HATE CRIME ANALYSIS IN THE STATES OF USA FROM THE YEAR 1991-2017

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1. INTRODUCTION

Crime reports describe information about different types of crimes which were committed - factoring in all the important and necessary details. Specifically focusing on the types of crime, number of victims, victim and offender race, and/or characteristics of the offenses. Considering the quantity of data in crime reports, data warehouse models can be implemented in accessing specific parts of the reports and statistics can be used in summarizing the information.

Data Warehousing and Statistics can be highly essential in the study of criminology. Using these tools, our understanding about the various types of crimes being committed, frequency of the crimes, race of people being affected which can be correlated with race of people committing the crime, and different characteristics of crimes would be little more than guesses.

Data Warehouse models of crime reports complemented with statistics can potentially serve as an important indicator of the wellbeing of a society. Increasing crime rates might suggest that society is suffering and irregular victimization among group of individuals might suggest a society which needs attention by a governing body. On the other hand, reduction in crime rate conveyed by these reports and statistics is an indicator of a better quality of life. Another important function served by crime reports and statistics is to assist researchers, governments and other organizations in the development and testing of crime and victimization theories, helping policymakers to design policies to reduce crime, assist crime victims, and effectively deal with offenders. Without consistent data and insights on crime, programs designed to reduce all crime and persecution would not only be unsuccessful but would also represent misappropriated or wasted valuable assets and resources.

Hate Crime is defined by the Federal Bureau of Investigation (FBI) as “a criminal offense against a person or property motivated in whole or in part by an offender’s bias against a race, religion, disability, sexual orientation, ethnicity, gender, or gender identity” (U.S. Department of Justice, FBI, no date).

Since 1930, the FBI has been collecting crime data in the United States through the Uniform Crime Reporting (UCR) Program. The UCR Program's primary objective is to generate reliable information for use in law enforcement administration, operation, and management (U.S. Department of Justice, FBI, no date). This program is the most reliable source of crime statistics for law enforcement and administration, operation, and management. It is since used by researchers, politicians, policy makers and criminal justice professionals to gain a deeper understanding of crime and society.

1.2. REASONS FOR SELECTING THE SUBJECT AREA AND DATA

The primary intention of this study was to analyze and understand the different types of hate crimes which were committed in different states of the United States over the years.

The specific focus of this analysis was to understand and gain insights how different factors affect each other. For example, if there was a correlation between types of crime being committed against a particular race. Another reason for choosing this topic is to study the progressive crime rate over the years considering demographics, offender race, victim race and crime scene.

1.3. VISION AND GOALS

1. Better Patrolling:

Criminal justice professionals and policy makers can predict the increase in risk of crime with the help of hate crime statistics. Appropriate law enforcement can be implemented to prevent the predicted crimes from taking place. The predictive data can further be used to focus on specific areas, making optimum use of the available resources. The main objective is that by working with more data, crime rate can be forecasted and reduced efficiently in specific areas.

2. Improved Public Community Relations:

Crime data is an excellent means in improving relations among different communities. Increasing transparency, it allows the law enforcement agency and the public they serve, to get hindsight on the ill happenings in the society. The public also deserves to be informed how well the policy makers and the law enforcement agencies are functioning in protecting the community, increasing trust and maintaining good working relationships.

3. Monitoring Finances:

Budgets and finances are a vital part of a governing body and law enforcement at the local, state, and national level. Appropriate funding and allocating monetary resources to the right places and programs can help improve safety in different communities. Without crime statics it would be difficult to interpret and predict the distribution of financial resources efficiently.

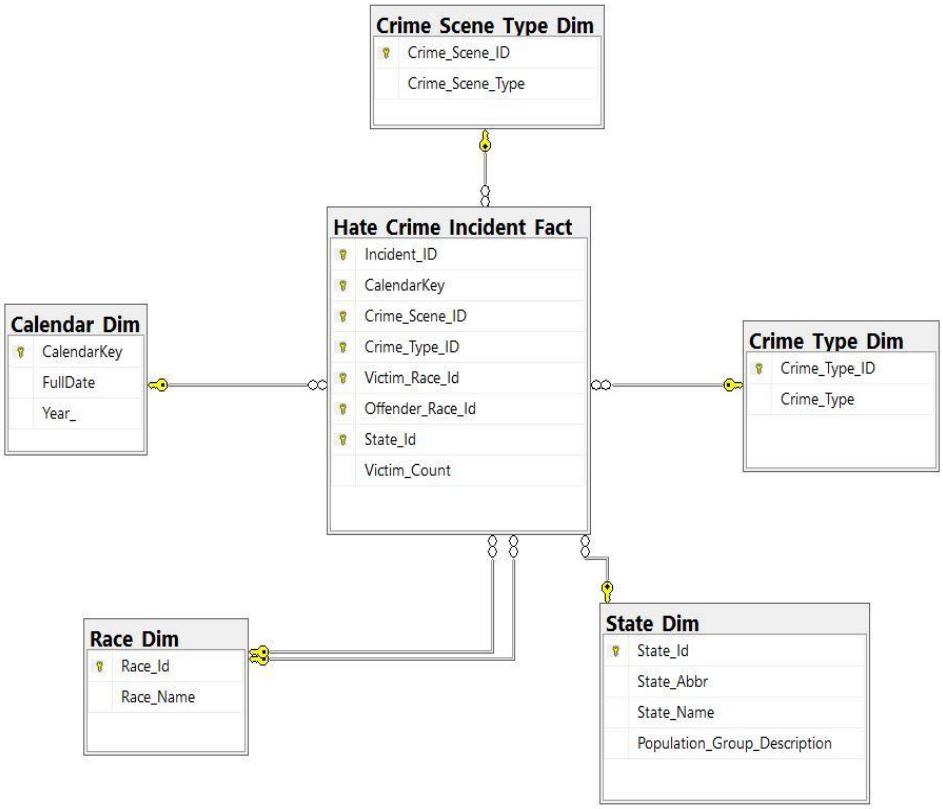
1.4. KEY STAKEHOLDERS

The key stake holder is the Government as we are analyzing on the crime data, what is the main reason for the crime and on which race does the crime is happening more and in which area or in which state does the crime rate is more so that Government can have clear idea about how to minimize the crime rate .

2. SCHEMA

We have selected the Hate crime data set to analyze the crime happening in the states of US. We have segregated the data into following dimensions and fact as shown below:

As we can see below we have devided our data into five dimension depending on data and one fact table to analyze the data set as we mentioned reason for choosing the Hate Crime data set



Five dimesions asshown abovein the star schema

Calendar_Dim	Displays date and year of the incident
Crime_Scene_Type_Dim	Displays the crime area where crime had occurred
Crime_Type_Dim	Displays the type of crime
Race_Dim	Displays the race of the offender and victim
State_Dim	Displays the states in which crime happening

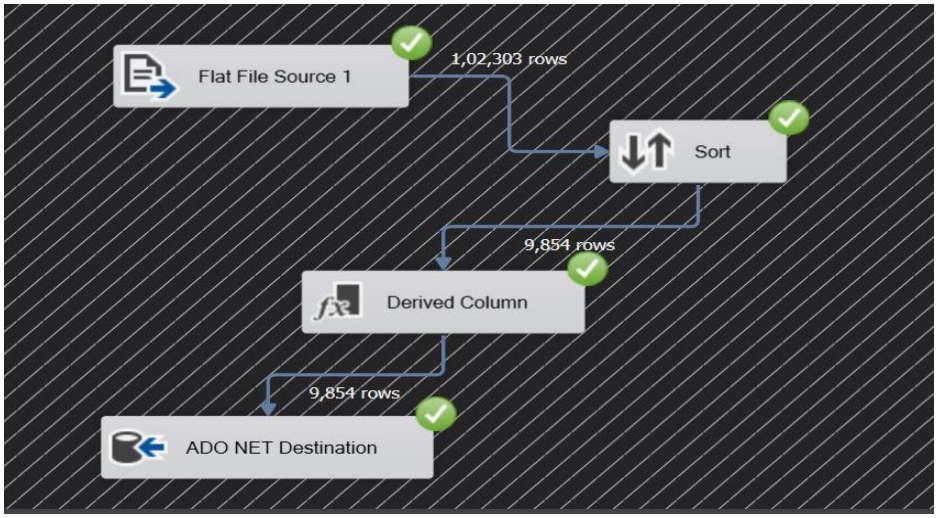
One fact table used in star scheme to analyze

