



# TRAFFIC TICKET MANAGEMENT

Pranay Lulla  
pplulla@syr.edu

**Project Summary:**

Actively, there many drivers who often receive traffic tickets for the violation of traffic rules and regulations. A common driver is annoyed as he/she has to call the court of the county where he/she is given a ticket. There is no database which retrieves the details of the ticket given to the driver and the number of points on the driver's license. This project is aimed to develop a database for all kinds of traffic violations, to get the status of the ticket, and number of traffic violation points on the driver's license. Therefore, this project resides in the US government industry and act as a mediator between the US government and the people of US.

This system will store the data of tickets and the information related to that such as the details of the officer who has issued the ticket, the section under which the ticket was issued. It will also store the data of court in which the user is supposed to visit once he/she pleads not guilty. Data such as the address of the court and the date on which the driver has the trial. Furthermore, it will also store the details of the description of offences and the possible penalties related to them. So, the driver charged with the offence must be aware of the consequences.

Drivers would be able to retrieve the details of ticket, court and officer just by entering the ticket number. Also, the validity of licenses will be suspended automatically if the points on license exceeds 12. Drivers would be able to get the count and details of the tickets on their license.

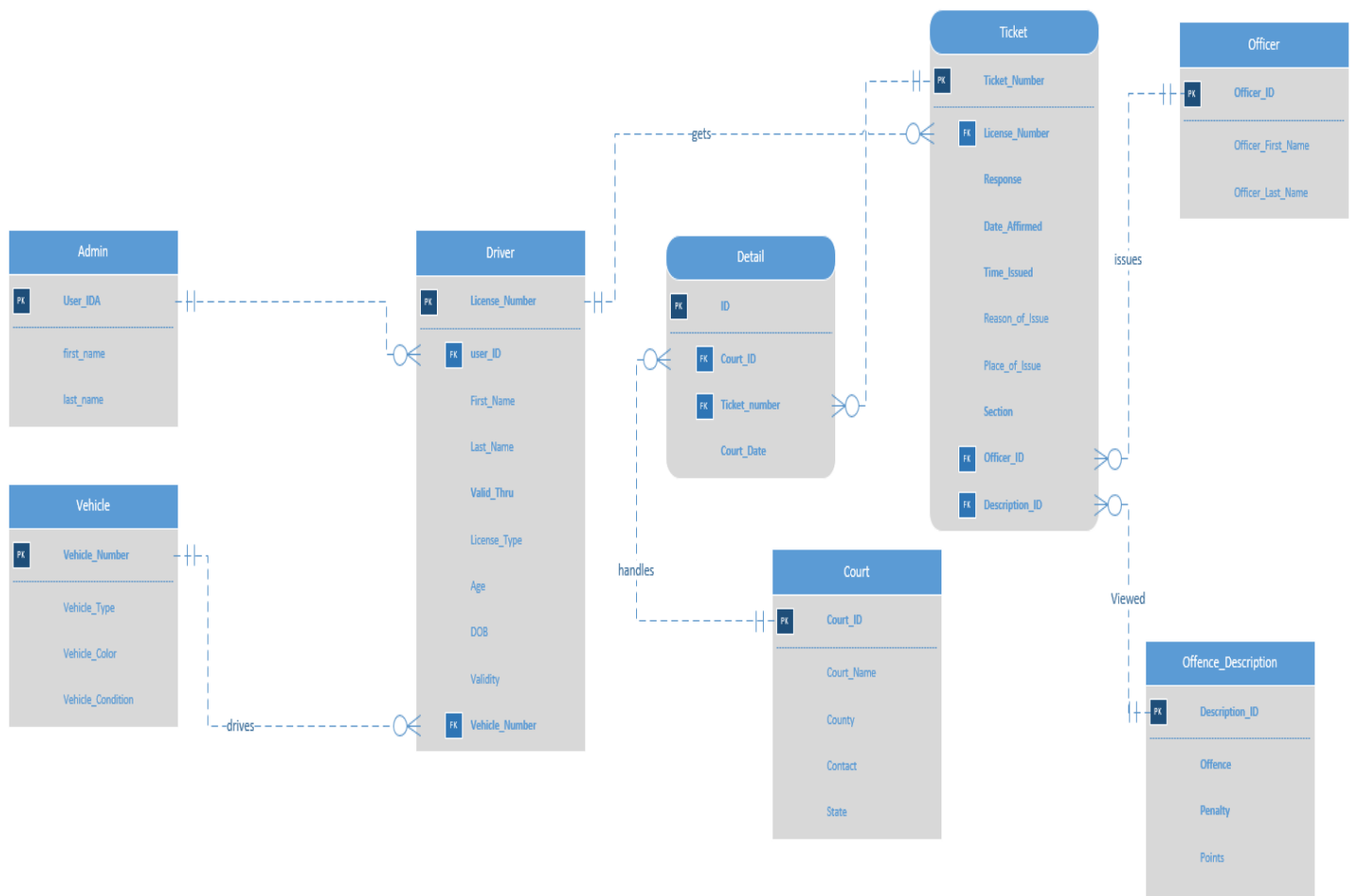
Entities & Attributes	Description
<b><u>Data Object:</u></b> <b>Traffic Ticket Management System</b>	The database that contains all the tables and relations that build the traffic ticket management system.
<b>Driver</b>	<b>Child entity of user. Primary user of the system. Details of driver's license.</b>
License_Number (PK) Valid_Thru (Required) First_Name Last_Name License_Type Age DOB Vehicle_Number (FK) Validity	<b>Primary Key:</b> Each driver must have a license number. The expiry date of driver's license. <b>Valid Thru:</b> It the expiry date of License  <b>Foreign Key:</b> Each driver will be driving a single vehicle at the time of ticket issue.  <b>Validity:</b> It shows whether the License is valid or not
<b>Ticket</b>	<b>This entity provides the relation between driver and officer. The driver gets a ticket and ticket is given by a officer.</b>
Ticket_Number (PK)  Date_Affirmed (Required) Time_Issued(Required) Section (Required) Reason_of_Issue	<b>Primary Key:</b> Each ticket is associated with a number which gives certain details of the ticket.  <b>Date_Affirmed:</b> Date on which the ticket was issued  <b>Time:</b> Time at which the ticket was issued

