SQL PROJECT

POLICE REPORTING SYSTEM

NAME : VAIBHAV ANAND JADHAV
COURSE : DATA SCIENCE & ANALYTICS WITH AI

ABOUT THE DATASET :

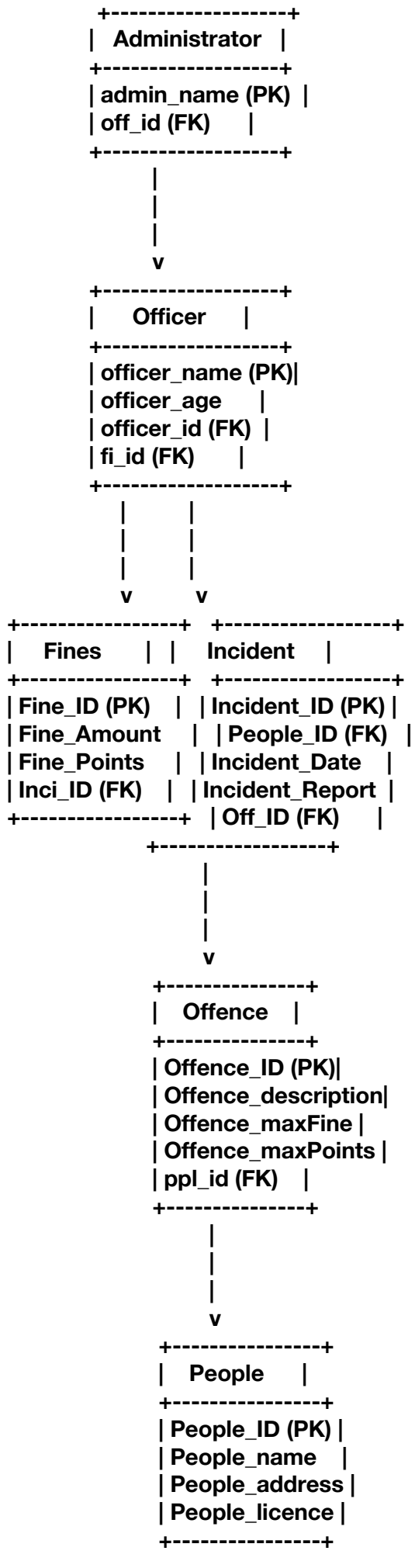
DATASET SOURCE : GITHUB

Police deals with a lot of cases in a day and there are various activities involved in day-to-day working of police officers such as community engagegment, responding to emergencies, investing crimes, writing reports etc. This project aims to create and manage a Relational Database Management System which handles the police reporting system effectively.

AVAILABLE TABLES:

- ✓ **Administrator**
- ✓ **Officer**
- ✓ **Fines**
- ✓ **Incidents**
- ✓ **Offence**
- ✓ **People**

ENTITY-RELATIONSHIP DIAGRAM:


Administrator
admin_name (PK)
off_id (FK)
Officer
officer_name (PK)
officer_age
officer_id (FK)
fi_id (FK)
Fines
Fine_ID (PK)
Fine_Amount
Fine_Points
Inci_ID (FK)
Incident
Incident_ID (PK)
People_ID (FK)
Incident_Date
Incident_Report
Off_ID (FK)
Offence
Offence_ID (PK)
Offence_description
Offence_maxFine
Offence_maxPoints
ppl_id (FK)
People
People_ID (PK)
People_name
People_address
People_licence