Hate_Crime_Incident_Fact	The facts holds information about all the dimensions

3. ETL

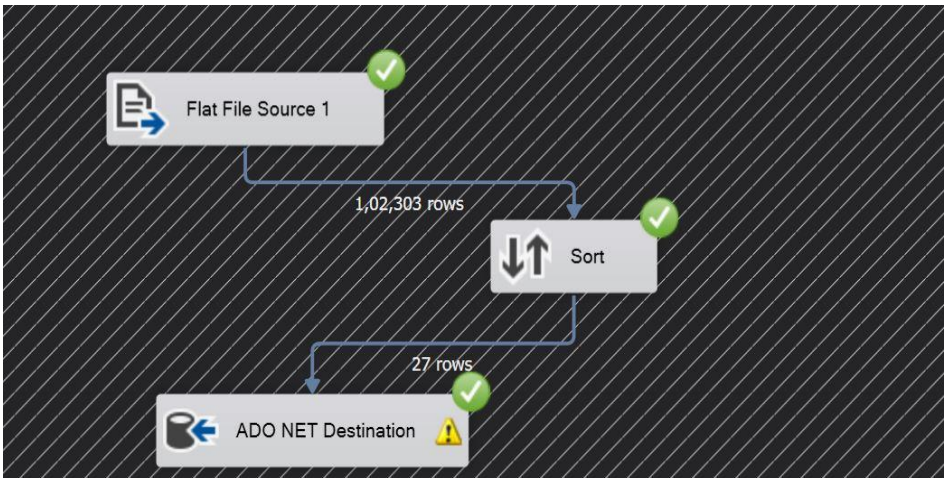
We have used Visual Studio SSDT to load the data into the dimension tables which are created in SQL. For queries refer Appendix A

3.1 ETL PROCESS 1: CALENDAR_DIM



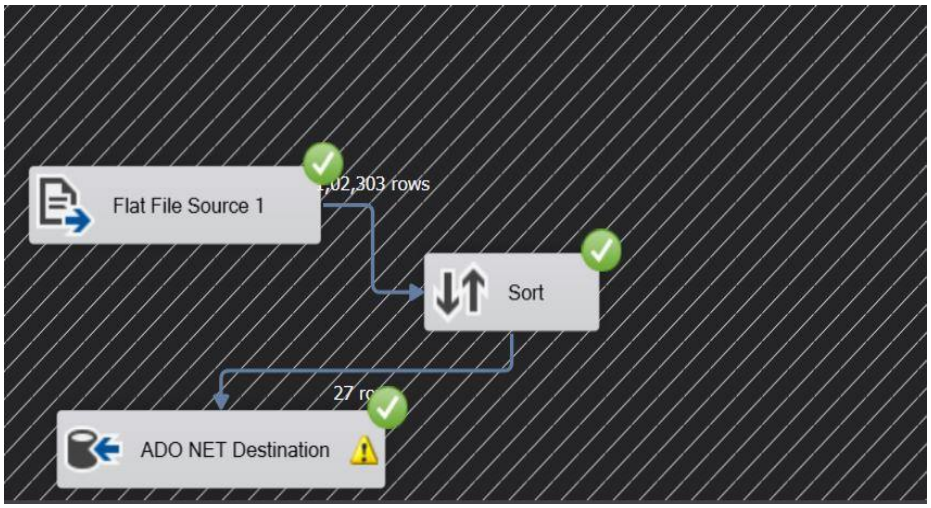
In this dimension data load process, we are loading the data into Calendar_Dim from our source file i.e. from our dataset. Here we have used sort to remove the multiple rows and derived column to replace the existing column .

3.2 ETL PROCESS 2: CRIME_SCENE_TYPE_DIM



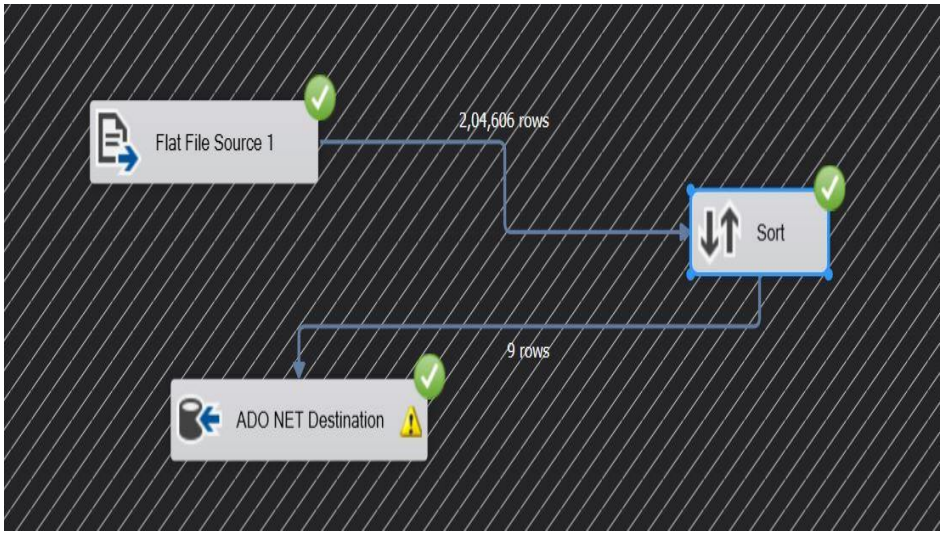
In this dimension data load process, we are extracting data into Crime_Scene_Type_Dim from our source file i.e. from our dataset. Here we have used to sort to sort or remove the multiple rows as we want only unique values in our dimension table. Our dimension tale consist of Crime_Scene_Id which is unique, Crime_Scene_Type which displays the crime areas for over years

3.3 ETL PROCESS 3: CRIME_TYPE_DIM



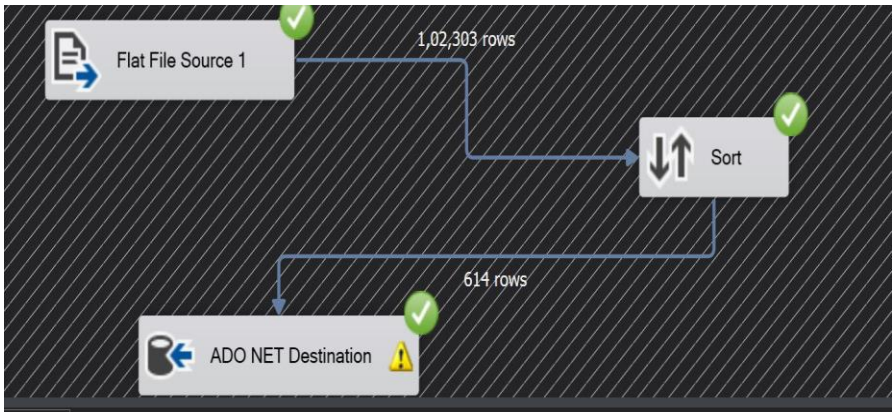
In this dimension data load process, we are storing the data into Crime_Type_Dim from our dataset. Here we have used sort to remove the multiple values to have unique rows in our dimension table. In this dimension we have Crime_Type_Id which is unique for different with respect to different crime types which are happening over the years in the states of US