Last_date (Required) Place_of_Issue (Required)  License_Number (FK)  Officer_ID (FK)  Response (Guilty or Not Guilty) (Required)  Description_ID (Required)	<b>Section:</b> This portrays the law in which driver is penalized.  Last_date: Last_date is final date to mail the ticket with response.  <b>Foreign Key:</b>  <b>License_Number:</b> Associated with the entity Driver. The license on which the ticket was issued.  <b>Officer_ID:</b> Associated with the entity Officer.  <b>Description_ID:</b> Associated with the entity Offence Description  The officer who issued the ticket.  Response is the response of driver on the ticket, whether the driver has pleaded guilty or not guilty. This is a required attribute.
<b>Officer</b>	<b>Details of ticket issuing person</b>
Officer_ID (PK)  first_name last_name	<b>Primary key:</b> ID of the officer who issued the ticket.
<b>Court</b>	<b>The details of the court a driver is supposed to visit.</b>
Court_ID (PK)  Court_Name County	<b>Primary Key:</b> The id of the court in which the driver is supposed to visit.   County: Area in which the ticket was issued

Contact State	
<b>Detail</b>	<b>This entity shows the relation between the driver and the court which driver is supposed to visit for trial.</b>
ID (PK)  Ticket_Number (FK) Court_ID (FK) court_date	<b>Primary Key:</b> ID of the detail which can get by combining both foreign keys.  <b>Foreign Key:</b> Ticket_Number & Court_ID combined gives the detail of court_date.
<b>Vehicle</b>	<b>Stores the information of vehicle driven at the time of ticket.</b>
Vehicle_Number (PK)  Vehicle_type  Vehicle_color Vehicle_condition	<b>Primary Key:</b> The unique number assigned to each vehicle.  Vehicle_type: Whether vehicle is Suv, sedan etc.  Color of vehicle which was driven. In what condition was the vehicle while driving.
<b>Offence_description</b>	<b>This entity stores the list of offences and penalties related to each of them.</b>
Description_ID (PK) Offence (Required) Penalty (Required)	<b>Primary key:</b> Description id is the id to get the type of offences and its penalty.  Offence: The type of offence driver is charged for  Penalty: The penalty given to driver for the offence.

<b>Admin</b>	<b>Child entity of User. Contains admin information. It manages the driver's account and the description.</b>
User_IDA (PK) first_name last_name	<b>Primary Key: Unique key of administrator</b>

### ER model: Traffic Ticket Management



**Business Rules:**

1. A driver may get multiple tickets. Each ticket is assigned to one and only one driver.
2. An officer may issue multiple tickets. Each ticket is issued by one and only one officer.
3. A ticket may be handled by multiple courts. Each court may handle multiple tickets.
4. A driver may view multiple offence\_descriptions. Each offence\_description may be viewed by multiple drivers.
5. A driver must drive one and only one vehicle at a time. A vehicle may be driven by multiple drivers.
6. An admin may manage multiple driver's account. One driver's account is managed by one and only one admin.
7. A ticket must have one and only one offence. Each offence may be in multiple tickets.

**Business Rules that are not Represented:**

8. A license can have at most 12 points after which it is suspended.
9. All the penalties related to offence are dynamic and are based on court decision.
10. A user must enter valid ticket number to get the details.

**Assumptions:**

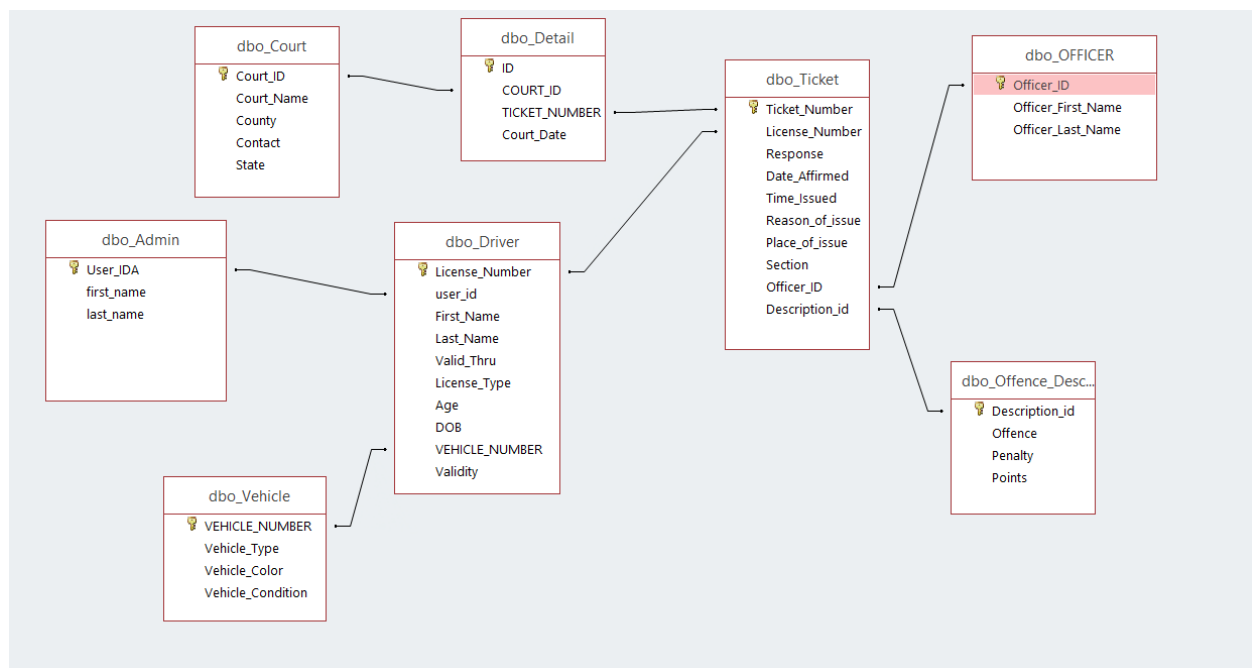
1. Valid\_thru is required attribute since it indicates the expiry of license.
2. Date of issue of license is not mandatory.
3. Ticket\_Number and Court\_Number combined gives the date on which driver should be present in the court.
4. License is not made as a separate entity since license alone can give all the attributes of driver.
5. Attribute Date\_Affirmed in the Ticket is the date of issue of the ticket.
6. "Section" attribute in ticket is required since based on that section, the penalty is decided.
7. Officer is not the user of the system, because he/she issues the ticket. He is not required to view the details. If the driver is assigned court date, officer is informed by the court.
8. Admin and drivers are related to same entities hence no separate relations are shown.
9. All attributes are atomic.

