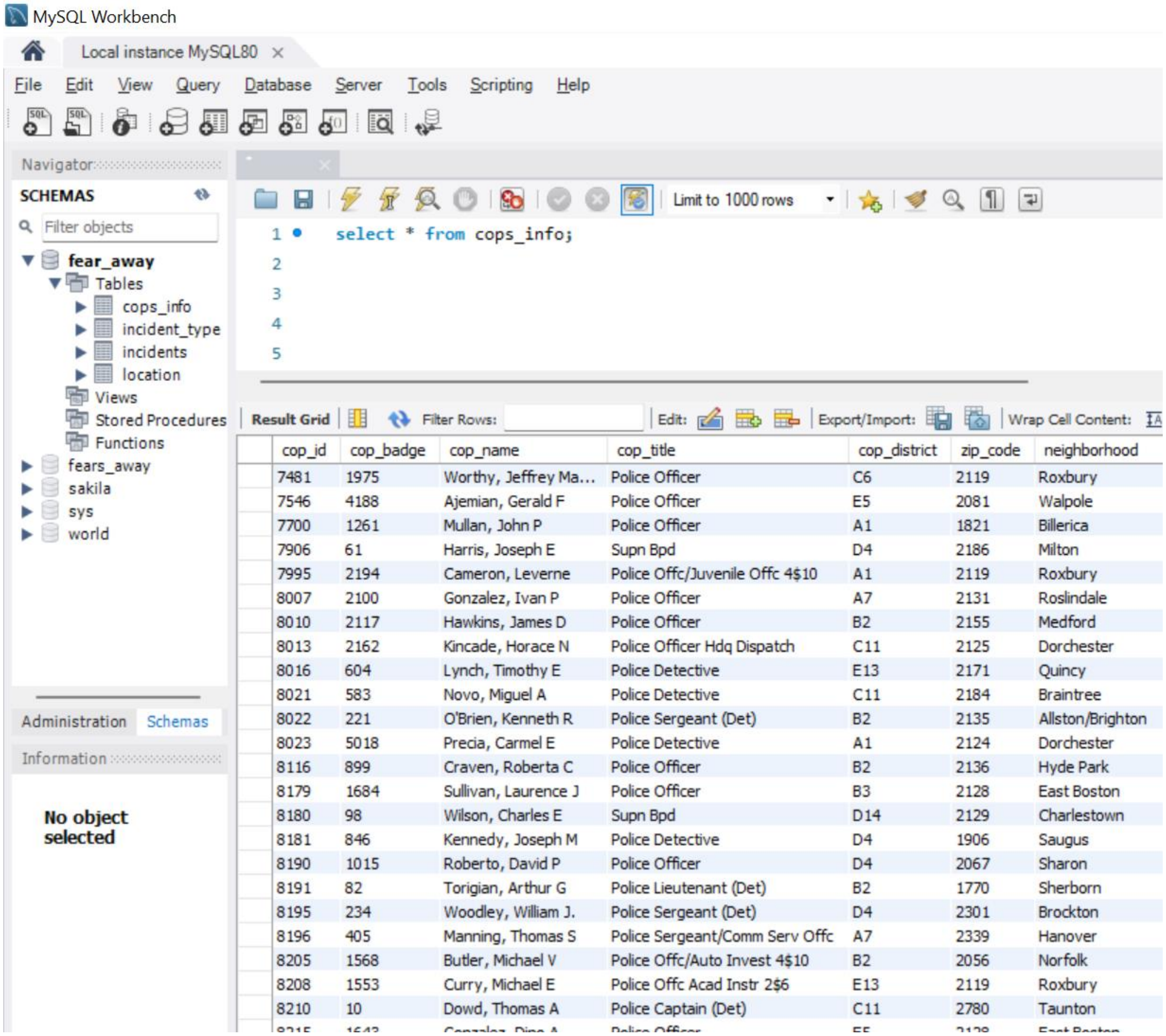
2. Incident_Type : This table consists of the type of crime incidents like Harassment, Larceny, Road Crash etc.



```
select * from incident_type;
```

incident_id	incident_code	incident_type	locality
212091685	617	Ballistics	A ST
I192072665	301	Robbery	A ST
I192071858	614	Larceny From Motor Vehicle	A ST
I192070640	1402	Vandalism	A ST
I192067402	1402	Vandalism	A ST
I192070512	1402	Vandalism	A ST
202001831	3301	Investigate Person	ABBOT ST
I192072506	2610	Other	ABBOT ST
I192072265	3501	Missing Person Reported	ABBOT ST
I182046873	2906	Violations	ACADEMY RD
I182047264	2647	Other	ACADEMY TER
222094543	3114	Larceny From Motor Vehicle	ADAMS ST
212091736	3831	Larceny	ADAMS ST
212092216	1402	Larceny	ADAMS ST
202053871	3001	Other	ADAMS ST
202053839	2647	Counterfeiting	ADAMS ST
202053772	3005	Firearm Violations	ADAMS ST
202052851	241	Property Found	ADAMS ST
202052758	3006	Medical Assistance	ADAMS ST
202052649	2647	Investigate Property	ADAMS ST
202052431	3301	Towed	ADAMS ST
202052427	3301	Other	ADAMS ST
202052036	3114	Motor Vehicle Accident Res...	ADAMS ST
202003312	3006	Other Burglary	ADAMS ST

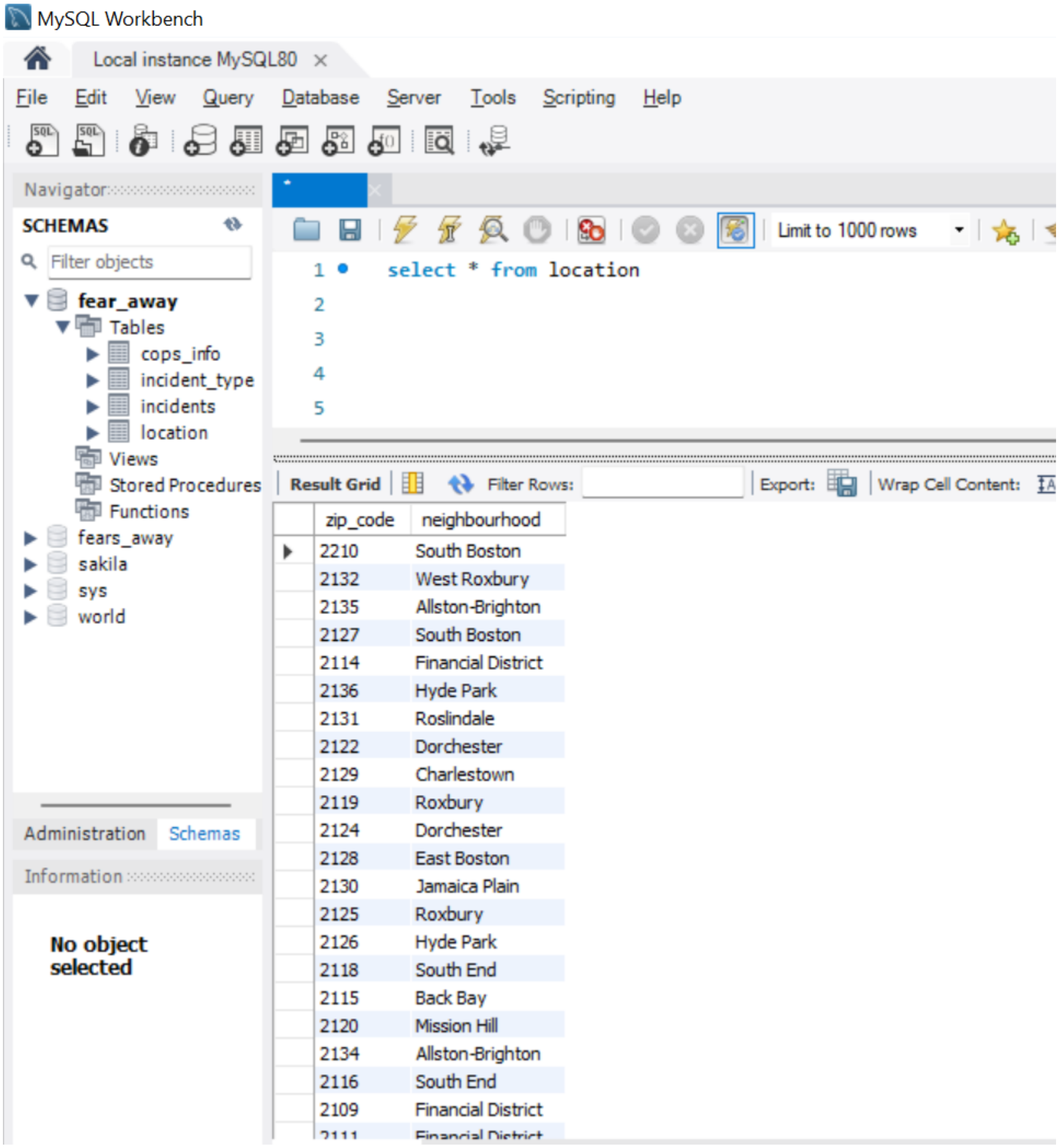
3. Cops_Info: This table consists of the details of all the officers deployed in various neighborhoods of Boston.



```
select * from cops_info;
```