3.4 ETL PROCESS 4: RACE_DIM



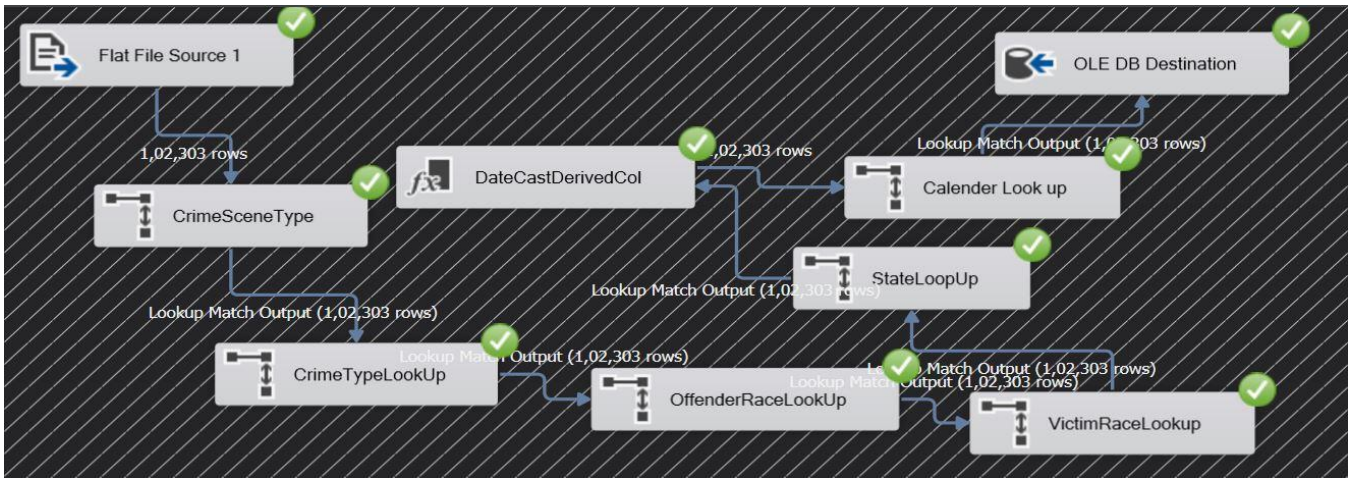
In this dimension data load process, we are extracting data into Race_Dim from our source file i.e. from our dataset. Here we have used sort to sort or remove the multiple rows as we have multiple rows with same value.This table consist of the race names of offender and victim people .

3.5 ETL PROCESS 5: STATE_DIM



In this dimension data load process, we are extracting data into State_Dim from our source file i.e. from our dataset. In this ETL we have used sort to take out the multiple rows to have unique values in our dimension table as we can get exact number and we have State_Id which is unique for all the states.

3.6 ETL PROCESS FIVE: FACT_DIM

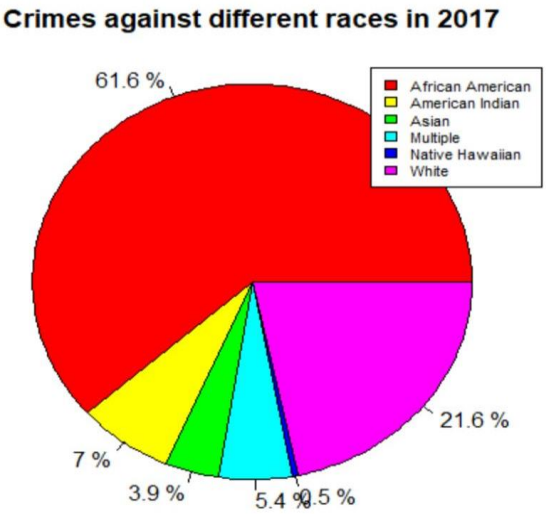


This is the final ETL process where I am loading the data into the fact table from the source file by connecting all the dimension one to another using lookup. Lookup used to compare the source and destination data. Lookup is used to filter out the matched and unmatched from the specific dimension table which I have populated the data already in my previous ETL process. After this final ETL process we can access the data by referencing the fact table which contains primary keys of all the dimension table as foreign key.

4. VISUALIZATIONS AND REPORTS

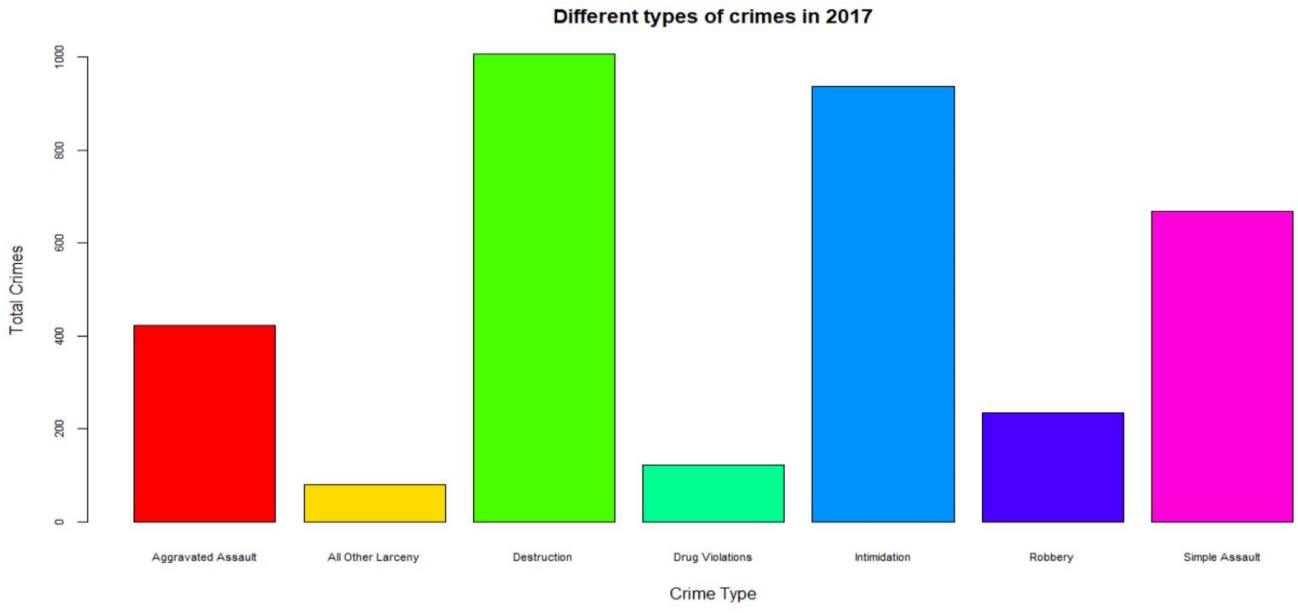
4.1. VISUALIZATIONS

4.1.1 VISUALISATION 1



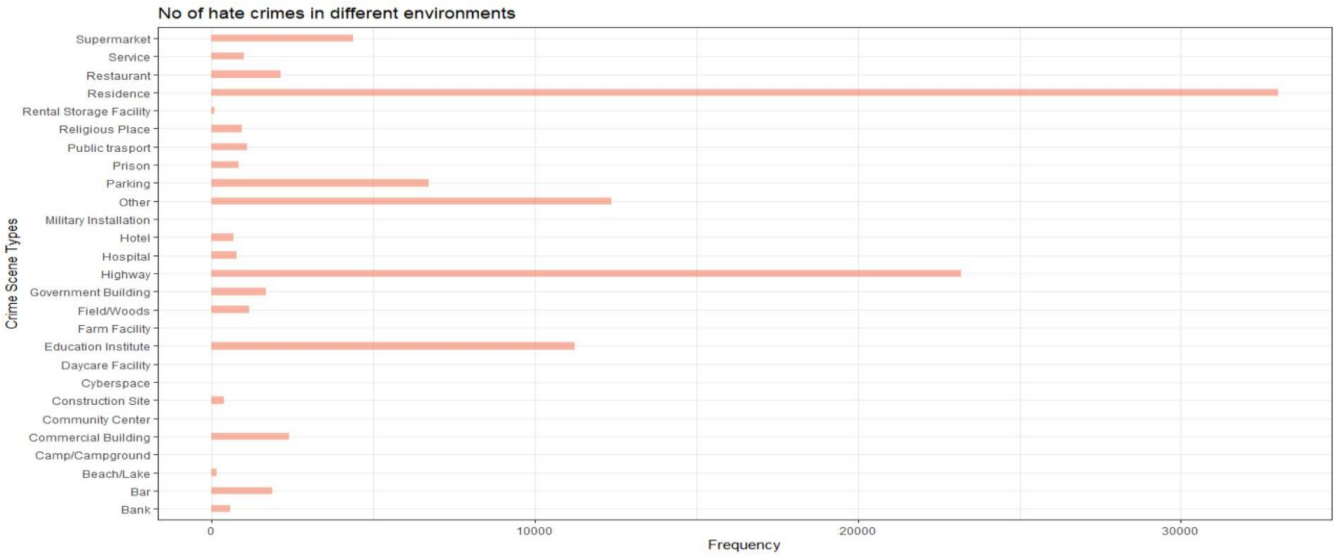
Here we are visualizing the crime happening on different races in the year 2017. Here we have used pie chart for visualizing to get better understanding the crimes happening on different races. As in the above diagram we can see that more crime is happening on the African American.

