



**Data Analytical Programming**  
**CT050-3-M**

**Project Report**  
**on Analysing the FBI Data through SAS Programming**

ASIA PACIFIC UNIVERSITY OF TECHNOLOGY & INNOVATION (APU)  
SCHOOL OF COMPUTING AND TECHNOLOGY

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## 1. Introduction:

As we all aware that the now a days the population density increases, and socioeconomic factors trend downward, increasing crime rates become a major concern for any country. The Criminal Justice Information Services (CJIS) Division has chartered the Federal Bureau of Investigation's (FBI) New Uniform Crime Reporting (UCR) Project to manage the **acquisition, development, and integration** of a new and improved data collection system. This project is a top priority for the CJIS Division and the FBI UCR Program.

However The DAP (Data Analytical Programming) assignment had gotten data set from the U.S. Department of Justice Federal Bureau of Investigation (FBI). The FBI collects these data through the Uniform Crime Reporting (UCR) Program. The key requirement of this assignment is to **analysis** the Preliminary data sets from the Uniform Crime Reports of the FBI for the first 6 months (January – June) of 2014 and 2015 in cities with populations of 100,000 and over. The given preliminary data sets are consist of two type of Crimes in United States of America (USA).

1. **Violent crime:** violent crime category includes murder, rape (revised definition), rape (legacy definition), robbery, and aggravated assault.
2. **Property crimes:** Property crimes include burglary, larceny-theft, and motor vehicle theft, the variable *arson* was also a *property crime*; however data for *arson* was not included in *property crime* totals and presented separately due to fluctuation in reporting.

There are four tables presented for this preliminary data set. The data presented in Table 1 and 2 indicated the percent change in offenses known to law enforcement for the first 6 months of 2015 compared with those for the first half of 2014 by population group and region, respectively. Table 3 reflected the percent change in offenses reported within the nation for consecutive years (each year compared to the prior year). Table 4 presented the number of offenses known to law enforcement for agencies with resident populations of 100,000 or more that provided 6 months of complete data for 2015. In addition, Table 4 presented 6 months of 2014 data, where the data was available as a point of comparison. As for this report, the data set on table 4 would be utilized for the analysis.

## 2. Objective:

In Preliminary Data set, the data has been given of 43 USA states. However in this report we have chosen three of most populated states of USA, such as California, New York and Texas, for the analysis. On the basis of above three states we set 5 objectives for this report as per below.

- 1) To Identify the highest crime rate among the three most populated states: California, new York and Texas for the year of 2014
- 2) To analyze the highest murder rate within each chosen states of the year 2014 and 2015

- 3) To identify the Robbery crime in the year of 2014 and 2015
- 4) To classify the violent crime across the different states in 2014 and 2015
- 5) To classify the city amongst all three chosen states that has highest and lowest crime rate for the year of 2014 and 2015 respectively
- 6) To analysis the California state crime data for the 2014.
- 7) TO identify the factors effecting by increasing the crime across different states in 2014 and 2015.

### 3. Data Cleansing:

The given data sets of FBI Report was contained 43 states of USA, but we need only most populated states, hence we create new CSV file, named as **Dataset.csv**. Which only contains the data of **CALIFORNIA, NEW YORK** and **TEXAS** State. The initial data set contains the titles, footnotes and descriptions of data, which was **cleaned** in new Datasets before transferring the data in SAS studio because they were not needed in Analysis part. The removed footnote and description example is below

**Table 4**  
**January to June 2014–2015**  
**Offenses Reported to Law Enforcement**  
**by State by City 100,000 and over in population**

<sup>1</sup> The 2014 population figures are FBI estimates based on provisional data from the U.S. Census Bureau. See the data declaration for further explanation.																			
<sup>2</sup> The figures shown in this column for the offense of rape were reported using the revised Uniform Crime Reporting (UCR) definition of rape. See the data declaration for further explanation.																			
<sup>3</sup> The figures shown in this column for the offense of rape were reported using the legacy UCR definition of rape. See the data declaration for further explanation.																			
<sup>4</sup> The FBI does not publish arson data unless it receives data from either the agency or the state for six months of at least one of the reporting years.																			
<sup>5</sup> The population for the city of Mobile, Alabama, includes 55,819 inhabitants within the jurisdiction of the Mobile County Sheriff's Department.																			
<sup>6</sup> Complete January through June data for 2014 are not available.																			
<sup>7</sup> This agency began the year submitting rape data classified according to the legacy UCR definition. However, at some point during the calendar year, the agency modified its reporting methods and began classifying and submitting rape offenses according to the revised UCR definition of rape. See the data declaration for further explanation.																			
<sup>8</sup> The FBI determined that the agency did not follow national UCR Program guidelines for reporting an offense. Consequently, these figures are not included in this report.																			
<sup>9</sup> Because of changes in the local agency's reporting practices, figures are not comparable to previous years' data.																			
<sup>10</sup> The FBI determined that the agency's data were <u>underreported</u> . Consequently, those data are not included in this report.																			
<sup>11</sup> Arson offenses are reported by the Toledo Fire Department; therefore those figures are not included in this report.																			