cop_id	cop_badge	cop_name	cop_title	cop_district	zip_code	neighborhood
7481	1975	Worthy, Jeffrey Ma...	Police Officer	C6	2119	Roxbury
7546	4188	Ajemian, Gerald F	Police Officer	E5	2081	Walpole
7700	1261	Mullan, John P	Police Officer	A1	1821	Billerica
7906	61	Harris, Joseph E	Supn Bpd	D4	2186	Milton
7995	2194	Cameron, Leverne	Police Offc/Juvenile Offc 4$10	A1	2119	Roxbury
8007	2100	Gonzalez, Ivan P	Police Officer	A7	2131	Roslindale
8010	2117	Hawkins, James D	Police Officer	B2	2155	Medford
8013	2162	Kincade, Horace N	Police Officer Hdq Dispatch	C11	2125	Dorchester
8016	604	Lynch, Timothy E	Police Detective	E13	2171	Quincy
8021	583	Novo, Miguel A	Police Detective	C11	2184	Braintree
8022	221	O'Brien, Kenneth R	Police Sergeant (Det)	B2	2135	Allston/Brighton
8023	5018	Precia, Carmel E	Police Detective	A1	2124	Dorchester
8116	899	Craven, Roberta C	Police Officer	B2	2136	Hyde Park
8179	1684	Sullivan, Laurence J	Police Officer	B3	2128	East Boston
8180	98	Wilson, Charles E	Supn Bpd	D14	2129	Charlestown
8181	846	Kennedy, Joseph M	Police Detective	D4	1906	Saugus
8190	1015	Roberto, David P	Police Officer	D4	2067	Sharon
8191	82	Torigian, Arthur G	Police Lieutenant (Det)	B2	1770	Sherborn
8195	234	Woodley, William J.	Police Sergeant (Det)	D4	2301	Brockton
8196	405	Manning, Thomas S	Police Sergeant/Comm Serv Offc	A7	2339	Hanover
8205	1568	Butler, Michael V	Police Offc/Auto Invest 4$10	B2	2056	Norfolk
8208	1553	Curry, Michael E	Police Offc Acad Instr 2$6	E13	2119	Roxbury
8210	10	Dowd, Thomas A	Police Captain (Det)	C11	2780	Taunton
8215	1643	Gonzalez, Dino A	Police Officer	E5	2128	East Boston

4. Location : This table consist of all the neighborhoods in Boston along with their zip codes.



```sql
select * from location
```

zip_code	neighbourhood
2210	South Boston
2132	West Roxbury
2135	Allston-Brighton
2127	South Boston
2114	Financial District
2136	Hyde Park
2131	Roslindale
2122	Dorchester
2129	Charlestown
2119	Roxbury
2124	Dorchester
2128	East Boston
2130	Jamaica Plain
2125	Roxbury
2126	Hyde Park
2118	South End
2115	Back Bay
2120	Mission Hill
2134	Allston-Brighton
2116	South End
2109	Financial District
2111	Financial District

Data Gathering

Data has been gathered from various open sources. All the details can be found below :

Crime Dataset obtained from Kagle : https://www.kaggle.com/datasets/AnalyzeBoston/crimes-in-boston

Officers Information obtained from Analyze Boston : https://data.boston.gov/dataset/boston-police-department-fio

Neighborhoods in Boston obtained from ArcGIS Hub :

https://hub.arcgis.com/datasets/boston::city-of-boston-managedstreets/explore?location=42.312533%2C-71.087353%2C12.51

Depending on the data collected 4 csv files are created.

1. incidents.csv

   incidents.csv

2. cops_information.csv

   cops_information.csv

3. incident_type.csv

   incident_type.csv

4. location.csv

   locations.csv

Data Cleaning

Data has been cleaned by using clean_data.py python script.