4.1.2 VISUAISATION 2



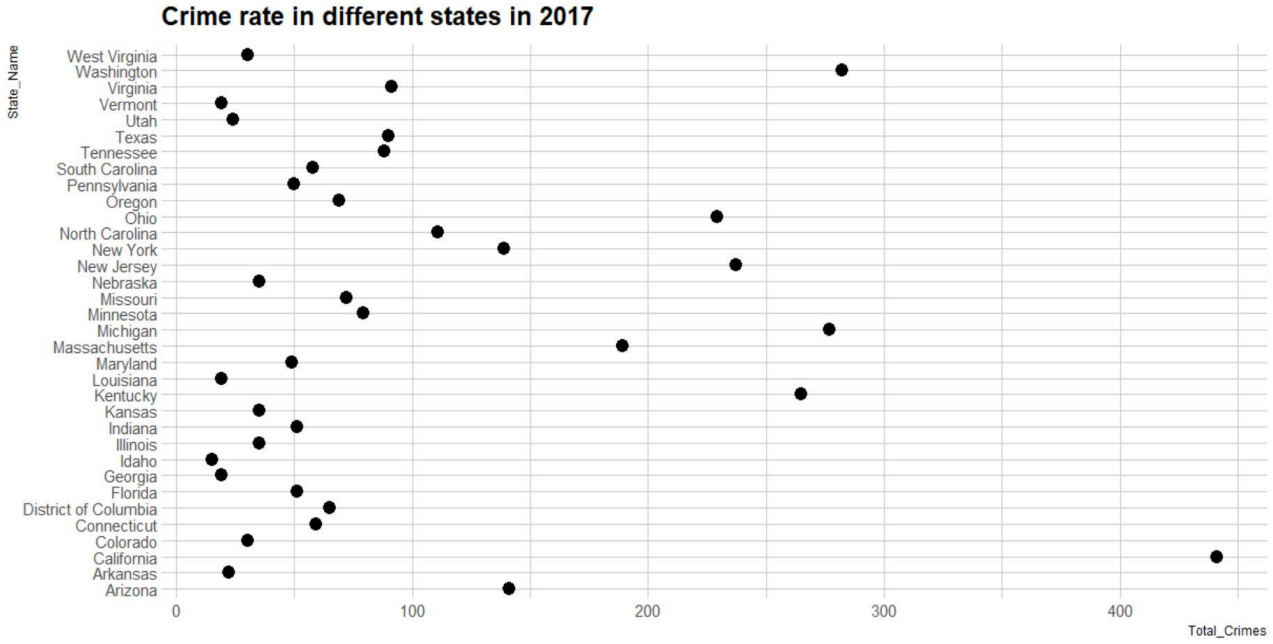
Here we are visualizing the different types of crimes that are happening in more number in the year 2017. Here we have used bar graph visualizing different types of crimes. We can see that Destruction is the main crime that had happened a greater number of times compared to other crimes.

4.1.3 VISUALISATION 3



Here we are analyzing the frequency of the crimes that are happening in the different areas or in different environments in the states of US. Here we frequency graph to analyze the frequency of the crimes happening in different areas or in different environment. From the above we can see that more number of crimes have happened in the residence area followed by highway.

4.1.4 VISUALISATION 4



Here we are analyzing crime rates in the different states of US in the year 2017. We have used scatter plot for visualizing the crime rates that have happened in the states of US. In the above graph we can see that there is highest crime rate in California as compared to other states of US

4.2. REPORTS

4.2.1 REPORT 1

No of crimes occured in various city sizes over the years

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Cities 1000000 or over	382	421	554	473	749	751	699	583	574	597
Cities from 10000 thru 24999	283	431	488	349	497	530	518	438	425	422
Cities from 100000 thru 249000	158	390	371	274	422	491	418	377	425	513
Cities from 2500 thru 9999	136	207	337	216	230	319	281	292	269	229
Cities from 25000 thru 49999	285	454	523	360	514	663	534	522	507	550
Cities from 250000 thru 499999	554	587	447	343	485	475	480	432	428	362
Cities from 50000 thru 99000	230	320	384	334	530	595	526	495	521	482

First report is a matrix report showing the number of crimes occurred in cities with different sizes of population over the years from 1991 to 2017. One insight I found out is that over the years the number of crimes in big cities with a population greater than 1 million remained relatively small with respect to their population size but the smaller populated cities had an increase in the number of hate crimes. This may concrete the notion of openness of people in bigger cities than to smaller ones.

4.2.2 REPORT 2

No of hate crimes against different races from 1991-2017

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
African American	1629	2313	2827	2179	2994	3677	3149	2970	2990	2940
American Indian	11	26	28	25	41	51	38	52	49	59
Asian	269	222	260	211	355	356	346	297	304	280
Multiple	86	147	162	128	221	211	215	288	214	246
Native Hawaiian										
White	837	1349	1477	1014	1229	1107	1009	803	788	904

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
African American	2922	2507	2573	2762	2671	2631	2674	2952	2299	2201
American Indian	78	62	71	85	79	61	61	56	68	44
Asian	280	219	235	224	208	184	190	143	128	152
Multiple	219	159	161	184	191	233	214	221	179	165
Native Hawaiian										
White	819	709	832	826	817	858	742	757	538	575

	2011	2012	2013	2014	2015	2016	2017
African American	2100	2060	1909	1657	1757	1789	2098
American Indian	64	105	92	138	131	157	245
Asian	137	144	134	139	115	115	132
Multiple	136	122	96	85	113	139	185
Native Hawaiian			3	3	4	9	17
White	527	685	667	609	613	737	733

Second report is a matrix report showing the number of people of different races becoming victims in hate crimes over the years. This matrix shows an insight that African American people are the most targeted over the years

4.2.3 REPORT 3

No of hate crimes for particular crime type at different crime scenes

	Bank	Bar	Beach/Lake	Camp/Campground	Commercial Building	Community Center	Construction Site	Cyberspace	Daycare Facility	Education Institute
Aggravated Assault	65	454	45	1	121	3	11		1	482
All Other Larceny	13	10	2		31		14			47
Bribery										
Credit Card Fraud	5				1					
Destruction	197	121	32		767	3	186		2	4680
Drug Violations		3	1		1		1			18
Embezzlement	1				3					
Extortion/Blackmail		1			1					
Fondling	2		1						1	7

	Farm Facility	Field/Woods	Government Building	Highway	Hospital	Hotel	Military Installation	Other	Parking	Prison
Aggravated Assault	1	238	89	5547	59	90		1209	1177	176
All Other Larceny	1	7	13	67	2	9		76	46	1
Bribery									1	
Credit Card Fraud			1	1	3	1		7		
Destruction	3	323	596	3468	139	108	1	3650	1887	26
Drug Violations	1	15	6	244	8	12		32	37	7
Embezzlement				2	2			3		
Extortion/Blackmail			1	1						
Fondling			1	3	2			2		1

Third report tries to find a correlation between the type of crime occurred and the type of crime scene where it occurs by using a matrix report. Here people get assaulted at educational institutes and commercial buildings the most.