However, the Initial variables also contains the Spaces and Superscripts, which was removed and cleaned. The new variables was renamed to add '\_\_\_' instead of spacing. The initial variables was following.

by State by City 100,000 and over in population													
			Violent crime	Murder	(revised definition) <sup>2</sup>	(legacy definition) <sup>3</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson <sup>4</sup>
5	State	City	Population <sup>1</sup>										

After re-labelling, the new variables in NewDataSet.csv is following.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	State	City	year	Population	Violent_crime	Murder	Rape_revised_definition	Rape_legacy_definition	Robbery	AggravateProperty_crime	Burglary	Larceny_theft	Motor_vehicle_theft	Arson	
2	CALIFORNIA	ANAHEIM	2014	346956	537	5	0	37	203	292	4206	619	2915	672	

This step is needed before transferring the data in SAS Studio. Because of SAS does not have ability to read the spaces of variables. Further, the initial data set was no column label for year variables separately with city column. In New data set the variable years is separately added to

the year column. However the data set was also contains superstring on several characters. Which was also removed in new data set before uploading the data in SAS studio. On the other side initial data set was also merged and centered of all cities within same state. In order to ease analysis procedure on SAS, the state name were repeated for all cities within same state. The example of separate columns, superstring and merge cities with same states as per below.

CALIFORNIA		2015	State	City	year	Populatio
	SURPRISE	2014	CALIFORN	ANAHEIM	2014	346956
		2015	CALIFORN	ANAHEIM	2015	346956
	TEMPE	2014	CALIFORN	ANTIOCH	2014	108223
		2015	CALIFORN	ANTIOCH	2015	108223
	TUCSON <sup>6</sup>	2014	CALIFORN	BAKERSFIE	2014	367406
		2015	CALIFORN	BAKERSFIE	2015	367406
	ANAHEIM <sup>7</sup>	2014	CALIFORN	BERKELEY	2014	117753
		2015	CALIFORN	BERKELEY	2015	117753
	ANTIOCH	2014	CALIFORN	BURBANK	2014	105041
		2015	CALIFORN	BURBANK	2015	105041
	BAKERSFIELD	2014	CALIFORN	CARLSBAD	2014	112297
		2015	CALIFORN	CARLSBAD	2015	112297
	BERKELEY	2014				
		2015				

The Initial Data Set

New Data Set (Cleaned)

The population of year 2014 was identified on initial data sets which was provided by FBI. However the population for the year 2015 was not identified, hence for the analysis, we were assume that 2015 population is same as in 2014.

2014	169,812
2015	
2014	527,328
2015	
2014	346,956
2015	

Initial Data Sets (population)

2014	346956
2015	346956
2014	108223
2015	108223
2014	367406
2015	367406

New Data Sets (Population)

Furthermore, the initial data sets was also presented as blank column, to avoid the wrong analysis we were replaced the zero on blank column as per below.

169,812	429	1	48	292	3	0	20
	348	2	47	318	2	30	0
527,328				217	1	12	0
	1,706	16	213	241	0	15	0
346,956	537	5		90	0	0	13
	628	10	65	93	0	9	0
				127	0	0	15
				187	1	25	0

Initial Data Sets (blank column)

New Data Sets (filled with zero)

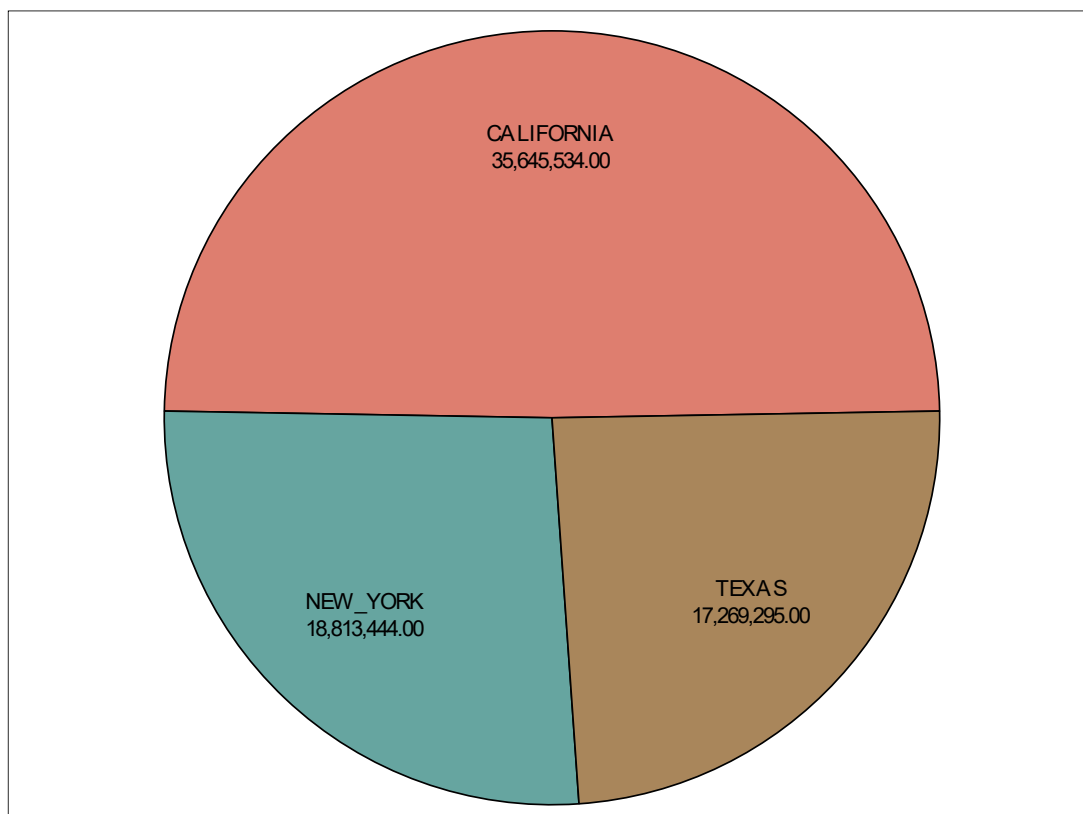
#### 4. Data Analysis:

The data set name DataSet.csv was transferred to SAS studio as per below defined path and directory.

```
%let pathdm=/home/ameerkhoso470/workshop/DAPAssignment;
libname dm "&pathdm";
/* to define file name and delimiter*/
infile "&pathdm/DataSet.csv" dlm=',';
```