10. Record is the associative entity between driver and description.
11. Detail contains separate primary key (ID) making a non-identifying relationship, since Court\_ID can be same for different License\_Number.
12. Penalty and offence in offence\_description is required and each offence will be linked to a penalty.

**Driver: This is the entity of the user of system. The user of system can get multiple tickets. Each ticket is assigned to a single user.**

**Ticket: This is the main entity which is used**

### ER Diagram Access:



### Database Infrastructure:

#### SQL Scripts for creating and inserting sample data:

##### Create Table Admin



```

Create Table Admin
(
  User_IDA INT NOT NULL,
  first_name VARCHAR(20),
  last_name VARCHAR(20),
  CONSTRAINT USER_IDA_PK PRIMARY KEY(User_IDA),
  CONSTRAINT User_IDA_FK FOREIGN KEY(User_IDA) REFERENCES User1(User_ID)
)

```

```

Create Table Admin
(
  User_IDA INT NOT NULL,
  first_name VARCHAR(20),
  last_name VARCHAR(20),
  CONSTRAINT USER_IDA_PK PRIMARY KEY(User_IDA),
  CONSTRAINT User_IDA_FK FOREIGN KEY(User_IDA) REFERENCES User1(User_ID)
)

```

### Create Table Driver

```

Create Table Driver
(
  License_Number INT NOT NULL,
  user_id INT NOT NULL,
  First_Name VARCHAR(20),
  Last_Name VARCHAR(20),
  Valid_Thru Date NOT NULL,
  License_Type VARCHAR(20),
  Age INT,
  DOB DATE,
  validity VARCHAR(20),
  VEHICLE_NUMBER VARCHAR(20) NOT NULL,
  CONSTRAINT License_Number_PK PRIMARY KEY(License_Number),
  CONSTRAINT USER_IDD_FK FOREIGN KEY(user_id) REFERENCES Admin(User_IDA),
  CONSTRAINT VEHICLE_NUMBER_FK FOREIGN KEY(VEHICLE_NUMBER) REFERENCES Vehicle(VEHICLE_NUMBER)
)

```

```

Create Table Driver
(
  License_Number INT NOT NULL,
  user_id INT NOT NULL,
  First_Name VARCHAR(20),
  Last_Name VARCHAR(20),
  Valid_Thru Date NOT NULL,
  License_Type VARCHAR(20),
  Age INT,
  DOB DATE,
  validity VARCHAR(20),
  VEHICLE_NUMBER VARCHAR(20) NOT NULL,
  CONSTRAINT License_Number_PK PRIMARY KEY(License_Number),
  CONSTRAINT USER_IDD_FK FOREIGN KEY(user_id) REFERENCES Admin(User_IDA),
  CONSTRAINT VEHICLE_NUMBER_FK FOREIGN KEY(VEHICLE_NUMBER) REFERENCES
Vehicle(VEHICLE_NUMBER)
)

```

**Create Table Vehicle**

```

Create Table Vehicle
(
  VEHICLE_NUMBER VARCHAR(20) NOT NULL,
  Vehicle_Type VARCHAR(20),
  Vehicle_Color VARCHAR(20),
  Vehicle_Condition VARCHAR(20),
  CONSTRAINT VEHICLE_NUMBER_PK PRIMARY KEY(VEHICLE_NUMBER)
)
Insert into vehicle values('hariom','SUV','blue','good')
Insert into vehicle values('onkar','Sedan','blue','average')
Insert into vehicle values('shree','hatchback','red','v.good')
Insert into vehicle values('namo','hatchback','grey','bad')
Insert into vehicle values('raga','SUV','white','excellent')

```

```

Create Table Vehicle
(
  VEHICLE_NUMBER VARCHAR(20) NOT NULL,
  Vehicle_Type VARCHAR(20),
  Vehicle_Color VARCHAR(20),
  Vehicle_Condition VARCHAR(20),
  CONSTRAINT VEHICLE_NUMBER_PK PRIMARY KEY(VEHICLE_NUMBER)
)

```

**Create Table Ticket**

```

Create Table Ticket
(
  Ticket_Number VARCHAR(20) NOT NULL,
  License_Number INT NOT NULL,
  Response VARCHAR(20) NOT NULL,
  Date_Affirmed DATE NOT NULL,
  Time_Issued TIME NOT NULL,
  Reason_of_issue VARCHAR(50),
  Place_of_issue VARCHAR(20),
  Section VARCHAR(20) NOT NULL,
  Officer_ID VARCHAR(20) NOT NULL,
  CONSTRAINT Ticket_Number_PK PRIMARY KEY(Ticket_Number),
  CONSTRAINT Officer_ID_FK FOREIGN KEY(Officer_ID) REFERENCES Officer(Officer_ID),
  Description_id VARCHAR(20) NOT NULL,
  CONSTRAINT Description_id FOREIGN KEY(Description_id) REFERENCES Offence_Description(Description_id)
  CONSTRAINT LICENSE_NUMBER_FK FOREIGN KEY(LICENSE_NUMBER) REFERENCES DRIVER(LICENSE_NUMBER)
)

```

```

Create Table Ticket
(
  Ticket_Number VARCHAR(20) NOT NULL,
  License_Number INT NOT NULL,
  Response VARCHAR(20) NOT NULL,
  Date_Affirmed DATE NOT NULL,
  Time_Issued TIME NOT NULL,

```

```

Reason_of_issue VARCHAR(50),
Place_of_issue VARCHAR(20),
Section VARCHAR(20) NOT NULL,
Officer_ID VARCHAR(20) NOT NULL,
CONSTRAINT Ticket_Number_PK PRIMARY KEY(Ticket_Number),
CONSTRAINT Officer_ID_FK FOREIGN KEY(Officer_ID) REFERENCES Officer(Officer_ID),
Description_id VARCHAR(20) NOT NULL,
CONSTRAINT Description_id FOREIGN KEY(Description_id) REFERENCES
Offence_Description(Description_id)
CONSTRAINT LICENSE_NUMBER_FK FOREIGN KEY(LICENSE_NUMBER) REFERENCES
DRIVER(LICENSE_NUMBER)
)

```

### **Create Table Officer**

```

CREATE TABLE OFFICER
(
  Officer_ID VARCHAR(20) NOT NULL,
  Officer_First_Name VARCHAR(20),
  Officer_Last_Name VARCHAR(20),
  CONSTRAINT Officer_ID_PK PRIMARY KEY(Officer_ID),
)