Creating the Database and Tables :

```
CREATE DATABASE IF NOT EXISTS officer;
USE officer;
```

```
CREATE TABLE if not exists Administrator
(admin_name varchar(40) NOT NULL,
off_id int not null);

CREATE TABLE if not exists Officer (
 officer_name varchar(40) NOT NULL,
 officer_age int NOT NULL,
  officer_id int not null,
  fi_id int not null
);

CREATE TABLE if not exists Fines (
  Fine_ID int NOT NULL,
  Fine_Amount int NOT NULL,
  Fine_Points int NOT NULL,
  Inci_ID int NOT NULL
);

CREATE TABLE if not exists Incident (
  Incident_ID int NOT NULL,
  People_ID int DEFAULT NULL,
  Incident_Date date NOT NULL,
  Incident_Report varchar(500) NOT NULL,
  Off_ID int DEFAULT NULL
);

CREATE TABLE if not exists Offence (
  Offence_ID int(11) NOT NULL,
  Offence_description varchar(50) NOT NULL,
  Offence_maxFine int(11) NOT NULL,
  Offence_maxPoints int(11) NOT NULL,
  ppl_id int not null
);
```

```
CREATE TABLE if not exists People (
  People_ID int(11) NOT NULL,
  People_name varchar(50) NOT NULL,
  People_address varchar(50) DEFAULT NULL,
  People_licence varchar(16) DEFAULT NULL
);
```

Inserting the values inTables :

```sql
INSERT INTO Administrator values
('Vaibhav',101),
('Suraj',102),
('Siraj',103),
('Suyash',104),
('Sayali',105),
('Vaibhav',106),
('Suraj',107),
('Siraj',108),
('Suyash',109),
('Sayali',110);
```

```sql
INSERT INTO Officer values
("santosh",38,101,201),
("Anil",42,102,202),
("Abdul",30,103,203),
("Harshit",40,104,204),
("Piyush",37,105,205),
("Anand",45,106,206),
("vishal",44,107,207),
("Surya",33,108,208),
("Vikas",45,109,209),
("Ashok",39,110,210);
```

```sql
INSERT INTO Fines values
(201,2000,100,301),
(202,2500,120,302),
(203,1000,130,303),
(204,1700,160,304),
(205,5000,190,305),
(206,3700,200,306),
(207,500,120,307),
(208,2050,235,308),
(209,5500,290,309),
(210,4000,300,310);
```

```
INSERT INTO Incident values
(301,001,"2019-12-01","Two burglars robbed bike from thane",037),
(302,002,"2019-01-22","Two year old boy was kidnapped near andheri station",156),
(303,003,"2019-09-04","street fight among school boys of Dps school at seawoods",288),
(304,004,"2019-06-11","Hit and run case on pune highway",09),
(305,005,"2019-11-01","22 year boy was killed in car accident at kharghar by a drunk man",118),
(306,006,"2019-02-01","group of boys bullying classmate in virar leads to suicide attempt of victim",391),
(307,007,"2019-07-01","chain snatchers attepmts theft of jewellery at kurla",147),
(308,008,"2019-04-01","bike theft in andheri ",381),
(309,009,"2019-12-01","half murder at virar",129),
(310,010,"2019-09-01","A female was molested in taloja",307);

INSERT INTO Offence VALUES
(037, 'Theft', 1000, 3,404),
(156, 'Kidnapping', 2500, 6,504),
(288, 'streer fight', 500, 9,604),
(09, 'Accident', 500, 7,704),
(118, 'Murder', 10000, 11,804),
(391, 'Ragging', 10000, 8,904),
(147, 'Theft', 10000, 4,304),
(381, 'Robbery', 1000, 3,204),
(129, 'Half murder', 500, 2,104),
(307, 'Molestation', 1000, 10,94);

INSERT INTO People VALUES
(404, 'James Smith', '23 Barnsdale Road, Leicester', 'SMITH92LDOFJJ829'),
(504, 'Jennifer Allen', '46 Bramcote Drive, Nottingham', 'ALLEN88K23KLR9B3'),
(604, 'John Myers', '323 Derby Road, Nottingham', 'MYERS99JDW8REWL3'),
(704, 'James Smith', '26 Devonshire Avenue, Nottingham', 'SMITHR004JFS20TR'),
(804, 'Terry Brown', '7 Clarke Rd, Nottingham', 'BROWND3PJJ39DLFG'),
(904, 'Mary Adams', '38 Thurman St, Nottingham', 'ADAMSH9O3JRHH107'),
(304, 'Neil Becker', '6 Fairfax Close, Nottingham', 'BECKE88UPR840F9R'),
(204, 'Angela Smith', '30 Avenue Road, Grantham', 'SMITH222LE9FJ5DS'),
(104, 'Varun aron', '6 Fairfax Close, Nottingham', 'BECKE88UPR840F9R'),
(94, 'steve Smith', '30 Avenue Road, Grantham', 'SMITH222LE9FJ5DS');
```