#### Population Analysis across 3 different states:

The following Graph is representing the overall population across three Populated US states. From the given FBI crime data The California state has majority of population following by New York state. Less population was identified in Texas in my data set



**Fig:1 Population across 3 States of US In 2014 and 2015**

```

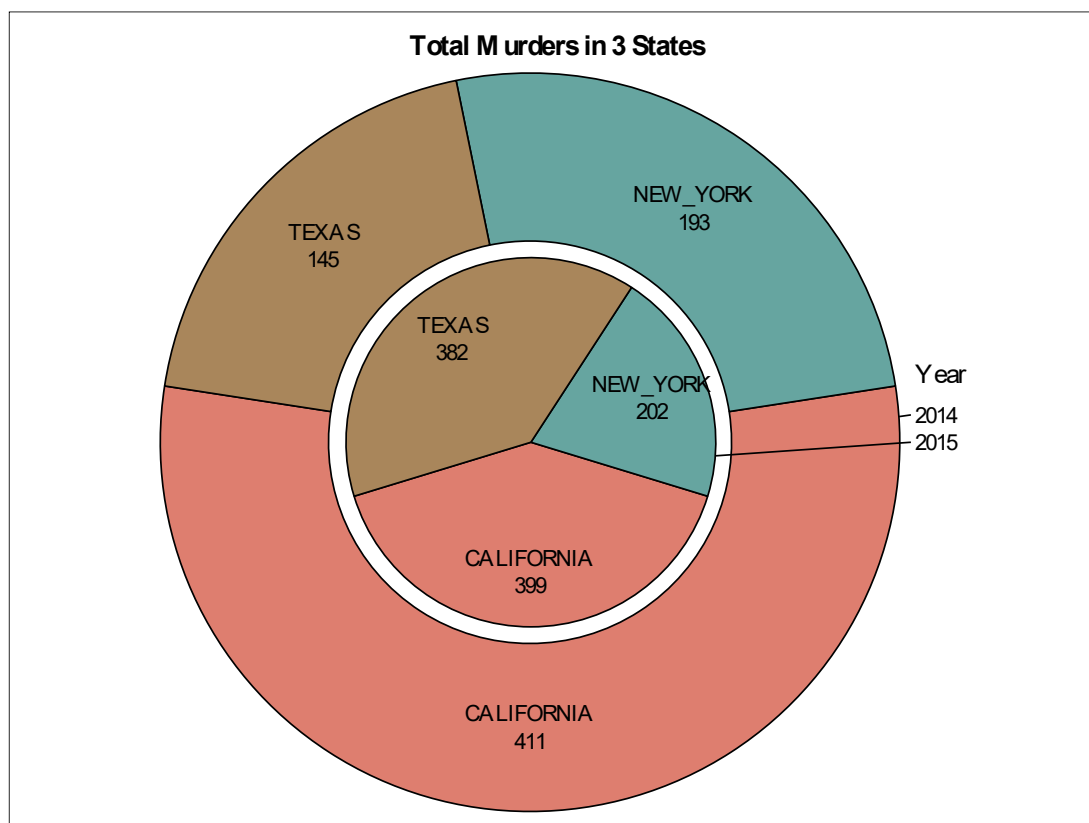
52 /---Pie Chart for Population---*/
53 title3 "Population of 3 States in US";
54
55 /---Define Pie Template---*/
56 proc template ;
57     define statgraph WebOne.Pie;
58         begingraph;
59             layout region;
60             piechart category=State response= population / start=90 centerFirstSlice=1;
61         endlayout;
62     endgraph;
63 end;
64 run;
65 /---Set output size---*/
66 ods graphics / reset imagemap;
67
68 /---SGRENDER proc statement---*/
69 proc sgrender template=WebOne.Pie data=work.crime_data;
70 run;
71
72 ods graphics / reset;
73 --Set output size--/ ods graphics / reset imagemap;

```

**Fig2: Snapshot of SAS code by Population**

### **Analysis on Murder across 3 States in 2014 and 2015:**

The following graph is resenting the murders crime, which were happened in year 2014 and 2015 at different states. The highest murdered case was identified in California State in 2014 as well as 2015, following by Texas State in 2015. However in 2014 more murder cases was identified in New York as compare to Texas State.



**Fig3: Murder across three different states**



```

213 /---Define Pie Template---/
214 proc template ;
215     define statgraph WebOne.Pie;
216         begingraph;
217         entrytitle 'Total Murders in 3 States';
218         layout region;
219         piechart category=State response=Murder / group=Year groupgap=2%
220             start=270 centerFirstSlice=1 datalabellocation=INSIDE;
221         endlayout;
222     endgraph;
223 end;
224 run;
225
226 /---Set output size---/
227 ods graphics / reset imagemap;
228

```

**Fig4: Snapshot of SAS code by Murder****Analysis on Highest Crime Rate across 3 States in 2014:**

From the given data sets the highest crime was observed property\_crime in all states, followed by larcency\_theft. However the lowest crime was Arson. Below hieghest and lowest crime is highlighted

***Highest Crime Rate in All three states  
The MEANS Procedure***

Variable	Sum
Violent_crime	237147.00
Murder	1732.00
Rape_revised_defination	9838.00
Rape_legacy_defination	7773.00
Robbery	59953.00
Aggravated_assult	157851.00
Property_crime	925127.00
Burglary	194127.00
Larcency_theft	617221.00
Motor_vehicle_theft	108752.00
Arson	5027.00

***Fig5: Highest Crime*****Analysis on overall crime by Means Procedure in 2014 year:**

The following table is illustrating the overall crimes by means procedure, the maximum mean was observed the property\_crime, following by Lauracy\_theft. The minimum mean was 0 in all the crime. However total\_crime mean was observed 174692. Below table the highest mean was highlighted.