```

```

CREATE TABLE OFFICER
(
  Officer_ID VARCHAR(20) NOT NULL,
  Officer_First_Name VARCHAR(20),
  Officer_Last_Name VARCHAR(20),
  CONSTRAINT Officer_ID_PK PRIMARY KEY(Officer_ID),
)

```

### **Create Table Offence Description**

```

Create Table Offence_Description
(
  Description_id VARCHAR(20) NOT NULL,
  Offence VARCHAR(20) NOT NULL,
  Penalty VARCHAR(20) NOT NULL,
  CONSTRAINT Description_ID_PK PRIMARY KEY(Description_ID)
)

```

```

Create Table Offence_Description
(
  Description_id VARCHAR(20) NOT NULL,
  Offence VARCHAR(20) NOT NULL,
  Penalty VARCHAR(20) NOT NULL,
  CONSTRAINT Description_ID_PK PRIMARY KEY(Description_ID)
)

```

### Create Table Detail

```
CREATE TABLE Detail
(
  ID VARCHAR(20) NOT NULL,
  LICENSE_NUMBER INT NOT NULL,
  COURT_ID VARCHAR(20) NOT NULL,
  TICKET_NUMBER VARCHAR(20) NOT NULL,
  Court_Date Date NOT NULL
  CONSTRAINT Court_ID_FK FOREIGN KEY(Court_ID) REFERENCES Court(Court_ID)
  CONSTRAINT ID_PK Primary KEY(ID)
  CONSTRAINT TICKET_NUMBER_FK FOREIGN KEY(TICKET_NUMBER) REFERENCES TICKET(TICKET_NUMBER)
)
```

Create Table Detail

```
(
  ID VARCHAR(20) NOT NULL,
  LICENSE_NUMBER INT NOT NULL,
  COURT_ID VARCHAR(20) NOT NULL,
  TICKET_NUMBER VARCHAR(20) NOT NULL,
  Court_Date Date NOT NULL
  CONSTRAINT Court_ID_FK FOREIGN KEY(Court_ID) REFERENCES Court(Court_ID)
  CONSTRAINT ID_PK Primary KEY(ID)
  CONSTRAINT TICKET_NUMBER_FK FOREIGN KEY(TICKET_NUMBER) REFERENCES TICKET(TICKET_NUMBER)
)
```

### Create Table Court

```
CREATE TABLE Court
(
  Court_ID VARCHAR(20) NOT NULL,
  Court_Name VARCHAR(20),
  County VARCHAR(20),
  Contact VARCHAR(20),
  State VARCHAR(20)
  CONSTRAINT Court_ID_PK Primary KEY (Court_ID)
)
```

Create Table Court

```
(
  Court_ID VARCHAR(20) NOT NULL,
  Court_Name VARCHAR(20),
  County VARCHAR(20),
  Contact VARCHAR(20),
  State VARCHAR(20)
  CONSTRAINT Court_ID_PK Primary KEY (Court_ID)
)
```

**Insert into Admin:**

```

Insert into Admin values(10001,'pranay','lulla')
Insert into Admin values(10002,'harsh','takrani')
Insert into Admin values(10003,'romil','godha')
Insert into Admin values(10004,'omkar','mutreja')

```

```

Insert into Admin values(10001,'pranay','lulla')
Insert into Admin values(10002,'harsh','takrani')
Insert into Admin values(10003,'romil','godha')
Insert into Admin values(10004,'omkar','mutreja')

```

Results		Messages	
	User_IDA	first_name	last_name
1	10001	pranay	lulla
2	10002	harsh	takrani
3	10003	romil	godha
4	10004	omkar	mutreja

```

Insert into Driver values(12345,10001,'abcd','efgh','01/01/2015','Class D',23,'01/02/1995','hariom','vAlID')
Insert into Driver values(12346,10001,'defg','hijk','05/01/2016','Class A',24,'01/02/1994','onkar','vAlID')
Insert into Driver values(12347,10001,'ghij','klmn','04/01/2014','Class B',25,'01/02/1993','shree','vAlID')
Insert into Driver values(12348,10001,'jklm','nopq','03/01/2013','Class D',26,'01/02/1992','namo','vAlID')
Insert into Driver values(12349,10001,'mnop','qrst','02/01/2012','Class C',27,'01/02/1991','raga','vAlID')

```

```

Insert into Driver values(12345,10001,'abcd','efgh','01/01/2015','Class D',
23,'01/02/1995','hariom','vAlID')
Insert into Driver
values(12346,10001,'defg','hijk','05/01/2016','ClassA',24,'01/02/1994','onkar','vAlID')
Insert into Driver values(12347,10001,'ghij','klmn','04/01/2014','Class
B',25,'01/02/1993','shree','vAlID')
Insert into Driver values(12348,10001,'jklm','nopq','03/01/2013','Class
D',26,'01/02/1992','namo','vAlID')
Insert into Driver values(12349,10001,'mnop','qrst','02/01/2012','Class
C',27,'01/02/1991','raga','vAlID')

```

	License_Number	user_id	First_Name	Last_Name	Valid_Thru	License_Type	Age	DOB	VEHICLE_NUMBER	Validity
1	12345	10001	abcd	efgh	2015-01-01	Class D	23	1995-01-02	hariom	vALID
2	12346	10001	defg	hijk	2016-05-01	Class A	24	1994-01-02	onkar	vALID
3	12347	10001	ghij	klmn	2014-04-01	Class B	25	1993-01-02	shree	vALID
4	12348	10001	jklm	nopq	2013-03-01	Class D	26	1992-01-02	namo	vALID
5	12349	10001	mnop	qrst	2012-02-01	Class C	27	1991-01-02	raga	vALID

### Insert into Vehicle:

```

Insert into vehicle values('hariom','SUV','blue','good')
Insert into vehicle values('onkar','Sedan','blue','average')
Insert into vehicle values('shree','hatchback','red','v.good')
Insert into vehicle values('namo','hatchback','grey','bad')
Insert into vehicle values('raga','SUV','white','excellent')

```

```

Insert into vehicle values('hariom','SUV','blue','good')
Insert into vehicle values('onkar','Sedan','blue','average')
Insert into vehicle values('shree','hatchback','red','v.good')
Insert into vehicle values('namo','hatchback','grey','bad')
Insert into vehicle values('raga','SUV','white','excellent')

```

	VEHICLE_NUMBER	Vehicle_Type	Vehicle_Color	Vehicle_Condition
1	hariom	SUV	blue	good
2	namo	hatchback	grey	bad
3	onkar	Sedan	blue	average
4	raga	SUV	white	excellent
5	shree	hatchback	red	v.good