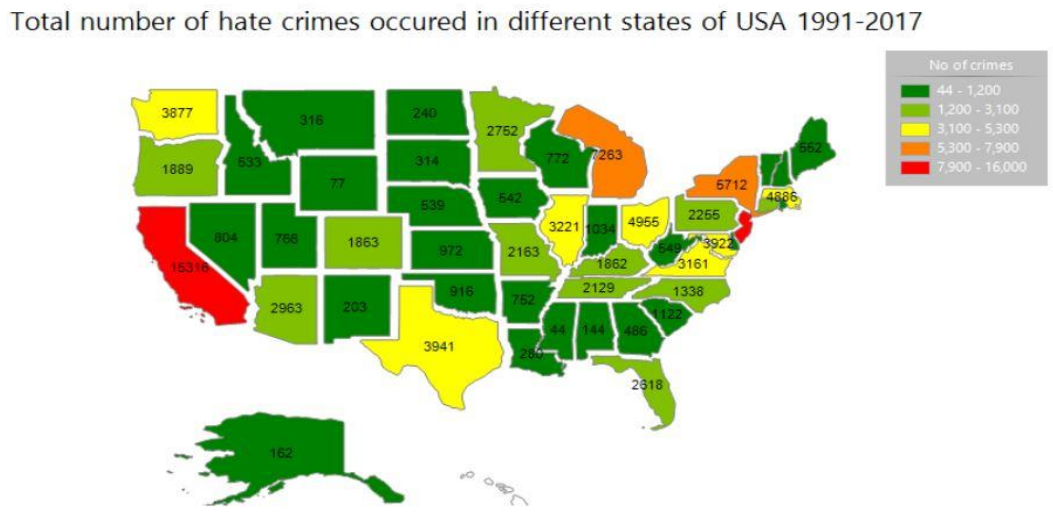
4.2.4 REPORT 4

Number of crimes conducted by different races to others

	African American	American Indian	Asian	Multiple	Native Hawaiian	Unknown	White
African American	1875	214	414	1128	1	27361	36237
American Indian	228	89	20	35	1	710	894
Asian	655	30	113	110		2481	2390
Multiple	282	12	17	149		2832	1428
Native Hawaiian	7			1	1	11	16
White	11789	332	223	547	2	6025	3643

Fourth report is another matrix trying to find a correlation between the race of the offender and the race of the victims involved. The African-American and White people are the two races who do crime against each other the most.

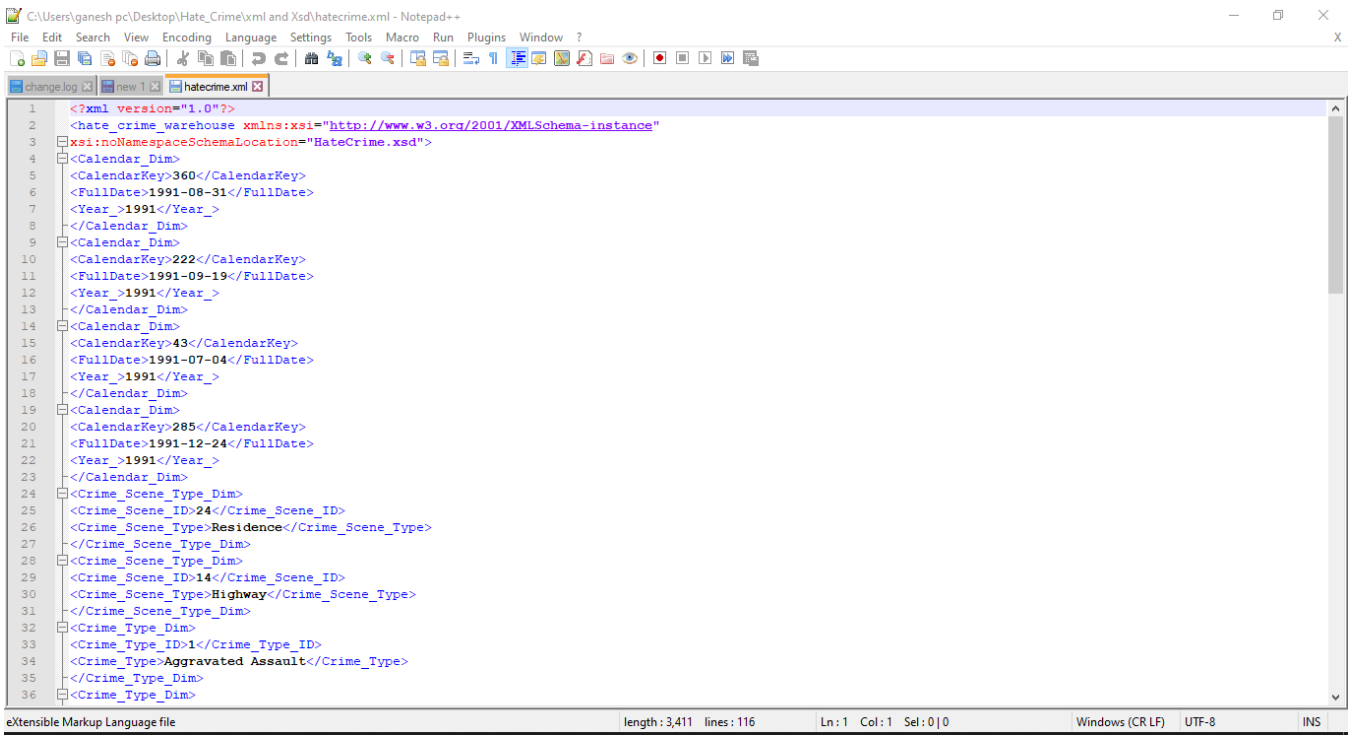
4.2.5 REPORT 5



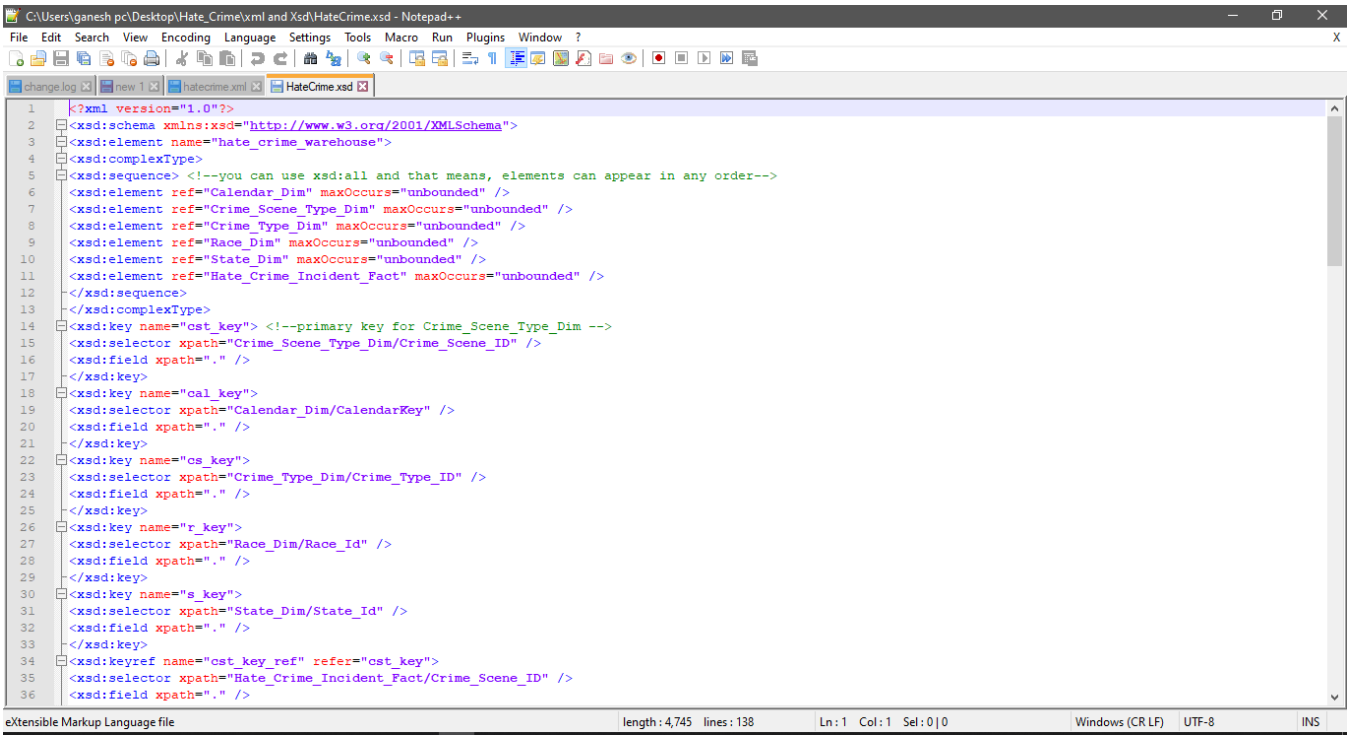
Fifth report is an illustrative map of USA showing the different states and corresponding number of crimes occurred in them. The states are color coded in the red-yellow-green color scheme with red denoting most number of crimes

and green the lowest. This report is highly useful for anybody to understand at a glance the quality of different states in terms of occurrence of hate crimes.