**Overall crime in all three states in 2014****The MEANS Procedure**

Variable	N	Mean	Std Dev	Minimum	Maximum
state	0	.	.	.	.
city	0	.	.	.	.
year	98	2014.00	0	2014.00	2014.00
population	98	346916.15	937720.69	100969.00	8473938.00
Violent_crime	98	799.2551020	2610.72	0	24191.00
Murder	98	7.6428571	20.4164124	0	146.0000000
Rape_revised_defination	98	28.3979592	124.1669760	0	1075.00
Rape_legacy_defination	98	26.8775510	61.3124944	0	518.0000000
Robbery	98	260.5306122	861.7362263	0	7691.00
Aggravated_assult	98	496.5204082	1624.20	0	15279.00
Property_crime	98	4307.71	8517.33	0	63155.00
Burglary	98	791.1020408	1253.53	0	7433.00
Larcency_theft	98	3008.36	6565.84	0	52230.00
Motor_vehicle_theft	98	519.7857143	944.1013537	0	6397.00
Arson	97	26.7628866	73.4292138	0	675.0000000
Total_crime	98	10272.67	21929.07	0	174692.00

**Fig6: minimum and maximum means**

As for this this objective, proc means was performed in order to analyze the highest crime type for all three states chosen and sum statement was added with proc means in order to total crime of each crime types

```

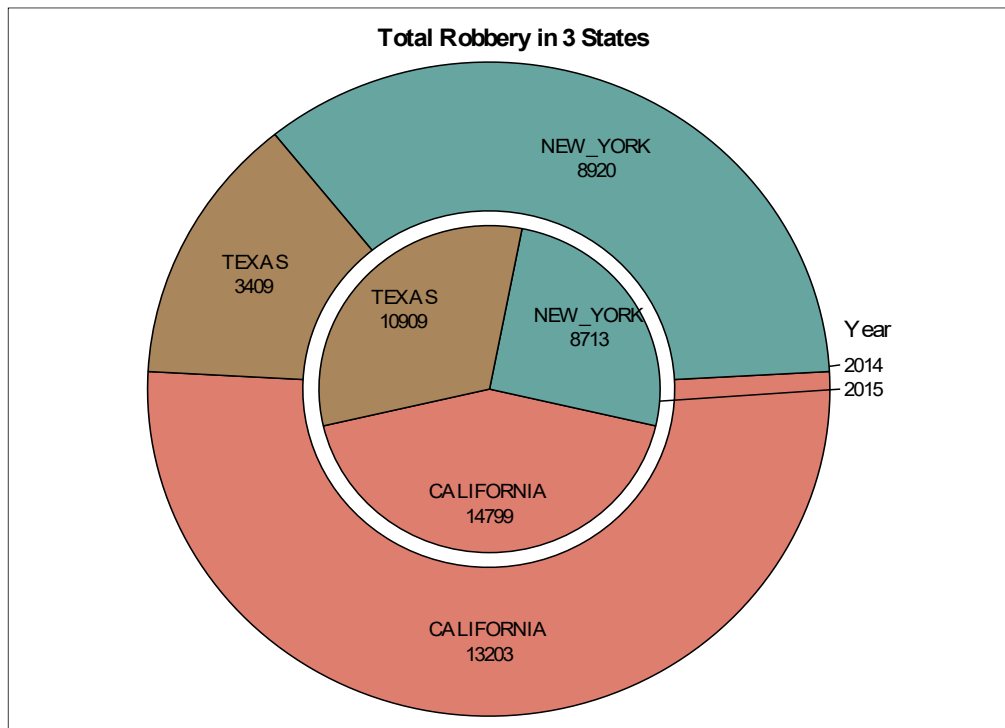
107
108 /* Highest crime rate all three states*/
109 title1 'Highest Crime Rate in All three states';
110 proc means data=work.crime_data sum;
111 var Violent_crime Murder Rape_revised_defination Rape_legacy_defination
112 Robbery Aggravated_assult Property_crime Burglary Larcency_theft Motor_vehicle_theft Arson
113 run;
114
115 /*number of cities within each states for the year 2014 and 2015 respectively*/
116 proc freq data=work.crime_data nlevels order=freq;
117 tables year*state / nopercnt norow nocol list;
118 run;

```

**Fig7: Means of Highest crime snapshot**

**Analysis on on Robbery in 2014 and 2015:**

The following graph is resenting the Robbery crime, which were happened in year 2014 and 2015 at different states. The highest Robbery case was identified in California State in 2014 as well as 2015, following by Texas State in 2015. However in 2014 more Robbery cases was identified in New York as compare to Texas State.