clean_data.py

```
import pandas as pd
import numpy as np

#Reading crime dataset

crime_dataset_path = (r'C:\Users\chand\OneDrive\Desktop\Boston Crime Dataset.csv')
```

```
crime_data = pd.read_csv(crime_dataset_path)

#Copying the file into a new dataframe

crime = crime_data.copy()

#Displaying header and info

crime.head() crime.info()

#Reading cops database

cop_dataset_path = (r'C:\Users\chand\OneDrive\Desktop\cops_info.csv')
cop_data = pd.read_csv(cop_dataset_path, encoding="utf8") cops = cop_data.copy() cops.head()
cops.info()

#Reading addresses dataset

address_dataset_path = (r'C:\Users\chand\OneDrive\Desktop\Addresses.csv')
address_data = pd.read_csv(address_dataset_path, encoding="utf8") address = address_data.copy()
address.head() address.info()

#Function to fetch missing values from crime dataset

def missing_cols(crime): '''prints out columns with its amount of missing values''' total = 0 for col in
crime.columns: missing_vals = crime[col].isnull().sum() total += missing_vals if missing_vals != 0:
print(f"{col} => {crime[col].isnull().sum()}") print ('total missing values found :', total) if missing_vals == 0:
print("All missing values identified") missing_cols(crime) print (crime)

#Function to fetch missing values from cops dataset

def missing_cops_cols(cops): '''prints out columns with its amount of missing values''' total = 0 for col in
cops.columns: missing_cops_vals = cops[col].isnull().sum() total += missing_cops_vals if
missing_cops_vals != 0: print(f"{col} => {cops[col].isnull().sum()}") print ('total missing values found :',
total) return cops.replace('"', '') if missing_cops_vals == 0: print("All missing values identified")
missing_cops_cols(cops)

#Function to fetch missing values from address dataset

def missing_cols(address): '''prints out columns with its amount of missing values''' total = 0 for col in
address.columns: missing_vals = address[col].isnull().sum() total += missing_vals if missing_vals != 0:
print(f"{col} => {address[col].isnull().sum()}") print ('total missing values found :', total) if missing_vals ==
0: print("All missing values identified") missing_cols(address)

#Drop unnecessary columns that are not important from crime dataset

crime.dropna(axis=0, how="any", subset='OFFENSE_CODE_GROUP',inplace=True)
crime.drop_duplicates(subset='INCIDENT_NUMBER', inplace=True) crime1 = crime.copy() drop_cols =
['OFFENSE_CODE' ,'DAY_OF_WEEK','REPORTING_AREA','INCIDENT_DATE','SHOOTING','UCR_PART','Lat',
'Long', 'Location'] crime.drop(drop_cols, axis=1, inplace=True)

#Drop unnecessary columns that are not important from crime dataset making ready for incidents type

dropping_cols = ['OFFENSE_DESCRIPTION','DISTRICT'
,'REPORTING_AREA','INCIDENT_DATE','SHOOTING','YEAR','MONTH','STREET','DAY_OF_WEEK','HOUR','U
CR_PART','Lat', 'Long','Location'] crime1.drop(dropping_cols, axis=1, inplace=True)

#Cleaning address file

address.drop_duplicates(subset='ZIP5', inplace=True) address.drop('street', axis=1, inplace=True)
address.dropna(axis=0, how="any", subset='Nbhd',inplace=True)

#Drop unnecessary columns that are not important from cops dataset

dropc_cols = ['url', 'org_url' ,'doa','total','regular','retro','other','overtime', 'state','injured',
'detail','quinn','details_count', 'articles_officers_count', 'articles_officers_to_review_count', 'ia_score',
'field_contacts_count', 'incidents_count', 'swats_count', 'citations_count'] cops.drop(dropc_cols, axis=1,
inplace=True) cops.dropna(axis=0, how="any",inplace=True)

print(crime) print(crime1) print (cops) print(address)

cops.head(50000).to_csv(r'C:\Users\chand\OneDrive\Desktop\cops_information.csv', index=False)
crime.to_csv(r'C:\Users\chand\OneDrive\Desktop\incidents.csv', index=False)
crime1.to_csv(r'C:\Users\chand\OneDrive\Desktop\incident_type.csv', index=False)
address.to_csv(r'C:\Users\chand\OneDrive\Desktop\locations.csv', index=False)
```

Attaching below pdf to demonstrate the successful execution of both the scripts cleaning and insertion scripts along with data loaded in the table

Run_Scripts.pdf

Audit Validity,Audit Consistency, Audit Completeness

The data has been collected from verified sources apart from this I have verified the validity as well. All the parameters have taken care while cleaning the data and after the files are generated it consists all the valid, consistent and complete data.

Inserting data into the table

inserting_data

Used python script to INSERT data into the respective tables.

```
import mysql.connector import csv import pandas as pd

#establishing connection conn=mysql.connector.connect(host='localhost', username='root',
password='admin', database='fear_away', allow_local_infile=True) my_cursor=conn.cursor()

#Reading incidents file csv_data1 =
(csv.reader(open(r'C:\Users\chand\OneDrive\Desktop\incidents.csv',encoding="utf8")))

#Reading incidents type file csv_data2 =
(csv.reader(open(r'C:\Users\chand\OneDrive\Desktop\incident_type.csv', encoding="utf8")))

#Reading cops information file csv_data3 =
(csv.reader(open(r'C:\Users\chand\OneDrive\Desktop\cops_information.csv', encoding="utf8")))

#Reading locations csv_data4 = (csv.reader(open(r'C:\Users\chand\OneDrive\Desktop\locations.csv',
encoding="utf8")))

#store headers and rows

header = next(csv_data1) header = next(csv_data2) header = next(csv_data3) header = next(csv_data4)

print ("importing the file 1") #Inserting into incidents for row in csv_data1: print(row)
my_cursor.execute("INSERT INTO incidents (incident_number, incident_code_group, incident_desc,
incident_district, incident_year ,incident_month, incident_hour, location, zip) VALUES(%s, %s, %s, %s,
%s, %s, %s,%s, %s)", row) print ("Loaded in incidents Database")

#Inserting into incident type for row in csv_data2: print(row) my_cursor.execute("INSERT INTO
incident_type (incident_id, incident_code, incident_type, locality) VALUES(%s, %s, %s,%s)", row) print
("Loaded in incident_type Database")

#Inserting into cops for row in csv_data3: print(row) my_cursor.execute("INSERT INTO cops_info
(cop_id, cop_badge, cop_name, cop_title , cop_district, zip_code, neighborhood) VALUES(%s, %s, %s,
%s, %s, %s, %s)", row) print ("Loaded in cops Database")

#Inserting intolocation for row in csv_data4: print(row) my_cursor.execute("INSERT INTO location
(neighbourhood, zip_code, street) VALUES(%s, %s,%s)", row) print ("Loaded in location Database")

conn.commit() conn.close()
```

Note: The successful table insertion details can be found on the pdf attached after cleaning script.

Final Use Cases and Queries

Use Case 1: View the total number of incidents in Boston

Description: User views the total number of incidents in last 5 years. Actor: User Steps: Actor action: User views the total number of incidents. System Response: Incidents for a Boston location are displayed. Post Condition: System displays all the incidents reported for Boston location.

Count the total number of incidents occured in boston in last 5 years?

```
SELECT count(incident_number) FROM incidents where incident_year between 2018 and
2022;
```

Use Case2: User views top 5 neighborhoods in Boston for highest crime incidents.

Description: User views the top 5 neighborhoods with highest number of incidents. Actor: User Precondition: Steps: Actor action: User views top 5 locations. System Response: Incidents for top 5 locations are displayed. Post Condition: System displays all the incidents reported for user searched criteria.

List the top 5 neighborhoods in Boston with highest crime incidents?

```
SELECT l.neighborhood, count(i.incident_number) as total_incidents FROM location l
RIGHT JOIN incidents i ON l.zip_code = i.zip where i.incident_year = 2022 group by
neighborhood order by count(i.incident_number) desc limit 5;
```

Use Case3: User views the harassment incidents in Boston.

Description: User views the harassment incidents in Boston along with streets. Actor: User Precondition: Steps: Actor action: User views the harassment incidents per street. System Response: Harassment incidents are displayed. Post Condition: System displays all the incidents reported for user searched criteria.

Count the harassment incidents on Boston streets

```
SELECT l.neighborhood, t.incident_type, count(i.incident_number) as total_incidents
FROM incidents i LEFT JOIN incident_type t ON t.incident_id = i.incident_number LEFT
JOIN location l ON l.zip_code = i.zip where t.incident_type = 'Harassment' group by
l.neighborhood order by count(i.incident_number) desc;
```

Use Case4: User views the officers details deployed for a particular location.

Description: User views the officers details for a neighborhood in Boston. Actor: User Precondition: Steps: Actor action: User views officers details. System Response: All the officers details along with name and title are displayed. Post Condition: System displays all the details requested by the user.

Who are the cops in charge for Roxbury?

```
SELECT c.cop_name, c.cop_title, l.neighborhood FROM cops_info c

left JOIN location l ON c.zip_code = l.zip_code where l.neighborhood = 'Roxbury' order
by c.cop_name;
```

Use Case5: User views the incidents for a particular street happened in a year.