### Insert into Ticket:

```

Insert into Ticket values('T111','12345','Not guilty','02/03/2018','01:01:02','Speeding','Broome','111A','010','D10')
Insert into Ticket values('T112','12346','guilty','02/02/2018','11:02:02','Distracted Driving','Syracuse','112B','P11','D13')
Insert into Ticket values('T113','12346','guilty','03/03/2018','01:05:02','Reckless Driving','Binghamton','113C','Q12','D12')
Insert into Ticket values('T114','12347','Not guilty','06/04/2018','10:01:02','Speeding','Buffalo','111A','010','D10')
Insert into Ticket values('T115','12348','Not guilty','01/02/2018','10:01:02','Running a red light','Syracuse','115E','P11','D13')
Insert into Ticket values('T116','12349','guilty','01/24/2018','16:01:02','Moving Violation','Broome','115F','Q12','D14')

```

```

Insert into Ticket values('T111', '12345', 'Not
guilty', '02/03/2018', '01:01:02', 'Speeding', 'Broome', '111A', 'O10', 'D10')
Insert into Ticket values('T112', '12346', 'guilty', '02/02/2018', '11:02:02', 'Distracted
Driving', 'Syracuse', '112B', 'P11', 'D13')
Insert into Ticket values('T113', '12346', 'guilty', '03/03/2018', '01:05:02', 'Reckless
Driving', 'Binghamton', '113C', 'Q12', 'D12')
Insert into Ticket values('T114', '12347', 'Not
guilty', '06/04/2018', '10:01:02', 'Speeding', 'Buffalo', '111A', 'O10', 'D10')
Insert into Ticket values('T115', '12348', 'Not guilty', '01/02/2018', '10:01:02', 'Running a
red light', 'Syracuse', '115E', 'P11', 'D13')
Insert into Ticket values('T116', '12349', 'guilty', '01/24/2018', '16:01:02', 'Moving
Violation', 'Broome', '115F', 'Q12', 'D14')
Insert into Ticket
values('T117', '12349', 'guilty', '02/23/2018', '14:14:02', 'Speeding', 'Binghamton', '111A', 'O1
0', 'D10')

```

	Ticket_Number	License_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
1	T111	12345	Not guilty	2018-02-03	01:01:02.00000000	Speeding	Broome	111A	O10	D10
2	T112	12346	guilty	2018-02-02	11:02:02.00000000	Distracted Driving	Syracuse	112B	P11	D13
3	T113	12346	guilty	2018-03-03	01:05:02.00000000	Reckless Driving	Binghamton	113C	Q12	D12
4	T114	12347	Not guilty	2018-06-04	10:01:02.00000000	Speeding	Buffalo	111A	O10	D10
5	T115	12348	Not guilty	2018-01-02	10:01:02.00000000	Running a red light	Syracuse	115E	P11	D13
6	T116	12349	guilty	2018-01-24	16:01:02.00000000	Moving Violation	Broome	115F	Q12	D14
7	T117	12349	guilty	2018-02-23	14:14:02.00000000	Speeding	Binghamton	111A	O10	D10

### Insert into Officer:

```

Insert into OFFICER values('O10', 'Alex', 'O')
Insert into OFFICER values('P11', 'Mike', 'P')
Insert into OFFICER values('Q12', 'Sean', 'Q')

```

```

Insert into OFFICER values('O10', 'Alex', 'O')
Insert into OFFICER values('P11', 'Mike', 'P')
Insert into OFFICER values('Q12', 'Sean', 'Q')

```

	Officer_ID	Officer_First_Name	Officer_Last_Name
1	O10	Alex	O
2	P11	Mike	P
3	Q12	Sean	Q



**Insert into Offence Description:**

```

Insert into Offence_Description values('D10','Speeding','5')
Insert into Offence_Description values('D11','Distracted driving','8')
Insert into Offence_Description values('D12','Reckless Driving','6')
Insert into Offence_Description values('D13','Running a red light','4')
Insert into Offence_Description values('D14','Moving Violation','3')

```

```

Insert into Offence_Description values('D10','Speeding','5')
Insert into Offence_Description values('D11','Distracted driving','8')
Insert into Offence_Description values('D12','Reckless Driving','6')
Insert into Offence_Description values('D13','Running a red light','4')
Insert into Offence_Description values('D14','Moving Violation','3')

```

Results		Messages	
	Description_id	Offence	Penalty
1	D10	Speeding	5
2	D11	Distracted driving	8
3	D12	Reckless Driving	6
4	D13	Running a red light	4
5	D14	Moving Violation	3

**Insert into Detail:**

```

Insert into Detail values('11','COURT1','T111','03/04/2018')
Insert into Detail values('12','COURT2','T112','03/03/2018')
Insert into Detail values('13','COURT3','T113','04/04/2018')
Insert into Detail values('14','COURT4','T114','07/05/2018')
Insert into Detail values('15','COURT2','T115','02/04/2018')
Insert into Detail values('16','COURT1','T116','02/04/2018')
Insert into Detail values('17','COURT3','T117','03/04/2018')

```

```

Insert into Detail values('11','COURT1','T111','03/04/2018')
Insert into Detail values('12','COURT2','T112','03/03/2018')
Insert into Detail values('13','COURT3','T113','04/04/2018')
Insert into Detail values('14','COURT4','T114','07/05/2018')
Insert into Detail values('15','COURT2','T115','02/04/2018')
Insert into Detail values('16','COURT1','T116','02/04/2018')
Insert into Detail values('17','COURT3','T117','03/04/2018')

```



Results		Messages		
	ID	COURT_ID	TICKET_NUMBER	Court_Date
1	11	COURT1	T111	2018-03-04
2	12	COURT2	T112	2018-03-03
3	13	COURT3	T113	2018-04-04
4	14	COURT4	T114	2018-07-05
5	15	COURT2	T115	2018-02-04
6	16	COURT1	T116	2018-02-04
7	17	COURT3	T117	2018-03-04

### Insert into Court:

```
Insert into Court values('COURT1','Kirkwood town','broome','3154430000','New York')
Insert into Court values('COURT2','Syracuse','syracuse','3154430001','New York')
Insert into Court values('COURT3','binghamton','binghamton','3154430002','New York')
Insert into Court values('COURT4','buffalo','buffalo','3154430003','New York')
```

```
Insert into Court values('COURT1','Kirkwood town','broome','3154430000','New York')
Insert into Court values('COURT2','Syracuse','syracuse','3154430001','New York')
Insert into Court values('COURT3','binghamton','binghamton','3154430002','New York')
Insert into Court values('COURT4','buffalo','buffalo','3154430003','New York')
```

Results		Messages			
	Court_ID	Court_Name	County	Contact	State
1	COURT1	Kirkwood town	broome	3154430000	New York
2	COURT2	Syracuse	syracuse	3154430001	New York
3	COURT3	binghamton	binghamton	3154430002	New York
4	COURT4	buffalo	buffalo	3154430003	New York

### Why a driver queries the database:

- The drivers should be able to view all the information related to traffic ticket on his/her name.