**Fig8: Robbery across three different states**

This objective was achieved through Pie chart to analyze the Robbery in easy way. Below the snapshot of Robbery code.

```

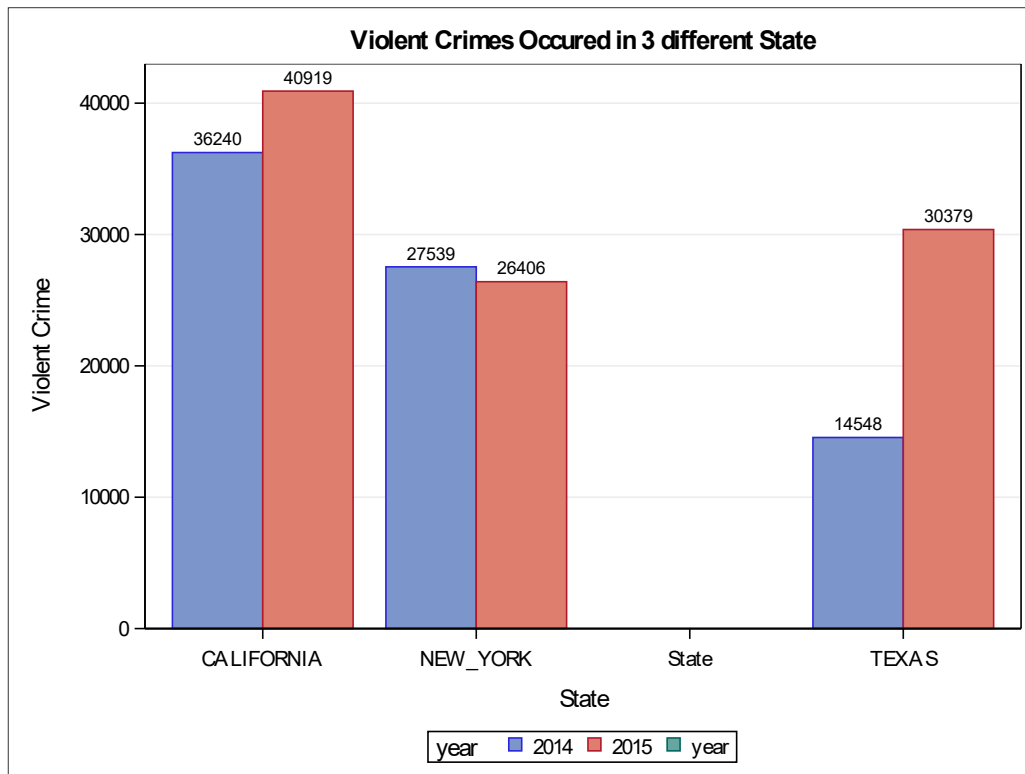
.07
.08 /---Define Pie Template---/
.09 proc template ;
.10     define statgraph WebOne.Pie;
.11         begingraph;
.12             entrytitle 'Total Robbery in 3 States';
.13             layout region;
.14             piechart category=State response=Robbery / group=Year groupgap=2%
.15                 start=270 centerFirstSlice=1 datalabellocation=INSIDE;
.16             endlayout;
.17         endgraph;
.18     end;
.19 run;
.20
.21 /---Set output size---/
.22 ods graphics / reset imagemap;
.23
.24 /---SGRENDER proc statement---/
.25 proc sgrender template=WebOne.Pie data=WORK.CRIME_DATA;
.26 run;
.27
.28 ods graphics / reset;
.29

```

**Fig9: Robbery attributes code**

**Analysis on on Voilent Crime across in different states in 2014 and 2015:**

The following graph is resenting the violent crime, The highest violent crime was identified in California State in 2014 as well as 2015, following by Texas State in 2015. However in 2014 more violent crime was identified in New York as compare to Texas State.



**Fig10: Violent Crime across three different states**

This objective was achieved through Bar Graph to analyze the violent crime in easy way. Below the snapshot of violent crime code.

```

73
74 /---SGPLOT proc statement---/
75 proc sgplot data=work.crime_data;
76 /---TITLE and FOOTNOTE---/
77 title 'Violent Crimes Occured in 3 different State';
78
79 /---Bar chart settings---/
80 vbar State / response=Violent_Crime group=Year groupdisplay=Cluster datalabel
81 stat=Sum name='Bar';
82
83 /---Response Axis---/
84 yaxis label='Violent Crime' grid;
85 run;
86
87 ods graphics / reset;
88 title;
89 --Set output size--/ ods graphics / reset imagemap;
90

```

**Fig11: Violent\_crime attributes code**

**Analysis on highest and lowest crime by Total Crime:**

Proc univariate procedure as per below was performed in order to observe the highest and lowest of the extreme observation towards the *total crime* variable value.

```

134 class state city;
135 var total_crime;
136 run;
137
138 /*observe highest and lowest crime*/
139 title 'Highest and Lowest Crime';
140 proc univariate data=work.crime_data;
141 var total_crime;
142 run;
143 proc sort data=work.crime_data;
144 by year descending total_crime;
145 where year=2014 and population > 1000000;

```

***Highest and Lowest Crime  
The UNIVARIATE Procedure  
Variable: total\_crime***

Basic Statistical Measures			
Location		Variability	
Mean	41740.80	Std Deviation	29819
Median	42075.00	Variance	889166032
Mode	.	Range	73601
		Interquartile Range	32618

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
13745	5	13745	5
16460	4	16460	4
42075	3	42075	3
49078	2	49078	2
87346	1	87346	1

**Fig12: Highest and lowest crime**

**Analysis on California state data of 2014:****CALIFORNIA SATAE CRIME DATA IN 2014**

CALIFORNIA SATAE CRIME DATA IN 2014															
city	year	population	Violent_crime	Murder	Rape_revised_defination	Rape_legacy_defination	Robbery	Aggravated_assult	Property_crime	Burglary	Larceny_theft	Motor_vehicle_theft	Arson	total_crime	st_n
.	2014	346956	537	5	0	37	203	292	4215	619	2915	672	9	4752	
.	2014	108223	419	3	0	30	148	238	2154	701	921	509	23	2573	
.	2014	367406	881	7	0	8	334	512	7812	2147	4354	1108	203	8673	
.	2014	117753	179	1	20	0	108	50	2398	410	1680	301	5	2575	
.	2014	105041	70	1	0	4	27	38	1273	161	1011	92	9	1343	
.	2014	112297	101	1	0	8	22	70	898	188	855	51	2	997	
.	2014	259894	292	3	0	20	107	182	2371	313	1605	432	21	2683	
.	2014	126744	217	1	12	0	78	126	2488	417	1597	452	2	2685	
.	2014	161128	90	0	0	13	34	43	1742	270	1209	253	10	1832	
.	2014	112709	127	0	0	15	38	74	1687	273	1235	167	12	1814	
.	2014	105828	100	2	12	0	39	47	823	183	519	135	6	923	
.	2014	113526	146	2	0	9	82	73	1483	240	835	369	8	1599	