Description: User views the incidents details with respect to street. Actor: User Precondition: Steps: Actor action: User views the incidents for Adams St. System Response: Incidents happened in Adams St are displayed. Post Condition: System displays all the incidents reported for user searched criteria.

What is the most recurring incident on Adams Street in a one year period.

```
SELECT count(incident_number), t.incident_type FROM incidents i LEFT JOIN
incident_type t ON i.location = t.locality where t.locality = 'ADAMS ST' and incident_year
between 2020 and 2021 group by t.incident_type order by count(i.incident_number)
desc limit 1;
```

Use Case6: User views the details of the street along with neighborhood and zipcode which marked the highest number of incidents in last 5 year.

Description: User views the incidents details with respect to time period. Actor: User Precondition: Steps: Actor action: User views the highest number of incidents for a time frame. System Response: Which street had highest number of incidents in last 5 years id displayed. Post Condition: System displays all the incidents reported for user searched criteria.

The above use case determines the highly unsafe street in Boston.

```
SELECT count(i.incident_number) as incident_count, i.location, l.neighbourhood,
l.zip_code FROM incidents i RIGHT JOIN location l ON i.zip = l.zip_code where
incident_year <= 2022 and incident_year >=2018 group by i.location, l.neighbourhood,
l.zip_code order by count(incident_number) desc limit 1;
```

Use Case7: User views the details of the year with highest number of incidents.

Description: User views the incidents details with respect to year. Actor: User Precondition: Steps: Actor action: User views the highest number of incidents for a particular year. System Response: Which year marked the highest number of incidents are displayed. Post Condition: System displays all the incidents reported for user searched criteria.

Which year marks the highest number of incidents?

```
        SELECT count(i.incident_number) as incident_count, i.incident_year

        FROM  incidents i RIGHT JOIN location l

        ON i.zip = l.zip_code

        where i.zip = l.zip_code

        group by i.incident_year

        order by count(incident_number) desc

        limit 1;
```

Use Case8: User views the details of the time when most incidents happened.

Description: User views the incidents details with respect to hour. Actor: User Precondition: Steps: Actor action: User views the highest number of incidents between a particular hour. System Response: The range of hours marked the highest number of incidents are displayed. Post Condition: System displays all the incidents reported for user searched criteria.

Between what hours of day most incidents happen?

```
Between what hours of day most incidents happen?

 SELECT count(i.incident_number) as incident_count, i.incident_hour, l.neighbourhood

 FROM  incidents i RIGHT JOIN location l

 ON i.zip = l.zip_code

 where i.zip = l.zip_code

 group by i.incident_hour, l.neighbourhood

order by count(incident_number) desc

limit 1;
```

Use Case9: User views the number of incidents happened after midnight.

Description: User views the incidents details happened after midnight. Actor: User Precondition: Steps: Actor action: User views the highest number of incidents after midnight. System Response: All the incidents happened after midnight are displayed. Post Condition: System displays all the incidents reported for user searched criteria.

How many incidents happen after midnight night?

```
How many incidents happen after midnight night?

  SELECT count(incident_number) from incidents

  where incident_hour between 1 and 6

  group by incident_hour

  order by count(incident_number) desc;
```

VIEWS CREATED FOR THE USECASES

1. Count the total number of incidents occured in boston in last 5 years?

   ```
   VIEW: CREATE VIEW total_incidents AS count(incident_number) FROM incidents

    where incident_year between 2018 and 2022;
   ```

2. List the top 5 neighborhoods in Boston with highest crime incidents?

   ```
   VIEW: CREATE VIEW crime_statistics_nbr AS SELECT l.neighborhood,
    count(i.incident_number) as  total_incidents FROM location l RIGHT JOIN incidents I ON
    l.zip_code = i.zip where i.incident_year = 2022 group by neighborhood order by
    count(i.incident_number) desc limit 5;
   ```

3. Count the harassment incidents on Boston streets

   ```
   VIEW: CREATE VIEW harassment_stats AS
   SELECT l.neighborhood, t.incident_type, count(i.incident_number) as total_incidents
   FROM incidents i LEFT JOIN incident_type t
   ON t.incident_id = i.incident_number
   LEFT JOIN location l
   ON l.zip_code = i.zip
   where t.incident_type = 'Harassment'
   group by l.neighborhood
   order by count(i.incident_number) desc;
   ```

4. Who are the cops in charge for Roxbury nieghbourhood?

   ```
   VIEW: CREATE VIEW cops_info AS
   SELECT  c.cop_name, c.cop_title, l.neighborhood
   FROM cops_info c
   left JOIN location l
   ON c.zip_code = l.zip_code
   where l.neighborhood = 'Roxbury'
   order by c.cop_name;
   ```

5. What is the most recurring incident on Adams Street in a one year period.

   ```
   VIEW: CREATE VIEW recur_incidents AS

    SELECT count(incident_number), t.incident_type
    FROM incidents i LEFT JOIN incident_type t
   ```

```
ON i.location = t.locality
where t.locality = 'ADAMS ST' and incident_year between 2020 and 2021
group by t.incident_type
order by count(i.incident_number) desc limit 1;
```

6. Determine the most unsafe street in Boston.

```
VIEW: CREATE VIEW unsafe_boston AS
SELECT count(i.incident_number) as incident_count, i.location, l.neighbourhood,
l.zip_code
FROM  incidents i RIGHT JOIN location l
ON i.zip = l.zip_code
where incident_year <= 2022 and incident_year >=2018
group by i.location, l.neighbourhood, l.zip_code
order by count(incident_number) desc
limit 1;
```

7. Which year marks the highest number of incidents?

```
VIEW--> CREATE VIEW crime_stats_year AS
SELECT count(i.incident_number) as incident_count, i.incident_year
FROM  incidents i RIGHT JOIN location l
ON i.zip = l.zip_code
where i.zip = l.zip_code
group by i.incident_year
order by count(incident_number) desc
limit 1;
```

8. Between what hours of day most incidents happen?

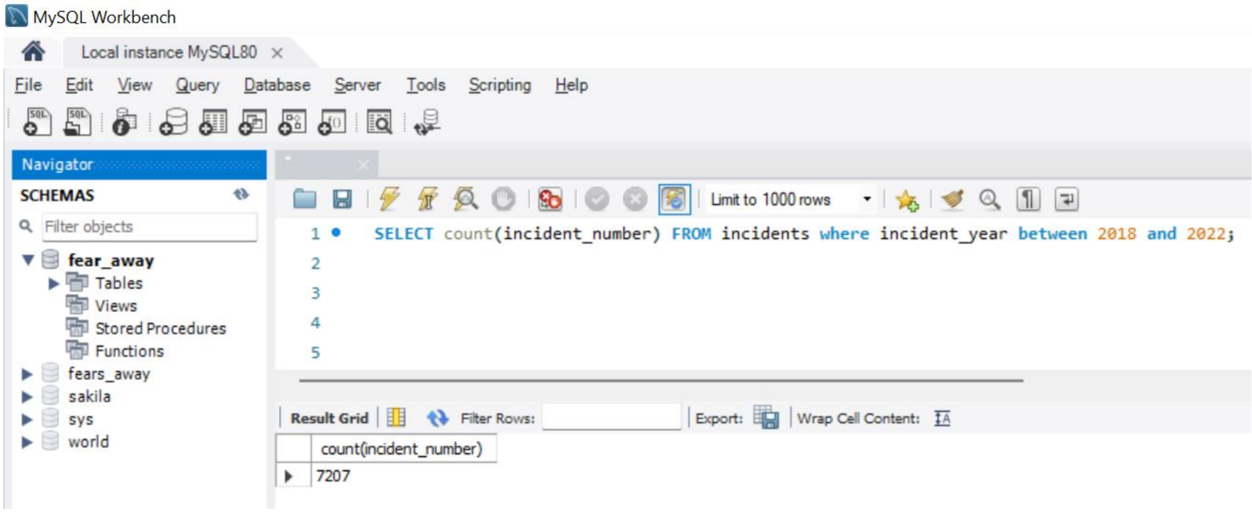
```
VIEW--> CREATE VIEW crime_stat_hour AS

SELECT count(i.incident_number) as incident_count, i.incident_hour, l.neighbourhood,
FROM  incidents i RIGHT JOIN location l
ON i.zip = l.zip_code
where i.zip = l.zip_code
group by i.incident_hour, l.neighbourhood, l.neighbourhood
order by count(incident_number) desc
limit 1;
```