5. INCLUDE XML AND SCHEMA

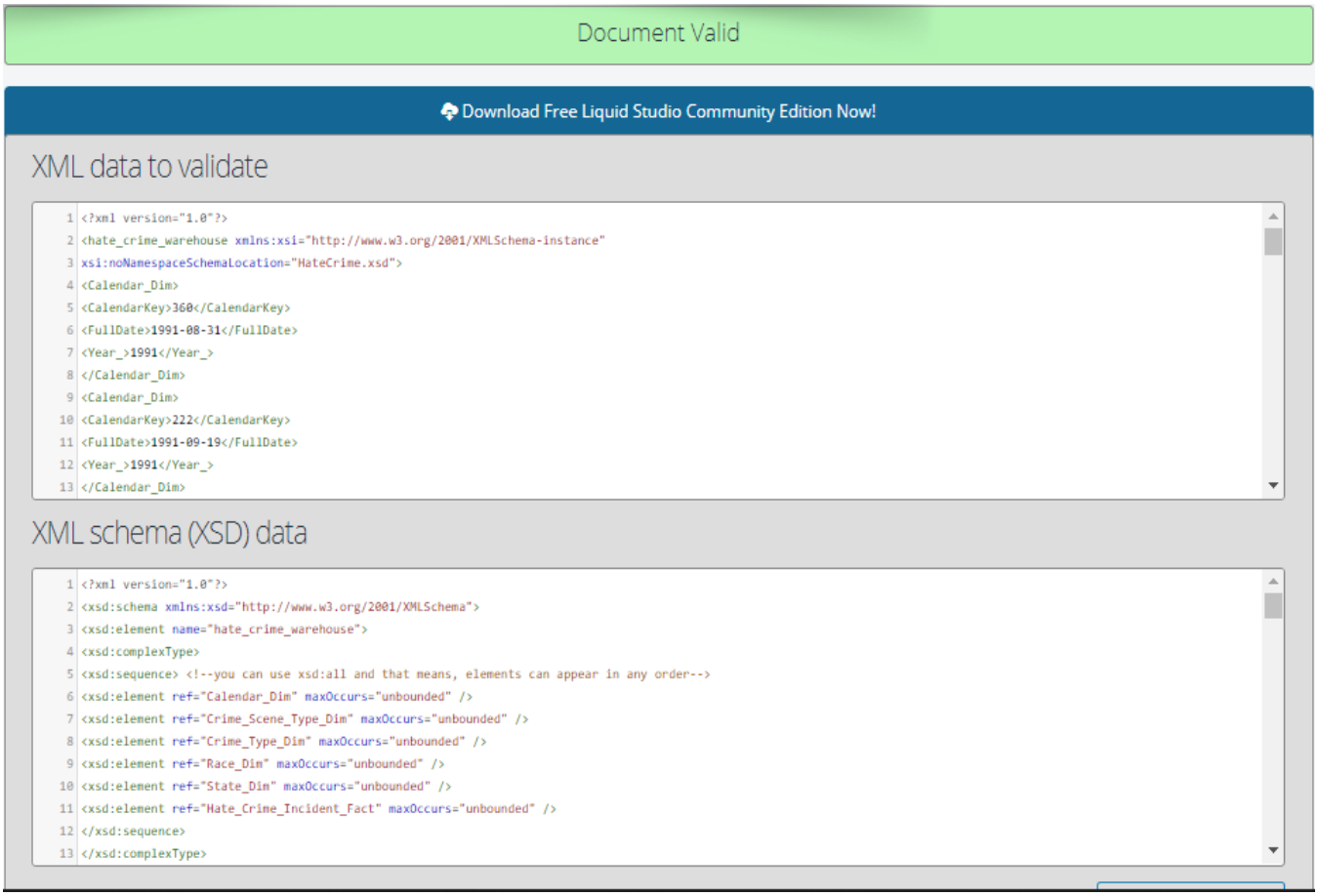


The above screen shot is of the XML



The above screen shot is of the XSD

5.1 XML AND XSD VALIDATION

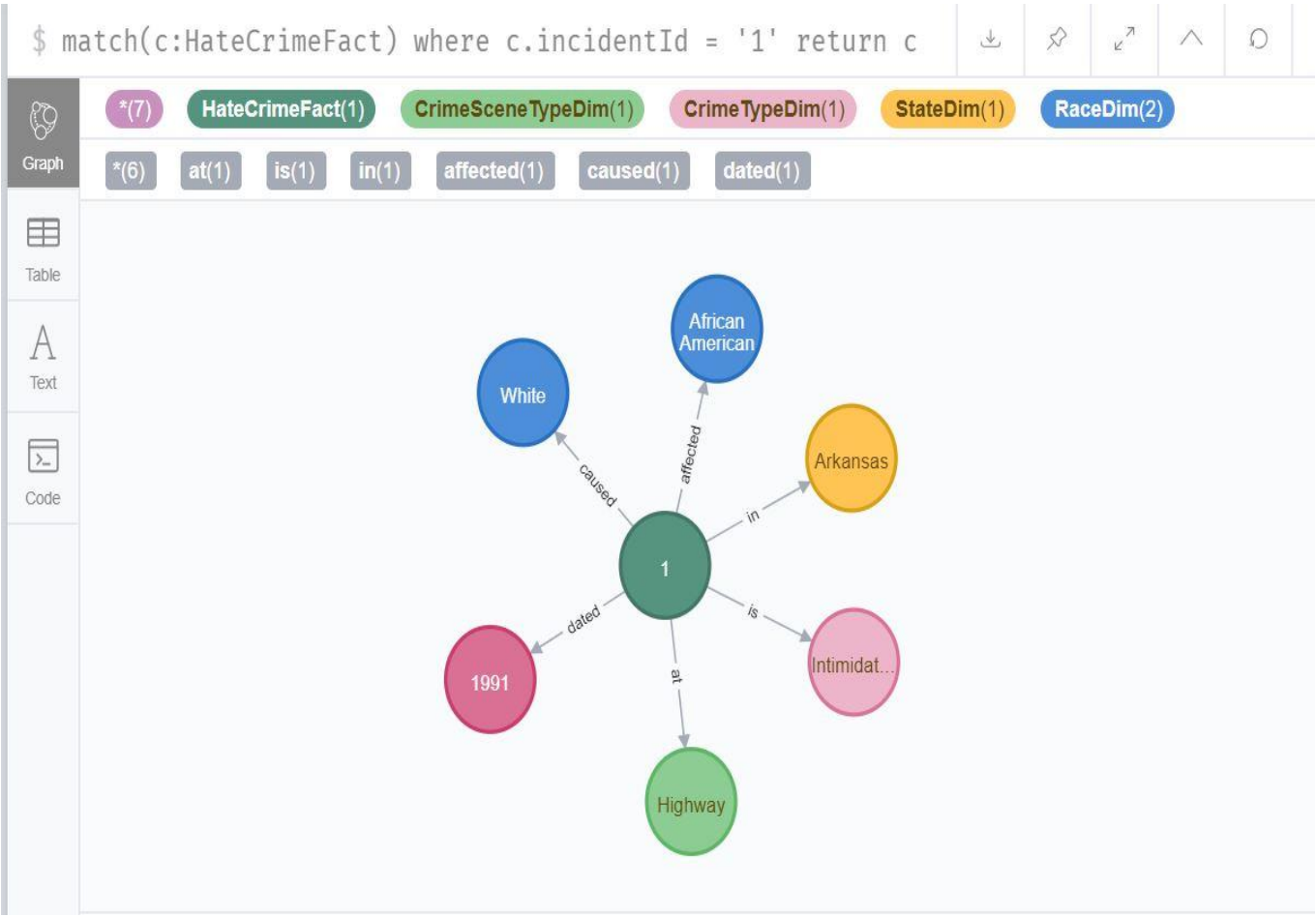


In the above screen shot we can see that both XML and XSD files have been validated.