**Fig13: California state data**

The where statement as per below was performed in order to analyze the California state data, only 2014 year

```

145 where year=2014 and population > 1000000;
146 run;
147 title 'CALIFORNIA SATAE CRIME DATA IN 2014';
148 proc print data=work.crime_data;
149 where State= CALIFORNIA and year=2014;
150 run;
151
152 data work.crime_data;
153 infile "&pathdm/DataSet.csv" dlm=',';
154 input state city year population Violent_crime Murder Rape_revised_defination

```

**Fig14: California state data code*****Frequency Of All Crimes***

year	Frequency	Percent
2014	98	49.25
2015	101	50.75
Frequency Missing = 1		

**Fig13: Frequency and Percent**

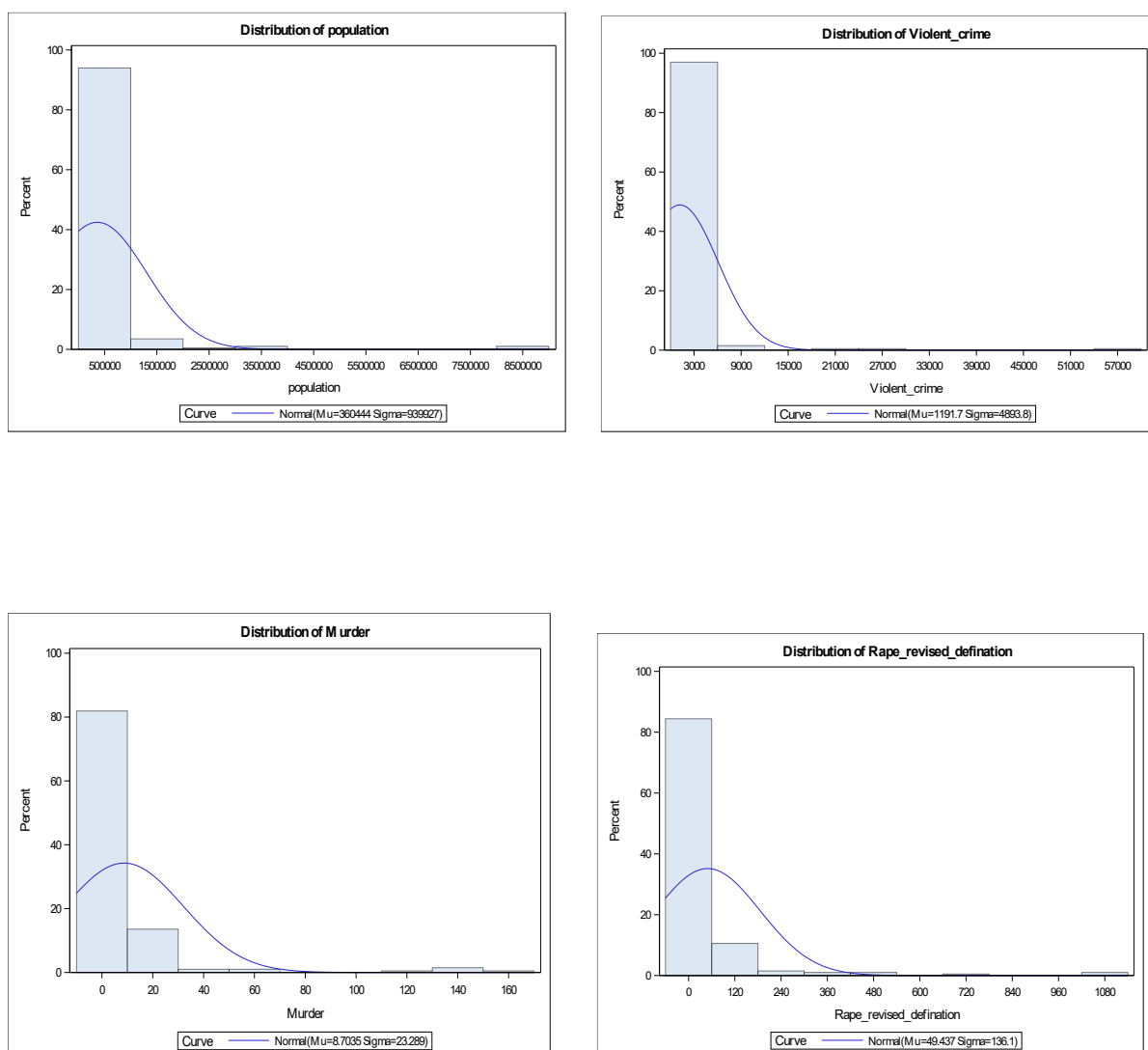
Further, proc FREQ procedure as per below was performed in order to observe the frequency and percent of All crimes in 2014 and 2015. However the missing frequency is only 1 was observed