9. How many incidents happen after midnight night?

```
VIEW--> CREATE VIEW crime_stat_night AS
SELECT count(incident_number) from incidents
where incident_hour between 1 and 6
group by incident_hour
order by count(incident_number) desc;
```

Final output addressing project goals

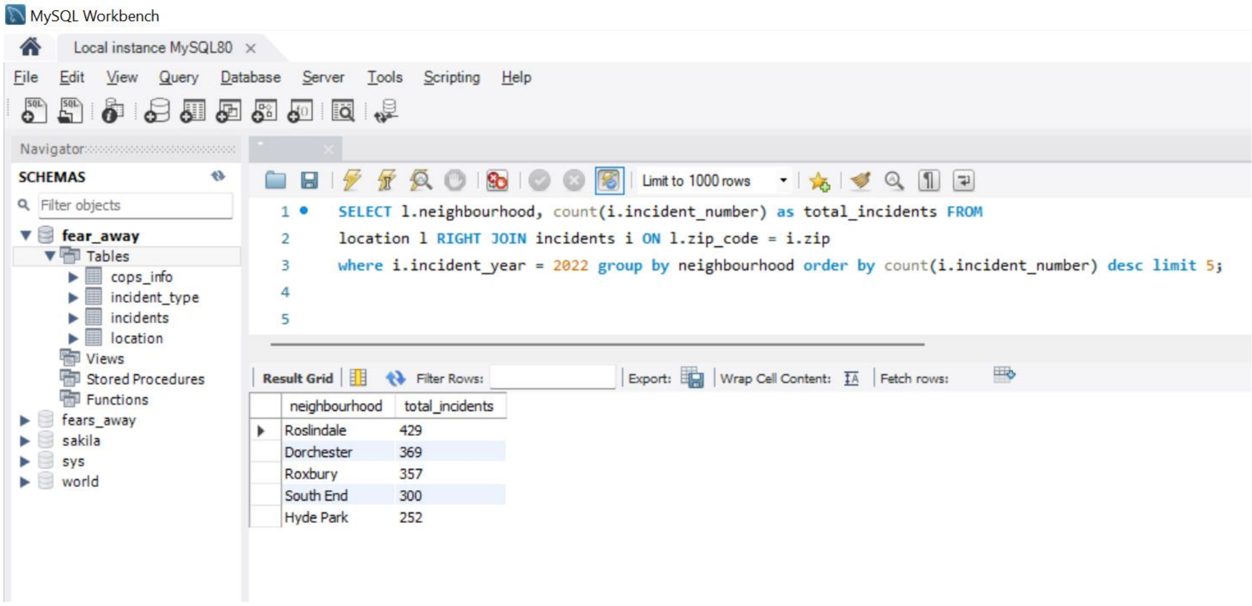
1. What is count of the total number of incidents occurred in Boston in last 5 years?



```
SELECT count(incident_number) FROM incidents where incident_year between 2018 and 2022;
```

```
count(incident_number)
7207
```

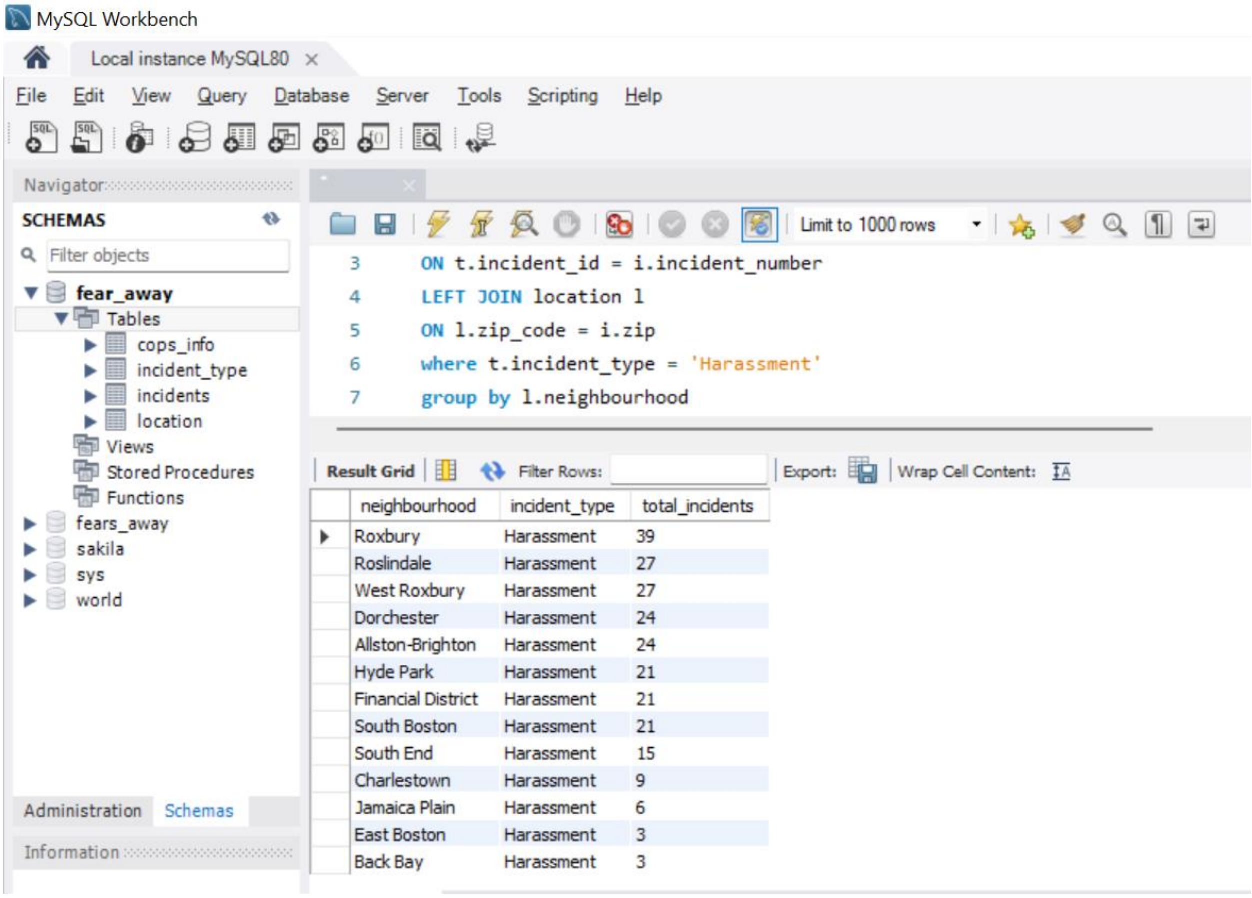
2. What are the top 5 neighborhoods in Boston with highest crime incidents?



```
SELECT l.neighbourhood, count(i.incident_number) as total_incidents FROM
location l RIGHT JOIN incidents i ON l.zip_code = i.zip
where i.incident_year = 2022 group by neighbourhood order by count(i.incident_number) desc limit 5;
```

neighbourhood	total_incidents
Roslindale	429
Dorchester	369
Roxbury	357
South End	300
Hyde Park	252