This can be done by querying the Traffic Ticket table, where all information about the ticket is stored. The user can see the list of tickets issued in their name.

A filter has been applied with the help of User Interface made in Access where student is able to see his/her history by entering the ticket number.

- A driver can retrieve the details of any offence or court just by entering the description id or court id.
- A driver can also retrieve the details of the officer who issued the ticket by entering the officer id.

## Major data questions:

### Driver:

#### 1) Retrieve the details of court and officer based on ticket number.

The drivers may have the ticket number, but they won't be aware of the name of the court they must visit. Hence, this can be done just by entering ticket number

```
SELECT t.Ticket_Number, c.Court_ID, Court_Name, c.County, o.Officer_ID, Officer_First_Name, offe.Description_id, offe.Offence, offe.Penalty
FROM (OFFICER o INNER JOIN (Offence_Description offe INNER JOIN Ticket t ON offe.Description_id = t.Description_id) ON o.Officer_ID = t.Officer_ID)
INNER JOIN (Court c INNER JOIN Detail d ON c.Court_ID = d.COURT_ID) ON t.Ticket_Number = d.TICKET_NUMBER
WHERE (((t.Ticket_Number)='T112'));
```

```
SELECT t.Ticket_Number, c.Court_ID, Court_Name, c.County,
o.Officer_ID, Officer_First_Name, offe.Description_id, offe.Offence, offe.Penalty
FROM (OFFICER o INNER JOIN (Offence_Description offe INNER JOIN Ticket t ON
offe.Description_id = t.Description_id) ON o.Officer_ID = t.Officer_ID)
INNER JOIN (Court c INNER JOIN Detail d ON c.Court_ID = d.COURT_ID) ON t.Ticket_Number =
d.TICKET_NUMBER
WHERE (((t.Ticket_Number)='T112'));
```

	Ticket_Number	Court_ID	Court_Name	County	Officer_ID	Officer_First_Name	Description_id	Offence	Penalty
1	T112	COURT2	Syracuse	syracuse	P11	Mike	D13	Running a red light	4

#### Court and Officer Details

Ticket_Number	Officer_ID	Officer_First_Name	Description_id	Offence	Points	Court_ID	Court_Name	County
T111	O10	Alex	D10	Speeding	5	COURT1	Kirkwood town	broome

Saturday, May 5, 2018

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## 2) Find Ticket details using ticket number.

Drivers can get the details of tickets. For example, if driver has mailed the ticket to the court, but isn't aware of the details mentioned in ticket he/she can view it anytime.

The screenshot shows a SQL query in a text editor:

```
select *
from Ticket
where Ticket_Number='T111'
```

Below the query, the results are displayed in a table. The table has 11 columns: Ticket\_Number, License\_Number, Response, Date\_Affirmed, Time\_Issued, Reason\_of\_issue, Place\_of\_issue, Section, Officer\_ID, and Description\_id. The results show one row for Ticket T111.

	Ticket_Number	License_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
1	T111	12345	Not guilty	2018-02-03	01:01:02.0000000	Speeding	Broome	111A	O10	D10

The second screenshot shows a similar query for Ticket T112:

```
select *
from Ticket_V
where Ticket_Number='T112'
```

The results table for Ticket T112 is as follows:

	Ticket_Number	License_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
1	T112	12346	guilty	2018-02-02	11:02:02.0000000	Distracted Driving	Syracuse	112B	P11	D13

Here View Ticket\_V is used to generate the reports for ticket table.

The screenshot shows a web application interface for viewing ticket details. The title is "Ticket Details". Below the title, there is a table with the following data:

Response	Number	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
Not guilty	12345	2018-02-03	01:01:02.0000	Speeding	Broome	111A	O10	D10

At the bottom left, it says "Saturday, May 5, 2018". At the bottom right, it says "Page 1 of 1". There is a green "Back" button.

## 3) Total number of tickets on license number. (Aggregate Function)

How many tickets are issued on a driver can be seen by entering the License number

```

Select t.License_Number, COUNT(Ticket_Number) as 'Total Number of Tickets'
from Driver d
Inner Join Ticket t ON d.License_Number=t.License_Number
Group By t.License_Number
Having t.License_Number='12345'

```

81 %

Results Messages

	License_Number	Total Number of Tickets
1	12345	1

### Number of ticket

License_Number	Total Tickets
12346	3

Saturday, May 5, 2018

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[Back](#)

#### 4) Find all the tickets and their details using the license number.

By entering the license number user can get the entire details of all the tickets issued on it.

```

Select d.License_Number, Ticket_Number, Response, Date_Affirmed, Time_Issued, Reason_of_issue, Place_of_issue, Section, Officer_ID, Description_id
from Driver d
Inner Join Ticket t ON d.License_Number=t.License_Number
Where d.License_Number='12345'

```

%

Results Messages

	License_Number	Ticket_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
1	12345	T111	Not guilty	2018-02-03	01:01:02.0000000	Speeding	Broome	111A	O10	D10

All tickets on License Number 12346

All Tickets								
License_Number	Ticket_Number	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
12346	T112	2018-02-02	11:02:02.000000	Distracted Driving	Syracuse	112B	P11	D13
12346	T113	2018-03-03	01:05:02.000000	Reckless Driving	Binghamton	113C	Q12	D12
12346	T119	2018-03-03	01:05:02.000000	Reckless Driving	Binghamton	113C	Q12	D12

Saturday, May 5, 2018 Page 1 of 1

### 5) Insert details of ticket issued.

Driver can add his/her ticket in the database for his/her own records.

```
Insert into Ticket values('T119','12346','guilty','03/03/2018','01:05:02','Reckless Driving','Binghamton','113C','Q12','D12')
```