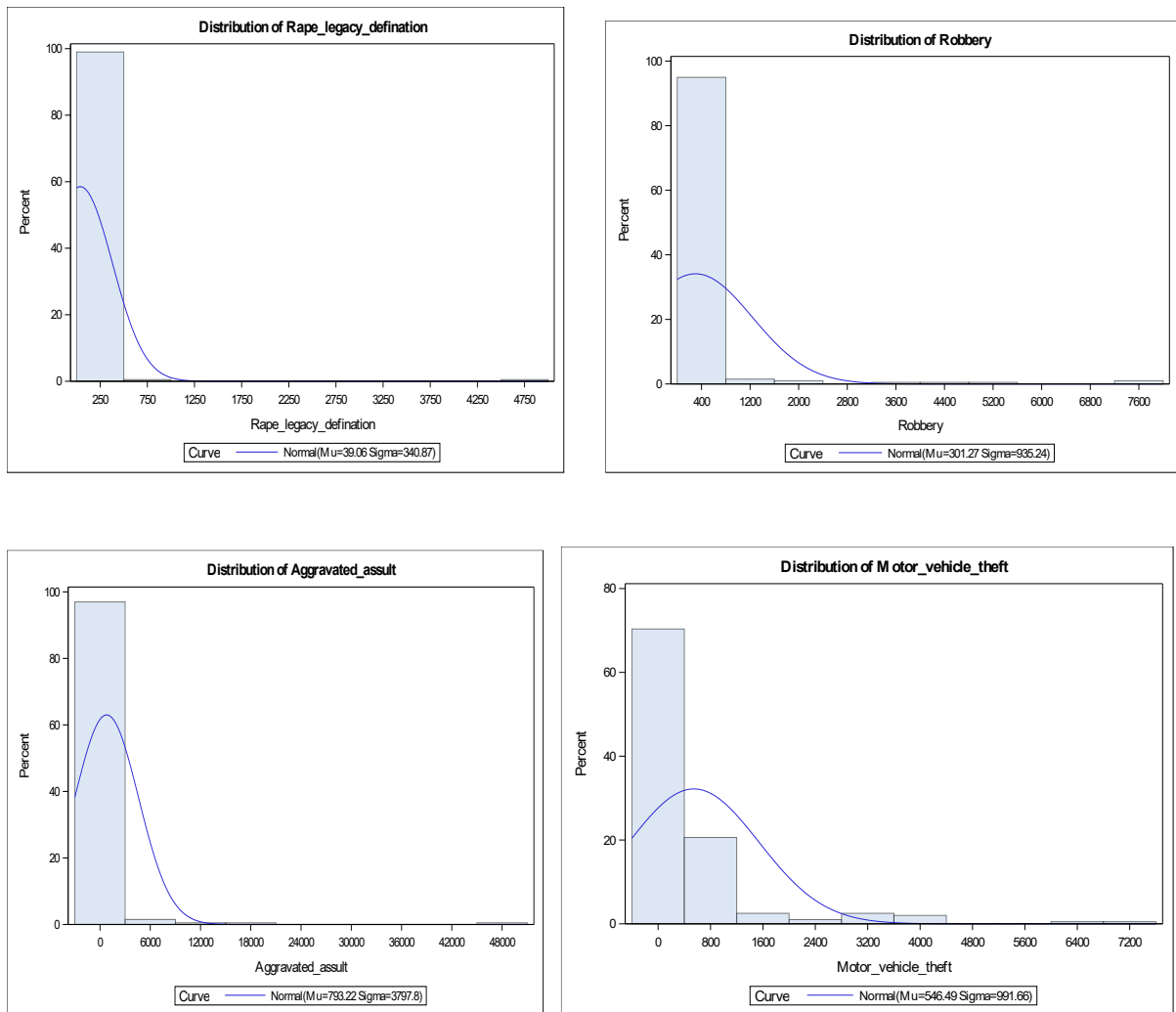
```

190 run;
191
192
193 /* Display Frequency of all crime attributes */
194 title 'Frequency Of All Crimes';
195 PROC FREQ DATA=work.crime_data;
196 TABLES state city year population Violent_crime Murder Rape_revised_defination Rape_legacy
197     Aggravated_assult Property_crime Burglary Larceny_theft Motor_vehicle_theft Arson /
198 RUN;
199
200 /* Plot histogram and summary statistics to bin data */
201 title 'Histogram and summarv Statistics of Data';

```

Fig14: Frequency code.

*Histogram and summary Statistics of Data*



This step was performed through proc univariate procedure as per below was performed in order to observe the overall summary statistics of chosen data. This procedure was done through above histogram Graph. Which representing the distribution of different crimes with percentage.

```

197   Aggravated_assult Property_crime Burglary Larceny_theft Motor_vehicle_theft Arson / no
198 RUN;
199
200 /* Plot histogram and summary statistics to bin data */
201 title 'Histogram and summary Statistics of Data';
202 PROC Univariate DATA =work.crime_data;
203 var population Violent_crime Murder Rape_revised_defination Rape_legacy_defination Robbery
204   Aggravated_assult Property_crime Burglary Larceny_theft Motor_vehicle_theft Arson;
205 HISTOGRAM population Violent_crime Murder Rape_revised_defination Rape_legacy_defination
206   Aggravated_assult Property_crime Burglary Larceny_theft Motor_vehicle_theft Arson / NORM
207 RUN;
208 /* Corss tabulation analysis