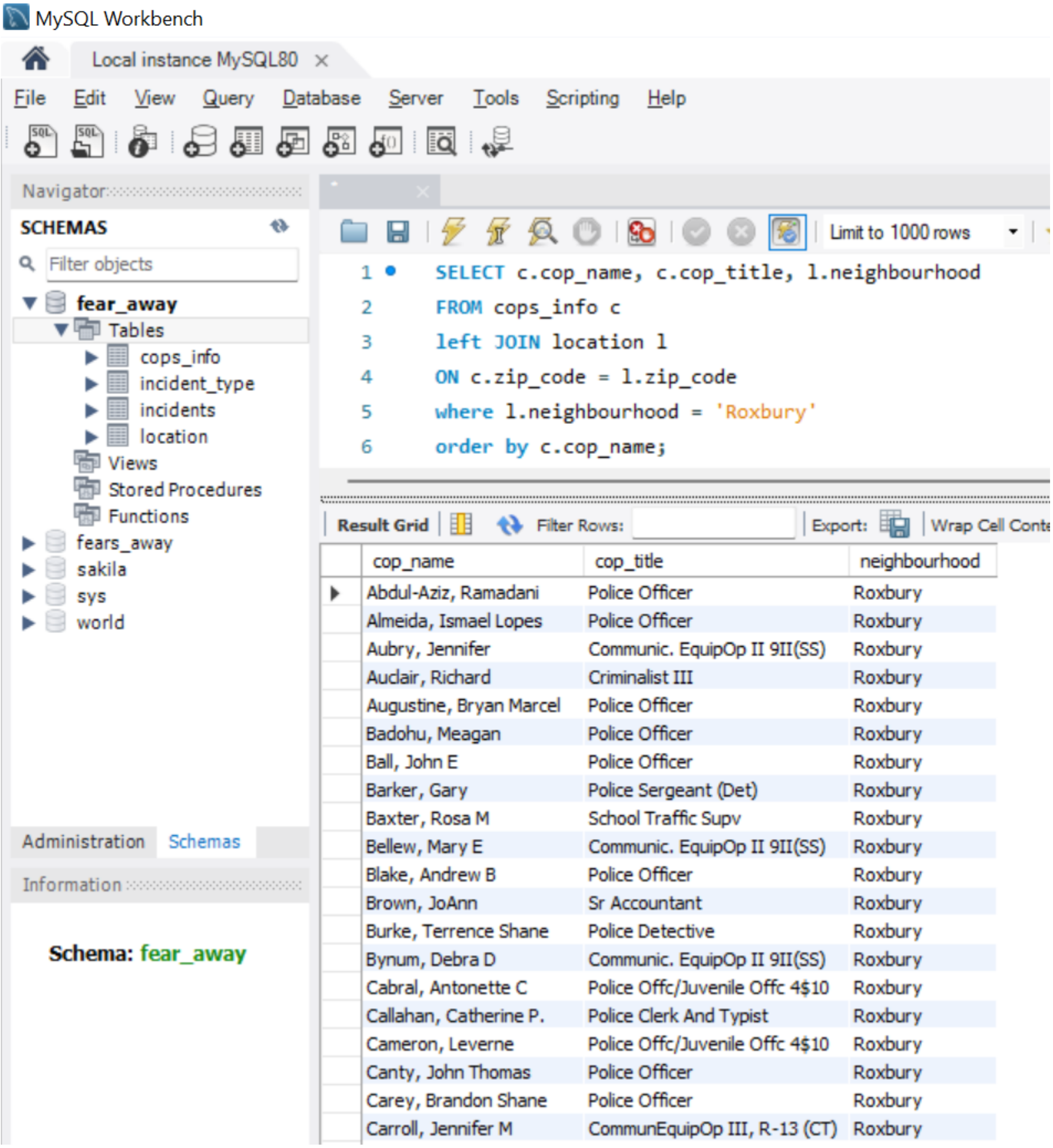
3. How many harassment incidents reported on Boston streets?



```
ON t.incident_id = i.incident_number
LEFT JOIN location l
ON l.zip_code = i.zip
where t.incident_type = 'Harassment'
group by l.neighbourhood
```

neighbourhood	incident_type	total_incidents
Roxbury	Harassment	39
Roslindale	Harassment	27
West Roxbury	Harassment	27
Dorchester	Harassment	24
Allston-Brighton	Harassment	24
Hyde Park	Harassment	21
Financial District	Harassment	21
South Boston	Harassment	21
South End	Harassment	15
Charlestown	Harassment	9
Jamaica Plain	Harassment	6
East Boston	Harassment	3
Back Bay	Harassment	3

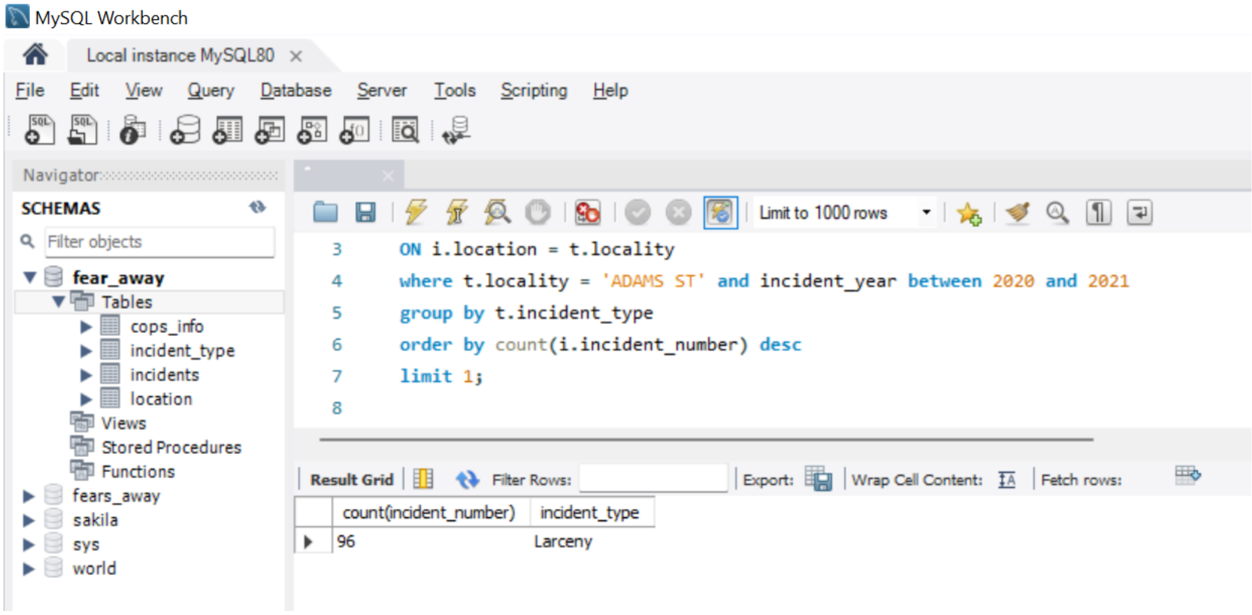
4. Who are the officers deputed for Roxbury neighborhood in Boston?



```sql
SELECT c.cop_name, c.cop_title, l.neighbourhood
FROM cops_info c
left JOIN location l
ON c.zip_code = l.zip_code
where l.neighbourhood = 'Roxbury'
order by c.cop_name;
```