Query 1. Display structure and Data of each table

```
Desc administrator;
```

Result Grid Filter Rows: Search Export:

Field	Type	Null	Key	Default	Extra
admin_name	varchar(40)	NO		NULL	
off_id	int	NO		NULL	

```
select * from Administrator;
```

Result Grid Filter Rows:

admin_name	off_id
Vaibhav	101
Suraj	102
Siraj	103
Suyash	104
Sayali	105
Vaibhav	106
Suraj	107
Siraj	108
Suyash	109
Sayali	110

```
desc Officer;
```

Result Grid Filter Rows: Search Export:

Field	Type	Null	Key	Default	Extra
admin_name	varchar(40)	NO		NULL	
off_id	int	NO		NULL	

```
select *from officer;
```

Result Grid Filter Rows: Search

officer_name	officer_age	officer_id	fi_id
santosh	38	101	201
Anil	42	102	202
Abdul	30	103	203
Harshit	40	104	204
Piyush	37	105	205
Anand	45	106	206
vishal	44	107	207
Surya	33	108	208
Vikas	45	109	209
Ashok	39	110	210

```
desc fines;
```

Result Grid Filter Rows: Search

Field	Type	Null	Key	Default	Extra
Fine_ID	int	NO		NULL	
Fine_Amount	int	NO		NULL	
Fine_Points	int	NO		NULL	
Inci_ID	int	NO		NULL	

```
select* from fines;
```

Result Grid Filter Rows: Search

Fine_ID	Fine_Amount	Fine_Points	Inci_ID
201	2000	100	301
202	2500	120	302
203	1000	130	303
204	1700	160	304
205	5000	190	305
206	3700	200	306
207	500	120	307
208	2050	235	308
209	5500	290	309
210	4000	300	310

```
desc incident;
```

Result Grid Filter Rows: Search Expo

Field	Type	Null	Key	Default	Extra
Incident_ID	int	NO		NULL	
People_ID	int	YES		NULL	
Incident_Date	date	NO		NULL	
Incident_Report	varchar(500)	NO		NULL	
Off_ID	int	YES		NULL	

```
select* from incident;
```

Result Grid Filter Rows: Search Export:

Incident_ID	People_ID	Incident_Da...	Incident_Report	Off_ID
301	1	2019-12-01	Two burglars robbed bike from thane	37
302	2	2019-01-22	Two year old boy was kidnapped near andheri s...	156
303	3	2019-09-04	street fight among school boys of Dps school at...	288
304	4	2019-06-11	Hit and run case on pune highway	9
305	5	2019-11-01	22 year boy was killed in car accident at khargh...	118
306	6	2019-02-01	group of boys bullying classmate in virar leads t...	391
307	7	2019-07-01	chain snatchers attepmts theft of jewellery at kurla	147
308	8	2019-04-01	bike theft in andheri	381
309	9	2019-12-01	half murder at virar	129
310	10	2019-09-01	A female was molested in taloja	307

```
124 • desc Offence;
125
126
127
```

100% 14:124

Result Grid Filter Rows: Search Export

Field	Type	Null	Key	Default	Extra
Offence_ID	int	NO		NULL	
Offence_description	varchar(50)	NO		NULL	
Offence_maxFine	int	NO		NULL	
Offence_maxPoints	int	NO		NULL	
ppl_id	int	NO		NULL	

```
122 • select* from Offence;
123
```

100% 22:122

Result Grid Filter Rows: Search Export:

Offence_ID	Offence_descripti...	Offence_maxFine	Offence_maxPoi...	ppl_id
37	Theft	1000	3	404
156	Kidnapping	2500	6	504
288	streer fight	500	9	604
9	Accident	500	7	704
118	Murder	10000	11	804
391	Ragging	10000	8	904
147	Theft	10000	4	304
381	Robbery	1000	3	204
129	Half murder	500	2	104
307	Molestation	1000	10	94

```
122 • desc People;
123
```

100% 13:122

Result Grid Filter Rows: Search Export:

Field	Type	Null	Key	Default	Extra
People_ID	int	NO		NULL	
People_name	varchar(50)	NO		NULL	
People_address	varchar(50)	YES		NULL	
People_licence	varchar(16)	YES		NULL	

```
122 •  select* from People;
123
124
```

100% 21:122

Result Grid Filter Rows: Search Export:

People_ID	People_name	People_address	People_licence
404	James Smith	23 Barnsdale Road, Leicester	SMITH92LDOFJJ829
504	Jennifer Allen	46 Bramcote Drive, Nottingham	ALLEN88K23KLR9B3
604	John Myers	323 Derby Road, Nottingham	MYERS99JDW8REWL3
704	James Smith	26 Devonshire Avenue, Nottingham	SMITHR004JFS20TR
804	Terry Brown	7 Clarke Rd, Nottingham	BROWND3PJJ39DLFG
904	Mary Adams	38 Thurman St, Nottingham	ADAMSH9O3JRHH107
304	Neil Becker	6 Fairfax Close, Nottingham	BECKE88UPR840F9R
204	Angela Smith	30 Avenue Road, Grantham	SMITH222LE9FJ5DS
104	Varun aron	6 Fairfax Close, Nottingham	BECKE88UPR840F9R
94	steve Smith	30 Avenue Road, Grantham	SMITH222LE9FJ5DS

Query 2. Count the number of administrators.

```
121 •  SELECT COUNT(*) AS num_administrators FROM Administrator;
122
```

100% 58:121

Result Grid Filter Rows: Search Export:

num_administrat...
10

Query 3.Find the maximum fine amount.

```
123 •  SELECT MAX(Fine_Amount) AS max_fine_amount FROM Fines;
124
```

100% 55:123

Result Grid Filter Rows: Search Export:

max_fine_amou...
5500

Query 4. Find the average age of officers.

```
125 •  SELECT AVG(officer_age) AS avg_officer_age FROM Officer;
126
127
128
```

100% 57:125

Result Grid Filter Rows: Search Export:

avg_officer_a...
39.3000

Query 5. Select incident records along with the timestamp when they occurred.

```
127 •  SELECT Incident_ID, Incident_Date, Incident_Report FROM Incident;
128
129
130
```

100% 66:127

Result Grid Filter Rows: Search Export:

Incident_ID	Incident_Da...	Incident_Report
301	2019-12-01	Two burglars robbed bike from thane
302	2019-01-22	Two year old boy was kidnapped near andheri s…
303	2019-09-04	street fight among school boys of Dps school at…
304	2019-06-11	Hit and run case on pune highway
305	2019-11-01	22 year boy was killed in car accident at khargh…
306	2019-02-01	group of boys bullying classmate in virar leads t…
307	2019-07-01	chain snatchers attepmts theft of jewellery at kurla
308	2019-04-01	bike theft in andheri
309	2019-12-01	half murder at virar
310	2019-09-01	A female was molested in taloja

Query 6. Find administrators whose names start with 'S'.

```
129 •  SELECT * FROM Administrator WHERE admin_name LIKE 'S%';
130
```

100% 56:129

Result Grid Filter Rows: Search Export:

admin_name	off_id
Suraj	102
Siraj	103
Suyash	104
Sayali	105
Suraj	107
Siraj	108
Suyash	109
Sayali	110

Query 7. Find incidents where the incident report contains the word 'theft'.

```
131 •  SELECT * FROM Incident WHERE Incident_Report LIKE '%theft%';
132
```

100% 61:131

Result Grid Filter Rows: Search Export:

Incident_ID	People_ID	Incident_Da...	Incident_Report	Off_ID
307	7	2019-07-01	chain snatchers attepmts theft of jewellery at kurla	147
308	8	2019-04-01	bike theft in andheri	381

Query 8. Join fines and incidents based on incident IDs.

```
133 •  SELECT F.*, I.Incident_Report
134    FROM Fines F
135    INNER JOIN Incident I ON F.Inci_ID = I.Incident_ID;
136
137
```

100% 52:135

Result Grid Filter Rows: Search Export:

Fine_ID	Fine_Amount	Fine_Points	Inci_ID	Incident_Report
201	2000	100	301	Two burglars robbed bike from thane
202	2500	120	302	Two year old boy was kidnapped near andheri s…
203	1000	130	303	street fight among school boys of Dps school at…
204	1700	160	304	Hit and run case on pune highway
205	5000	190	305	22 year boy was killed in car accident at khargh…
206	3700	200	306	group of boys bullying classmate in virar leads t…
207	500	120	307	chain snatchers attepmts theft of jewellery at kurla
208	2050	235	308	bike theft in andheri
209	5500	290	309	half murder at virar
210	4000	300	310	A female was molested in taloja

Query 9. Join people and offences based on people IDs.

```
137 •  SELECT P.*, O.Offence_description
138    FROM People P
139    INNER JOIN Offence O ON P.People_ID = O.ppl_id;
140
141
142
```

100% 48:139

Result Grid Filter Rows: Search Export:

People_ID	People_name	People_address	People_licence	Offence_descripti...
404	James Smith	23 Barnsdale Road, Leicester	SMITH92LDOFJJ829	Theft
504	Jennifer Allen	46 Bramcote Drive, Nottingham	ALLEN88K23KLR9B3	Kidnapping
604	John Myers	323 Derby Road, Nottingham	MYERS99JDW8REWL3	streer fight
704	James Smith	26 Devonshire Avenue, Nottingham	SMITHR004JFS20TR	Accident
804	Terry Brown	7 Clarke Rd, Nottingham	BROWND3PJJ39DLFG	Murder
904	Mary Adams	38 Thurman St, Nottingham	ADAMSH9O3JRHH107	Ragging
304	Neil Becker	6 Fairfax Close, Nottingham	BECKE88UPR840F9R	Theft
204	Angela Smith	30 Avenue Road, Grantham	SMITH222LE9FJ5DS	Robbery
104	Varun aron	6 Fairfax Close, Nottingham	BECKE88UPR840F9R	Half murder
94	steve Smith	30 Avenue Road, Grantham	SMITH222LE9FJ5DS	Molestation

Query 10. Rank officers based on their ages.

```
141 •  SELECT officer_name, officer_age, RANK() OVER (ORDER BY officer_age DESC) AS age_rank FROM Officer;
142
143
144
```

100% 100:141

Result Grid Filter Rows: Search Export:

officer_name	officer_age	age_rank
Anand	45	1
Vikas	45	1
vishal	44	3
Anil	42	4
Harshit	40	5
Ashok	39	6
santosh	38	7
Piyush	37	8
Surya	33	9
Abdul	30	10

Query 11. Rank fines based on fine amounts.

```
143 •  SELECT Fine_ID, Fine_Amount, RANK() OVER (ORDER BY Fine_Amount DESC) AS fine_rank FROM Fines;
144
```

100% 94:143

Result Grid Filter Rows: Search Export:

Fine_ID	Fine_Amount	fine_rank
209	5500	1
205	5000	2
210	4000	3
206	3700	4
202	2500	5
208	2050	6
201	2000	7
204	1700	8
203	1000	9
207	500	10

Query 12. Select distinct officer ages.

```
145 •  SELECT DISTINCT officer_age FROM Officer;
146
147
```

100% | 42:145

Result Grid | Filter Rows: Search | Export:

officer_age
38
42
30
40
37
45
44
33
39

Query 13. Select distinct incident dates.

```
147 •  SELECT DISTINCT Incident_Date FROM Incident;
148
149
```