This form allows user to insert ticket

Add Ticket

Enter

Ticket\_Number

License\_Number

Response

Date\_Affirmed

Time\_Issued

Reason\_of\_issue

Place\_of\_issue

Section

Officer\_ID

Description\_id

Back

### Admin:

- 1) Add/ Delete drivers or view all drivers in the database
- 2) Add/Delete tickets or view all tickets stored in database
- 3) Add/ Delete courts or view all courts
- 4) View/Insert/Delete all Offence Description in database

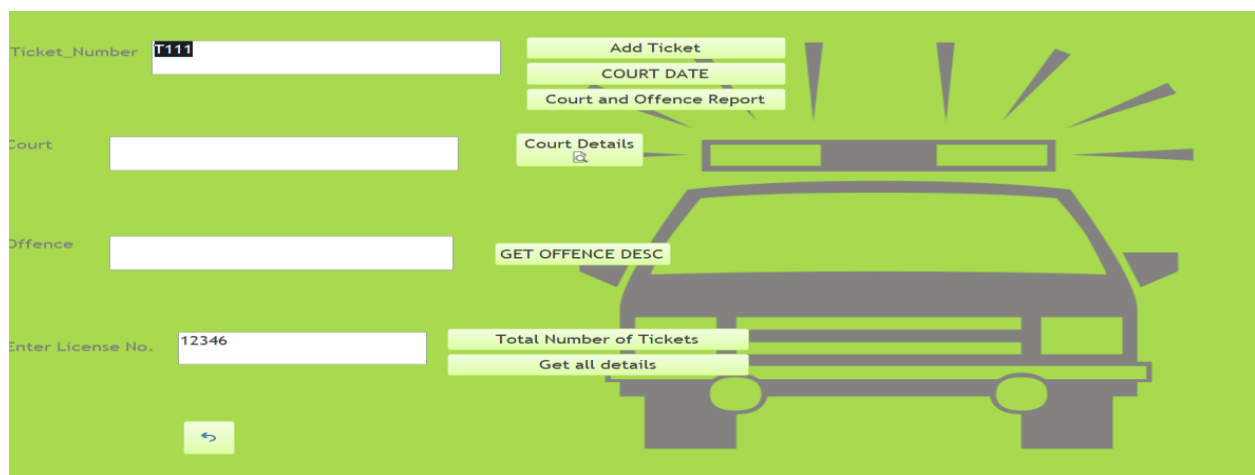
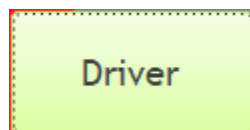
Admin manages all the records and can perform the operations of insert and updates. It can also view all the tickets/drivers/courts/offence description/officers without entering any details.

## Interfaces:

### Start Page:



### User Access Page:



**Form for user to insert ticket**

Add Ticket

Add Ticket

Enter

Ticket\_Number

License\_Number

Response

Date\_Affirmed

Time\_Issued

Reason\_of\_issue

Place\_of\_issue

Section

Officer\_ID

Description\_id

Back

**Ticket Details by Ticket Number- Driver**

Ticket Details

Response

License\_Number

Date\_Affirmed

Time\_Issued

Reason\_of\_issue

Place\_of\_issue

Section

Officer\_ID

Description\_id

Not guilty

12345

2018-02-03

01:01:02.0000000

Speeding

Broome

111A

O10

D10

## Court Details by Court Number

### Court details

Court_Name	County	Contact	State
Kirkwood town	broome	3154430000	New York

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## Court Date by Ticket Number and Court id

### Court\_Date

TICKET\_NUMBER

Court\_Date

[BACK](#)

## Admin Access Form

Court\_ID

Get Court Details

Get Details

Edit Court Details

Offence

Offence Details

Edit Offence

Visualize

Ticket Details

All tickets

ADD/DELETE DRIVERS

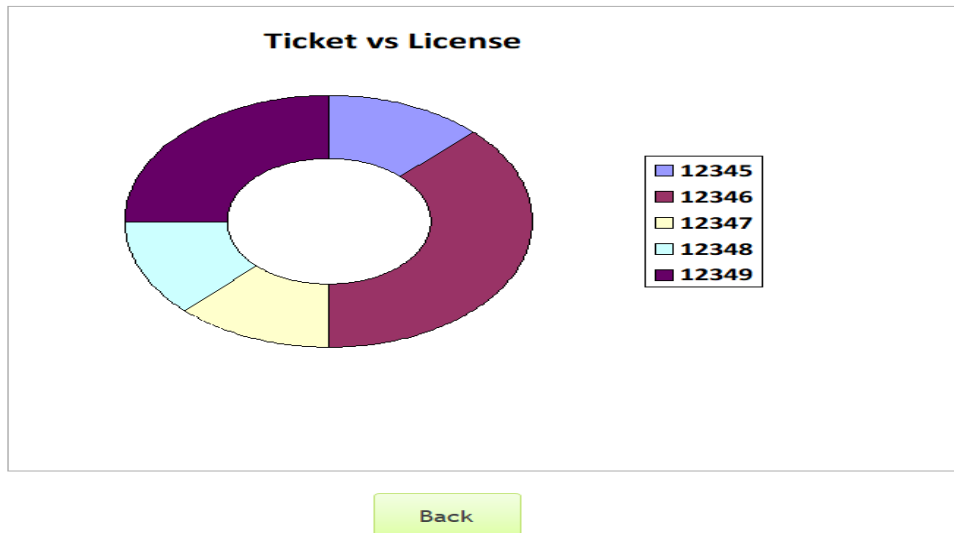
Get All Drivers

Update Officer Details

Get All Officers

[↩](#)



**Visualize:**

This visualization depicts total number of tickets on each license number and can be seen by admin

**Add/Delete/Update Tickets: Admin**

**Ticket**

EnterDelete

Ticket_Number	<input type="text" value="T111"/>
License_Number	<input type="text" value="12345"/>
Response	<input type="text" value="Not guilty"/>
Date_Affirmed	<input type="text" value="2018-02-03"/>
Time_Issued	<input type="text" value="01:01:02.0000000"/>
Reason_of_issue	<input type="text" value="Speeding"/>
Place_of_issue	<input type="text" value="Broome"/>
Section	<input type="text" value="111A"/>
Officer_ID	<input type="text" value="O10"/>
Description_id	<input type="text" value="D10"/>

[Back](#)