cop_name	cop_title	neighbourhood
Abdul-Aziz, Ramadani	Police Officer	Roxbury
Almeida, Ismael Lopes	Police Officer	Roxbury
Aubry, Jennifer	Communic. EquipOp II 9II(SS)	Roxbury
Auclair, Richard	Criminalist III	Roxbury
Augustine, Bryan Marcel	Police Officer	Roxbury
Badohu, Meagan	Police Officer	Roxbury
Ball, John E	Police Officer	Roxbury
Barker, Gary	Police Sergeant (Det)	Roxbury
Baxter, Rosa M	School Traffic Supv	Roxbury
Bellew, Mary E	Communic. EquipOp II 9II(SS)	Roxbury
Blake, Andrew B	Police Officer	Roxbury
Brown, JoAnn	Sr Accountant	Roxbury
Burke, Terrence Shane	Police Detective	Roxbury
Bynum, Debra D	Communic. EquipOp II 9II(SS)	Roxbury
Cabral, Antonette C	Police Offc/Juvenile Offc 4$10	Roxbury
Callahan, Catherine P.	Police Clerk And Typist	Roxbury
Cameron, Leverne	Police Offc/Juvenile Offc 4$10	Roxbury
Canty, John Thomas	Police Officer	Roxbury
Carey, Brandon Shane	Police Officer	Roxbury
Carroll, Jennifer M	CommunEquipOp III, R-13 (CT)	Roxbury

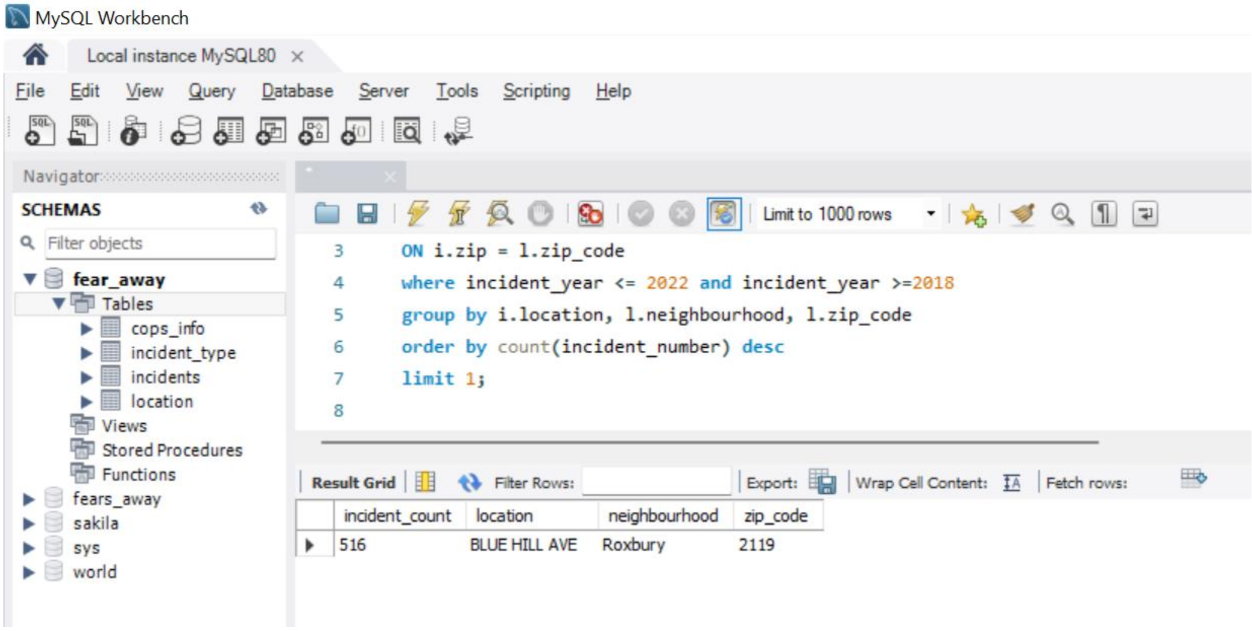
5. What is the most common incident on Adams Street in a one-year period?



```sql
ON i.location = t.locality
where t.locality = 'ADAMS ST' and incident_year between 2020 and 2021
group by t.incident_type
order by count(i.incident_number) desc
limit 1;
```

count(incident_number)	incident_type
96	Larceny

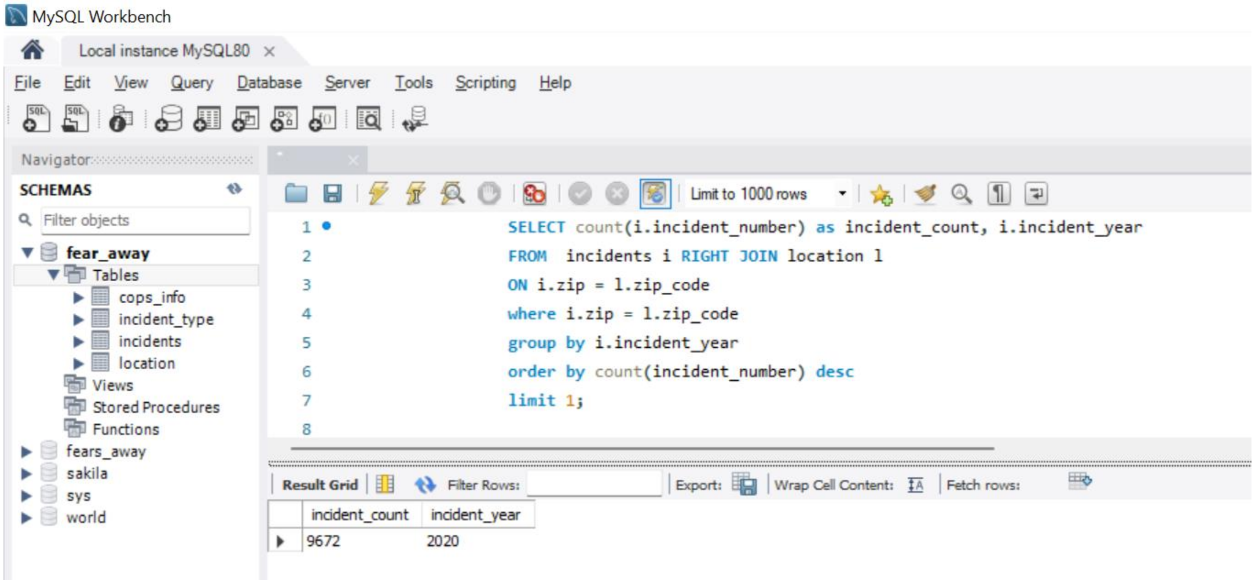
6. Which is the most unsafe street in Boston?



```sql
ON i.zip = l.zip_code
where incident_year <= 2022 and incident_year >=2018
group by i.location, l.neighbourhood, l.zip_code
order by count(incident_number) desc
limit 1;
```