100% | 45:147

Result Grid | Filter Rows: Search | Export:

Incident_Da...
2019-12-01
2019-01-22
2019-09-04
2019-06-11
2019-11-01
2019-02-01
2019-07-01
2019-04-01
2019-09-01

Query 14. Add a new column 'email' to the People table.

```
149 •  ALTER TABLE People ADD COLUMN email varchar(100);
150 •  desc people;
151
```

100% 13:150

Result Grid Filter Rows: Search Export:

Field	Type	Null	Key	Default	Extra
People_ID	int	NO		NULL	
People_name	varchar(50)	NO		NULL	
People_address	varchar(50)	YES		NULL	
People_licence	varchar(16)	YES		NULL	
email	varchar(100)	YES		NULL	

Query 15. Write a query to find the top 5 offenses with the highest maximum fine amounts.

```
152 •  select Offence_description, Offence_maxFine
153    from Offence
154    order by Offence_maxFine desc
155    limit 5;
156
157
```

100% 9:155

Result Grid Filter Rows: Search Export:

Offence_descripti...	Offence_maxFine
Murder	10000
Ragging	10000
Theft	10000
Kidnapping	2500
Theft	1000

Query 16. Count the number of incidents reported per month.

```
157 •  SELECT MONTH(Incident_Date) AS month, COUNT(*) AS num_incidents
158    FROM Incident
159    GROUP BY MONTH(Incident_Date);
160
161
```

100% 31:159

Result Grid Filter Rows: Search Export:

month	num_inciden...
12	2
1	1
9	2
6	1
11	1
2	1
7	1
4	1

Query 17. Combine officer names from two different tables.

```
161 •  SELECT admin_name AS name FROM Administrator
       UNION
       SELECT officer_name FROM Officer;
165
```

100% 34:163

Result Grid Filter Rows: Search Export:

name
Vaibhav
Suraj
Siraj
Suyash
Sayali
santosh
Anil
Abdul
Harshit
Piyush
Anand
vishal
Surya
Vikas
Ashok

Query 18. Select all administrators and officers sorted by their names in ascending order:

```
165 •  SELECT admin_name AS name, 'Administrator' AS role FROM Administrator
166    UNION ALL
167    SELECT officer_name AS name, 'Officer' AS role FROM Officer
168    ORDER BY name ASC;
169
```

100% 19:168

Result Grid Filter Rows: Search Export:

name	role
Abdul	Officer
Anand	Officer
Anil	Officer
Ashok	Officer
Harshit	Officer
Piyush	Officer
santosh	Officer
Sayali	Administrator
Sayali	Administrator
Siraj	Administrator
Siraj	Administrator
Suraj	Administrator
Suraj	Administrator
Surya	Officer
Suyash	Administrator
Suyash	Administrator
Vaibhav	Administrator
Vaibhav	Administrator
Vikas	Officer
vishal	Officer

Query 19. Select all people with duplicate addresses:

```
170 •  SELECT * FROM People WHERE People_address IN (SELECT People_address FROM People GROUP BY People_address HAVING COUNT(*) > 1);
171
172
173
```

100% 126:170

Result Grid Filter Rows: Search Export:

People_ID	People_name	People_address	People_licence	email
304	Neil Becker	6 Fairfax Close, Nottingham	BECKE88UPR840F9R	NULL
204	Angela Smith	30 Avenue Road, Grantham	SMITH222LE9FJ5DS	NULL
104	Varun aron	6 Fairfax Close, Nottingham	BECKE88UPR840F9R	NULL
94	steve Smith	30 Avenue Road, Grantham	SMITH222LE9FJ5DS	NULL

Query 20. Select all officers with ages between 35 and 40:

```
172 •   SELECT * FROM Officer WHERE officer_age BETWEEN 35 AND 40;
173
174
```

100% 59:172

Result Grid Filter Rows: Search Export:

officer_name	officer_age	officer_id	fi_id
santosh	38	101	201
Harshit	40	104	204
Piyush	37	105	205
Ashok	39	110	210