Validation link: https://www.liquid-technologies.com/online-xsd-validator

6. GRAPH DATABASES

6.1 GRAPH 1



This graph shows one node from our fact namely HateCrimeIncident and its relationship with all the dimensions in the warehouse. The incident with one victim which happened in the year 1991 at Highway in Arkansas which was affected by African American and the crime was committed by the White and incident committed was intimidation.

6.2 GRAPH 2

All incident that happened in the state Colorado in the year 1991 on different races of people.

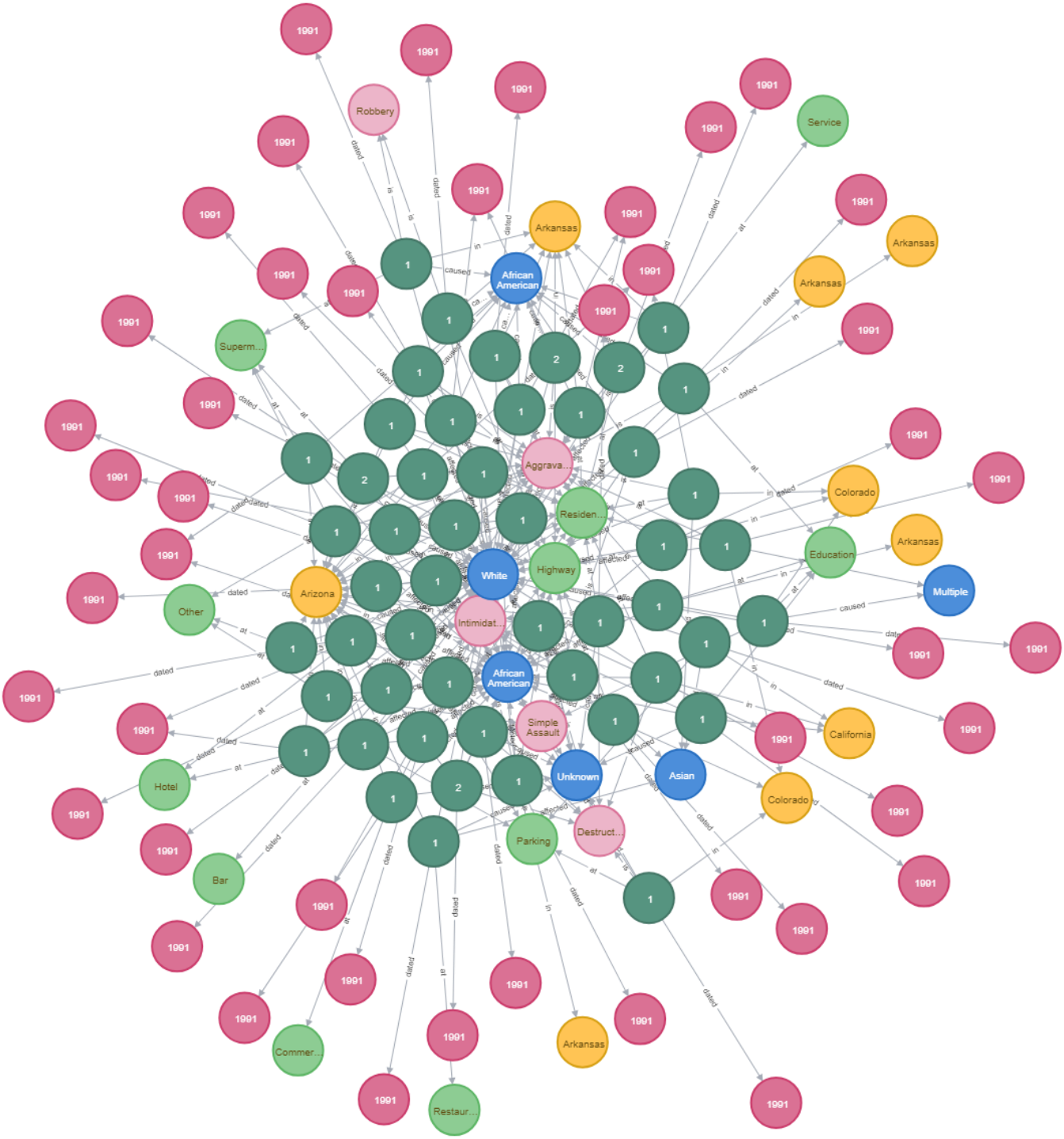
6.3 GRAPH 3

All the incidents, where the affected victim has the race white in the year 1991 in different places in the states of US

6.4 GRAPH 4

The above graph shows Crime type which has happened the most in states of US over the year

6.5 GRAPH 5



The above graph represents a snapshot of hate crime data warehouse with all the relationship between the fact and all the dimensions.

6.2 COMAPRISON TO REALTIONAL DATABASES

- The main difference between relational database and graphical data base is that the relationships are sorted at different levels in graphical database whereas in relational database the structure is defined at higher like higher level like tables.
- A relational database is much faster as compared to graphical database when operating on huge volume of data or records. But in graphical database each record must be checked individually in a query in order to obtain structure or the graph of the data.
- Relational database uses less space as compared to graphical database because relational database does not store all the relationships

7. CONCLUSIONS

We modelled the historical data provided by FBI on all hate crime incidents occurred in the USA during the years 1991-2017. Using the dimensions crime type, crime scene, race and the date we analyzed the characteristics of the incidents and looked for any correlation between any of the dimensions. We found out that the greatest number of hate crimes were conducted by African American and White population against each other over the years across the USA. The central states have the lowest reported number of racial hate crimes over the years. The public places where the most hate crimes occur are the educational places and the commercial buildings where the crimes of aggravated assault and destruction have occurred the most. The hate crime incidents have increased over the years in USA and the warehouse represents the general landscape of USA with respect to hate crimes.

8. BIBLIOGRAPHY

Data Source: Federal Bureau of Investigation – Crime Reporting Services.

Web site: Crime-data-explorer.fr.cloud.gov

URL: https://crime-data-explorer.fr.cloud.gov/downloads-and-docs

APPENDIX A – TABLE CREATETION QUERIES AND VISUALISATION QUERIES

APPENDIX A.1: QUERY FOR TABLE CREATION

```
CREATE TABLE Calendar_Dim
(
CalendarKey INT NOT NULL IDENTITY,
FullDate DATE,
```

```
Year_ Date,
PRIMARY KEY (CalendarKey));
GO

CREATE TABLE Crime_Scene_Type_Dim
(Crime_Scene_ID INT NOT NULL IDENTITY,
CrimeType varchar (500),
PRIMARY KEY (Crime_Scene_ID));
GO

CREATE TABLE Crime_Type_Dim
(Crime_Type_ID INT NOT NULL IDENTITY,
Crime_Type varchar (500),
PRIMARY KEY (Crime_Type_ID));
GO

CREATE TABLE State_Dim
(State_Id varchar (100),
State_Abbr varchar (100),
State_Name varchar (200),
Population_Group_Description varchar (200),
PRIMARY KEY (State_Id));
GO

CREATE TABLE Race_Dim
(Race_Id INT NOT NULL IDENTITY,
Race_Name varchar (500),
PRIMARY KEY (Race_Id));
CREATE TABLE Hate_Crime_Incident_Fact
(
CalendarKey INT,
Crime_Scene_ID INT,
Crime_Type_ID INT,
Victim_Race_Id INT,
Offender_Race_Id INT,
State_Id VARCHAR (100),
Victim_Count INT,
```

```
PRIMARY KEY (CalendarKey, Crime_Scene_ID, Crime_Type_ID, Victim_Race_Id, Offender_Race_Id, State_Id),
FOREIGN KEY (Calendarkey) REFERENCES Calendar_Dim (CalendarKey),
FOREIGN KEY (Crime_Scene_ID) REFERENCES Crime_Scene_Type_Dim (Crime_Scene_ID),
FOREIGN KEY (Crime_Type_ID) REFERENCES Crime_Type_Dim (Crime_Type_ID),
FOREIGN KEY (Victim_Race_Id) REFERENCES Race_Dim (Race_Id),
FOREIGN KEY (Offender_Race_Id) REFERENCES Race_Dim (Race_Id),
FOREIGN KEY (State_Id) REFERENCES State_Dim (State_Id),
);
```