incident_count	location	neighbourhood	zip_code
516	BLUE HILL AVE	Roxbury	2119

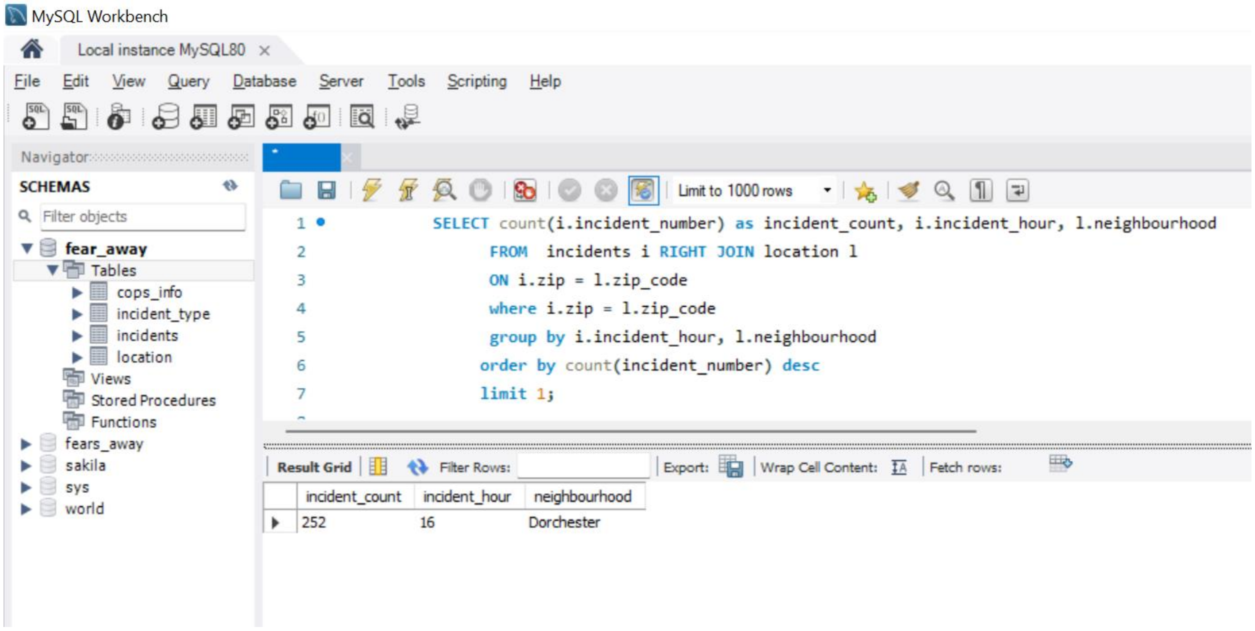
7. Which year marks the highest number of incidents in Boston?



```sql
SELECT count(i.incident_number) as incident_count, i.incident_year
FROM  incidents i RIGHT JOIN location l
ON i.zip = l.zip_code
where i.zip = l.zip_code
group by i.incident_year
order by count(incident_number) desc
limit 1;
```

```
incident_count  incident_year
9672            2020
```

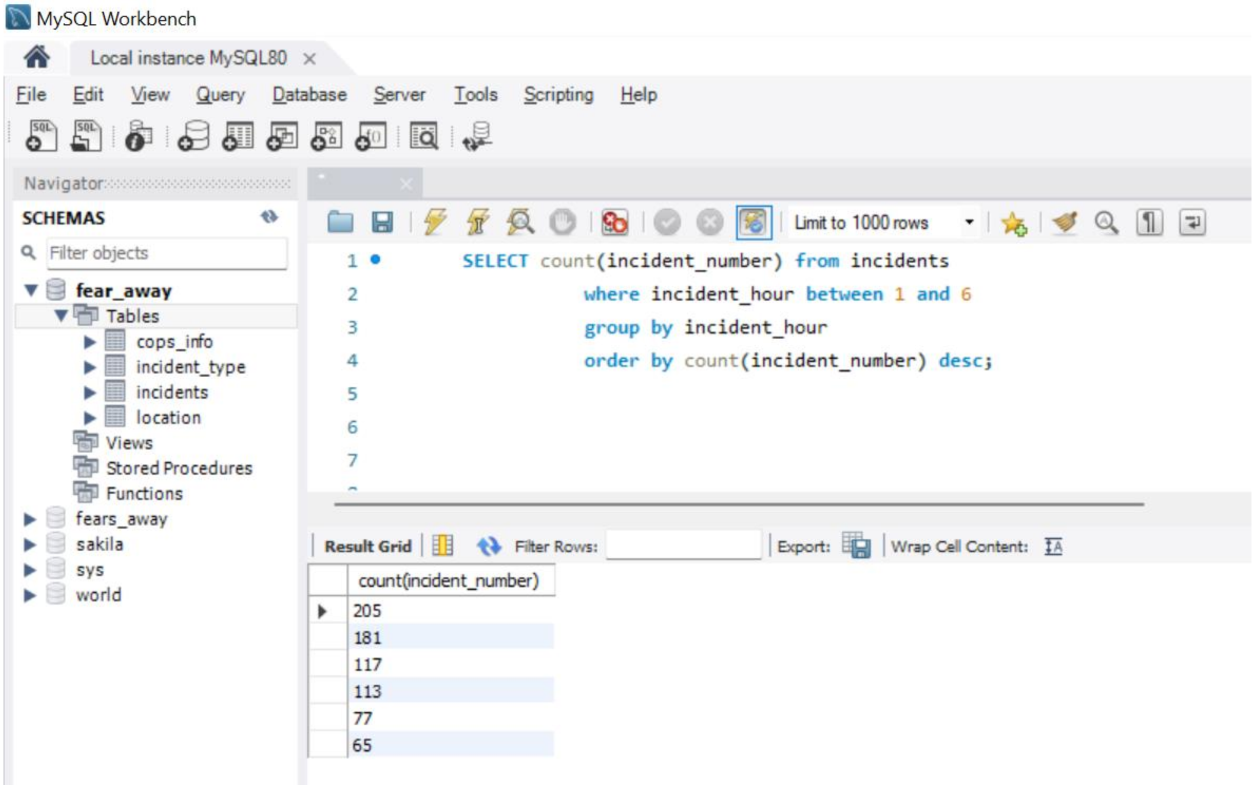
8. Between what hours of day most incidents happen in Boston?



```sql
SELECT count(i.incident_number) as incident_count, i.incident_hour, l.neighbourhood
      FROM  incidents i RIGHT JOIN location l
      ON i.zip = l.zip_code
      where i.zip = l.zip_code
      group by i.incident_hour, l.neighbourhood
     order by count(incident_number) desc
     limit 1;
```

```
incident_count  incident_hour  neighbourhood
252             16             Dorchester
```

9. How many incidents reported after midnight night?



```
SELECT count(incident_number) from incidents
        where incident_hour between 1 and 6
        group by incident_hour
        order by count(incident_number) desc;
```

count(incident_number)
205
181
117
113
77
65

Note : I have tried including all the documents here for anything else please refer to my git hub repository.

https://github.com/Neha-Chandel/Fears-Away/tree/main/Final_Project

Thank You! ☺