**All tickets report: Admin****All tickets details**

Ticket_Num	License_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
T111	12345	Not guilty	2018-02-03	01:01:02.0000	Speeding	Broome	111A	O10	D10
T112	12346	guilty	2018-02-02	11:02:02.0000	Distracted Driving	Syracuse	112B	P11	D13
T113	12346	guilty	2018-03-03	01:05:02.0000	Reckless Driving	Binghamton	113C	Q12	D12
T114	12347	Not guilty	2018-06-04	10:01:02.0000	Speeding	Buffalo	111A	O10	D10
T115	12348	Not guilty	2018-01-02	10:01:02.0000	Running a red light	Syracuse	115E	P11	D13
T116	12349	guilty	2018-01-24	16:01:02.0000	Moving Violation	Broome	115F	Q12	D14
T117	12349	guilty	2018-02-23	14:14:02.0000	Speeding	Binghamton	111A	O10	D10
T119	12346	guilty	2018-03-03	01:05:02.0000	Reckless Driving	Binghamton	113C	Q12	D12

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[Back](#)**Add/Delete/Update Drivers:****Update Drivers**[Enter](#)[Delete](#)

License_Number	<input type="text" value="12345"/>
user_id	<input type="text" value="10001"/>
First_Name	<input type="text" value="abcd"/>
Last_Name	<input type="text" value="efgh"/>
Valid_Thru	<input type="text" value="2015-01-01"/>
License_Type	<input type="text" value="Class D"/>
Age	<input type="text" value="23"/>
DOB	<input type="text" value="1995-01-02"/>
VEHICLE_NUMBER	<input type="text" value="hariom"/>

**Court details using values from combo box:**

## Court details

Expr1000   
 Court\_Name   
 County   
 Contact   
 State

Offence details using values from combo box:

## Offence Details

Description\_id   
 Offence   
 Penalty

### Trigger:

If the ticket is inserted in the name of driver and if the points on the license number exceeds 12 due to ticket insertion, then the validity of the driver will show suspended.

```
CREATE TRIGGER suspend_license
ON Ticket
FOR Insert,UPDATE as
if @@ROWCOUNT>=1
BEGIN
UPDATE Driver
SET validity='SUSPENDED'
FROM
(Select T.License_Number, sum(Points) "Total Points"
from Ticket as T
Inner Join Offence_Description as OD ON T.Description_id=OD.Description_id
Inner Join Driver as D ON D.License_Number=T.License_Number
group by T.License_Number
HAVING sum(Points)>12) as inserted
Where Driver.License_Number=inserted.License_Number
END;
```

Aggregate function SUM is used in Trigger to calculate the sum of penalty.

Before Inserting Ticket:

Ticket Table:

	Ticket_Number	License_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
1	T111	12345	Not guilty	2018-02-03	01:01:02.0000000	Speeding	Broome	111A	O10	D10
2	T112	12346	guilty	2018-02-02	11:02:02.0000000	Distracted Driving	Syracuse	112B	P11	D13
3	T113	12346	guilty	2018-03-03	01:05:02.0000000	Reckless Driving	Binghamton	113C	Q12	D12
4	T114	12347	Not guilty	2018-06-04	10:01:02.0000000	Speeding	Buffalo	111A	O10	D10
5	T115	12348	Not guilty	2018-01-02	10:01:02.0000000	Running a red light	Syracuse	115E	P11	D13
6	T116	12349	guilty	2018-01-24	16:01:02.0000000	Moving Violation	Broome	115F	Q12	D14
7	T117	12349	guilty	2018-02-23	14:14:02.0000000	Speeding	Binghamton	111A	O10	D10

Driver Table:

	License_Number	user_id	First_Name	Last_Name	Valid_Thru	License_Type	Age	DOB	VEHICLE_NUMBER	Validity
1	12345	10001	abcd	efgh	2015-01-01	Class D	23	1995-01-02	hariom	vALID
2	12346	10001	defg	hijk	2016-05-01	Class A	24	1994-01-02	onkar	vALID
3	12347	10001	ghij	klmn	2014-04-01	Class B	25	1993-01-02	shree	vALID
4	12348	10001	jklm	nopq	2013-03-01	Class D	26	1992-01-02	namo	vALID
5	12349	10001	mnop	qrst	2012-02-01	Class C	27	1991-01-02	raga	vALID

After Inserting -Ticket:

Insert into Ticket values('T119','12346','guilty','03/03/2018','01:05:02','Reckless Driving','Binghamton','113C','Q12','D12')										
81 %										
Messages										
(1 row affected)										
(1 row affected)										

1 row of ticket is affected while 1 of driver

Ticket Table:

Results Messages										
	Ticket_Number	License_Number	Response	Date_Affirmed	Time_Issued	Reason_of_issue	Place_of_issue	Section	Officer_ID	Description_id
1	T111	12345	Not guilty	2018-02-03	01:01:02.0000000	Speeding	Broome	111A	O10	D10
2	T112	12346	guilty	2018-02-02	11:02:02.0000000	Distracted Driving	Syracuse	112B	P11	D13
3	T113	12346	guilty	2018-03-03	01:05:02.0000000	Reckless Driving	Binghamton	113C	Q12	D12
4	T114	12347	Not guilty	2018-06-04	10:01:02.0000000	Speeding	Buffalo	111A	O10	D10
5	T115	12348	Not guilty	2018-01-02	10:01:02.0000000	Running a red light	Syracuse	115E	P11	D13
6	T116	12349	guilty	2018-01-24	16:01:02.0000000	Moving Violation	Broome	115F	Q12	D14
7	T117	12349	guilty	2018-02-23	14:14:02.0000000	Speeding	Binghamton	111A	O10	D10
8	T119	12346	guilty	2018-03-03	01:05:02.0000000	Reckless Driving	Binghamton	113C	Q12	D12

### Driver Table:

I have updated the driver with License number 12346, and since the points on the driver's license exceeded 12 the validity is suspended

Results Messages										
	License_Number	user_id	First_Name	Last_Name	Valid_Thru	License_Type	Age	DOB	VEHICLE_NUMBER	Validity
1	12345	10001	abcd	efgh	2015-01-01	Class D	23	1995-01-02	hariom	vALID
2	12346	10001	defg	hijk	2016-05-01	Class A	24	1994-01-02	onkar	SUSPENDED
3	12347	10001	ghij	klmn	2014-04-01	Class B	25	1993-01-02	shree	vALID
4	12348	10001	jklm	nopq	2013-03-01	Class D	26	1992-01-02	namo	vALID
5	12349	10001	mnpq	qrst	2012-02-01	Class C	27	1991-01-02	raga	vALID