APPENDIX A.2: VISUALISATION QUERIES

```
library(hrbrthemes)
library(RODBC)
library(dplyr)
conn = odbcDriverConnect("Driver={SQL Server};
                    server=LAPTOP-CNTL30JD\\DARSHANSQL;
                    database=HateCrimeWarehouseNew;
                    trusted_connection=true")
conn
##################################################### 1st  Visualization
p_data = sqlQuery(conn, "SELECT r.Race_Name,
                SUM(f.Victim_Count) as Total_Crimes
                FROM Race_Dim r
                INNER JOIN Hate_Crime_Incident_Fact f
                ON r.Race_Id = f.Victim_Race_Id
                INNER JOIN Calendar_Dim d
                ON f.CalendarKey = d.CalendarKey
                WHERE d.Year_=2017
                group by Race_Name")

p_data
p_percentage = round(p_data $Total_Crimes * 100/sum(p_data $Total_Crimes),1)
p_percentage

pie(pie_data$Total_Crimes, main="Crimes against different races in 2017",
   labels = paste(p_percentage,"%"), col=rainbow(length(p_data$Race_Name)),radius = 1)
legend("topright", c("African American ","American Indian","Asian","Multiple","Native Hawaiian","White"),
```

```
      fill=rainbow(length(p_data$Race_Name)),cex=.7)

##################################################### 2nd  Visualization

b_data = sqlQuery(conn, "SELECT c.Crime_Type,
                  SUM(f.Victim_Count) as Total_Crimes
                  FROM Crime_Type_Dim c
                  INNER JOIN Hate_Crime_Incident_Fact f
                  ON c.Crime_type_ID = f.Crime_Type_ID
                  INNER JOIN Calendar_Dim d
                  ON f.CalendarKey = d.CalendarKey
                  WHERE d.Year_=2017
                  group by Crime_Type")
b_data
n = quantile(b_data$Total_Crimes, probs = 0.70) # quar
n
b_data = filter(b_data,b_data$Total_Crimes>n)
barplot(bar_data$Total_Crimes, main="Different types of crimes in 2017",
       xlab="Crime Type", ylab="Total Crimes",names.arg=b_data$Crime_Type,
       cex.names = 0.7,
       cex.axis=.7,
       col=rainbow(length(unique(b_data$Crime_Type))),
       args.legend = list(horiz=FALSE, x="topleft", cex=0.5))

##################################################### 3rd  Visualization

data = sqlQuery(conn, "SELECT c.Crime_Scene_Type,
                  SUM(f.Victim_Count) as count
                  FROM Crime_Scene_Type_Dim c
                  INNER JOIN Hate_Crime_Incident_Fact f
                  ON c.Crime_Scene_ID = f.Crime_Scene_ID
                  group by Crime_Scene_Type")
data
library(ggplot2)
data <- data.frame(
   Crime_Scene_Type=data$Crime_Scene_Type,
   count=data$count
```

```
)
library(forcats)
count
data = data[order(-data$count),]
data
data %>%
   #mutate(Crime_Scene_Type = fct_reorder(Crime_Scene_Type, count)) %>%
   ggplot( aes(x=data$Crime_Scene_Type, y=data$count)) +
   geom_bar(stat="identity", fill="#f68060", alpha=.6, width=.4) +
   coord_flip() +
   labs(title = 'No of hate crimes in different environments', x = 'Crime Scene Types', y = 'Frequency') +
   #xlab("Crime Scene Types") +
  # ylab("Frequency")+
   #main("No of hate crimes in different environments")
   theme_bw()
##################################################### 4th  Visualization
data1 = sqlQuery(conn,"SELECT s.State_Name,
                 SUM(f.Victim_Count) as Total_Crimes
                 FROM State_Dim s
                 INNER JOIN Hate_Crime_Incident_Fact f
                 ON s.State_Id = f.State_Id
                 INNER JOIN Calendar_Dim d
                 ON f.CalendarKey = d.CalendarKey
                 WHERE d.Year_=2017
                 group by State_Name" )
data1
m = quantile(data1$Total_Crimes, probs = 0.30) # quar
m
data1 = filter(data1,data1$Total_Crimes>m)
data1
data2<-ggplot(data1, aes(Total_Crimes, State_Name)) +
  geom_point(size=4)+theme_ipsum()
print(data2+ggtitle("Crime rate in different states in 2017"))
```

APPENDIX B – NEO 4J CODE

```
USING PERIODIC COMMIT 15

load csv with headers from "file:///DimCrimeScenetype.csv" as row create (c:CrimeSceneTypeDim) set c = row {crimeSceneKey:row.Crime_Scene_ID, crimeSceneType:row.Crime_Scene_Type} return c

load csv with headers from "file:///DimCrimetype.csv" as row create (c:CrimeTypeDim) set c = row {crimeTypeKey:row.Crime_Type_ID

, crimeType:row.Crime_Type} return c

load csv with headers from "file:///DimRace.csv" as row create (c:RaceDim) set c = row {raceKey:row.Race_Id

, raceName:row.Race_Name} return c

load csv with headers from "file:///DimState.csv" as row create (c:StateDim) set c = row {stateKey:row.State_Id

,stateAbbr:row.State_Abbr,stateName:row.State_Name,popGroupDesc:row.Population_Group_Description} return c

match(c:StateDim) detach delete(c)

load csv with headers from "file:///DimCal.csv" as row create (c:CalendarDim) set c = row {calKey:row.CalendarKey

,fullDate:row.FullDate,year:row.Year_} return c

USING PERIODIC COMMIT

load csv with headers from "file:///Fact.csv" as row

WITH row LIMIT 50

create (c:HateCrimeFact) set c = row {incidentId:row.Incident_ID

,calendarKey:row.CalendarKey,crimeSceneID:row.Crime_Scene_ID,crimeTypeID:row.Crime_Type_ID,victimRaceId:row.Victim_Race_Id,offenderRaceId:row.Offender_Race_Id,stateId:row.State_Id,victimCount:row.Victim_Count} return c

!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

create constraint on (c:CalendarDim) assert c.calKey is unique

create constraint on (c:StateDim) assert c.stateKey is unique
```

```
create constraint on (c:RaceDim) assert c.raceKey is unique

create constraint on (c:CrimeTypeDim) assert c.crimeTypeKey is unique

create constraint on (c:CrimeSceneTypeDim) assert c.crimeSceneKey is unique

MATCH (s:HateCrimeFact), (p:CalendarDim) where s.CalendarKey=p.calKey create (s)-[r:dated]- >(p) return s, p, r

MATCH (s:HateCrimeFact), (p:StateDim) where s.stateId=p.stateKey create (s)-[r:in]- >(p) return s, p, r

MATCH (s:HateCrimeFact), (p:RaceDim) where s.victimRaceId=p.raceKey create (s)-[r:affected]- >(p) return s, p, r

MATCH (s:HateCrimeFact), (p:RaceDim) where s.offenderRaceId=p.raceKey create (s)-[r:caused]- >(p) return s, p, r

MATCH (s:HateCrimeFact), (p:CrimeTypeDim) where s.crimeTypeID=p.crimeTypeKey create (s)-[r:is]- >(p) return s, p, r

MATCH (s:HateCrimeFact), (p:CrimeSceneTypeDim) where s.crimeSceneID=p.crimeSceneKey create (s)-[r:at]- >(p) return s, p, r

match(c:HateCrimeFact) where c.incidentId = '1' return c

match(h:HateCrimeFact)< -[r:in]- >(s:StateDim) return h,r,s

match(h:HateCrimeFact)< -[r:in]- >(s:StateDim{stateName:"Colorado"}) return h,r,s

match(h:HateCrimeFact)< -[r:in]- >(s:StateDim{stateName:"Colorado"})< -[a:affected]- >(f:RaceDim{raceName:"White"}) return h,r,s,a,f

match(h:HateCrimeFact)< -[r:in]- >(s:StateDim) return h,r,s

match(h:HateCrimeFact)< -[r:affected]- >(f:RaceDim{raceName:"White"}) return h,r,f

match(h:HateCrimeFact)< -[r:is]- >(f:CrimeTypeDim{crimeType:"Aggravated Assault"}) return h,r,f

match(h:HateCrimeFact)< -[r:in]- >(s:StateDim)< -[c:] return h,r,s
```