```

**Fig15: Histogram and Summary Statistics of Crime Data.**



**Analysis on Factor Effecting by increasing Crime :**

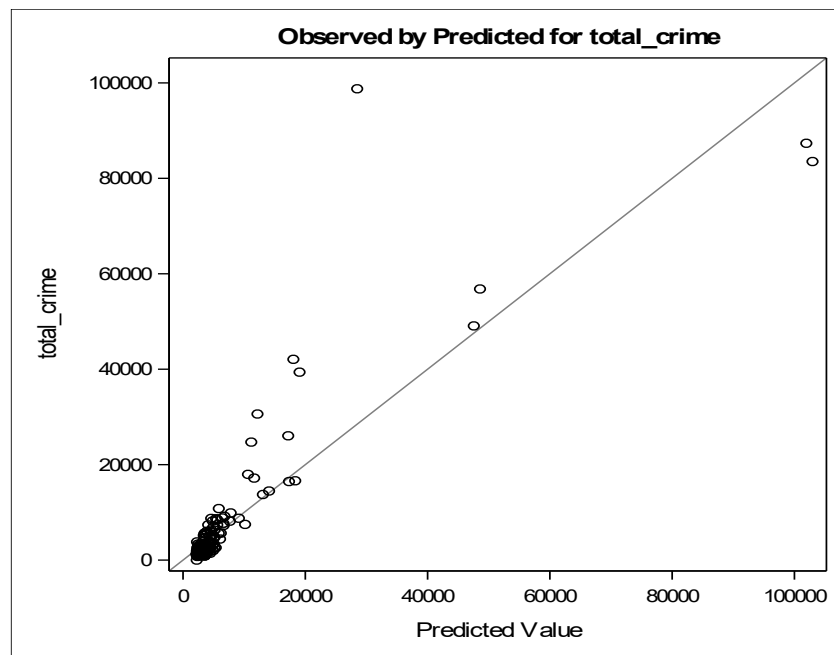
Following Graphs are representing the factors which are effecting to increase the crime across 3 US states. This step was obtained through proc regression procedure by given model such as unemployment\_rate, poverty\_rate and median\_householdIncome which is calculated through population

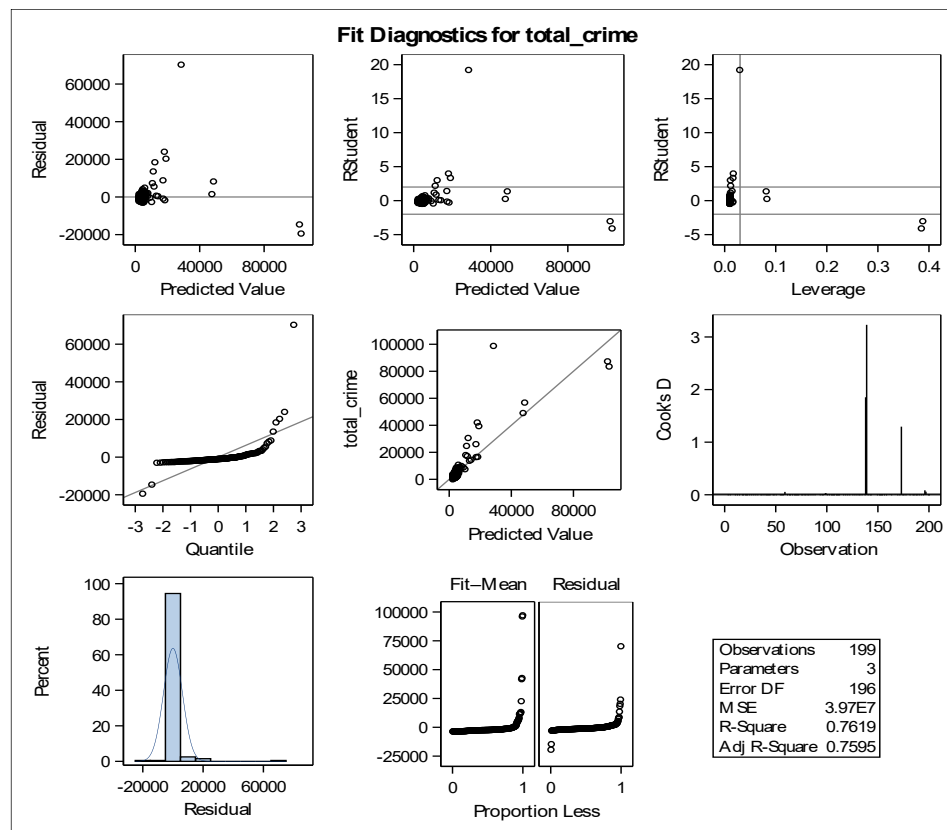
**Factors Effecting of Crime Rates*****Significant Factors of Crime***

Obs	state	year	Poverty_Rate	Median_HouseholdIncome	Unemployment_Rate
1	.	.	.	.	.
2	.	2014	2.5	\$61,990.00	7.5
3	.	2015	1.8	\$64,500.00	6.2
4	.	2014	2.5	\$61,990.00	7.5
5	.	2015	1.8	\$64,500.00	6.2
6	.	2014	2.5	\$61,990.00	7.5
7	.	2015	1.8	\$64,500.00	6.2
8	.	2014	2.5	\$61,990.00	7.5
9	.	2015	1.8	\$64,500.00	6.2
10	.	2014	2.5	\$61,990.00	7.5
11	.	2015	1.8	\$64,500.00	6.2
12	.	2014	2.5	\$61,990.00	7.5
13	.	2015	1.8	\$64,500.00	6.2
14	.	2014	2.5	\$61,990.00	7.5
15	.	2015	1.8	\$64,500.00	6.2
16	.	2014	2.5	\$61,990.00	7.5
17	.	2015	1.8	\$64,500.00	6.2
18	.	2014	2.5	\$61,990.00	7.5
19	.	2015	1.8	\$64,500.00	6.2
20	.	2014	2.5	\$61,990.00	7.5

**Regression Analysis**  
*The REG Procedure*  
**Model: MODEL1**  
*Dependent Variable: total\_crime*

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	B	6874.69763	4726.53329	1.45	0.1474
Unemployment_Rate	B	-778.69128	687.08844	-1.13	0.2585
Poverty_Rate	0	0	.	.	.
Median_HouseholdIncome	0	0	.	.	.
population	1	0.01191	0.00047630	25.00	<.0001





```

proc print data=work.crime_data;
format Median_HouseholdIncome dollar10.2;
var State Year Poverty_Rate Median_HouseholdIncome Unemployment_Rate;
run;

/** Regression Analysis**/

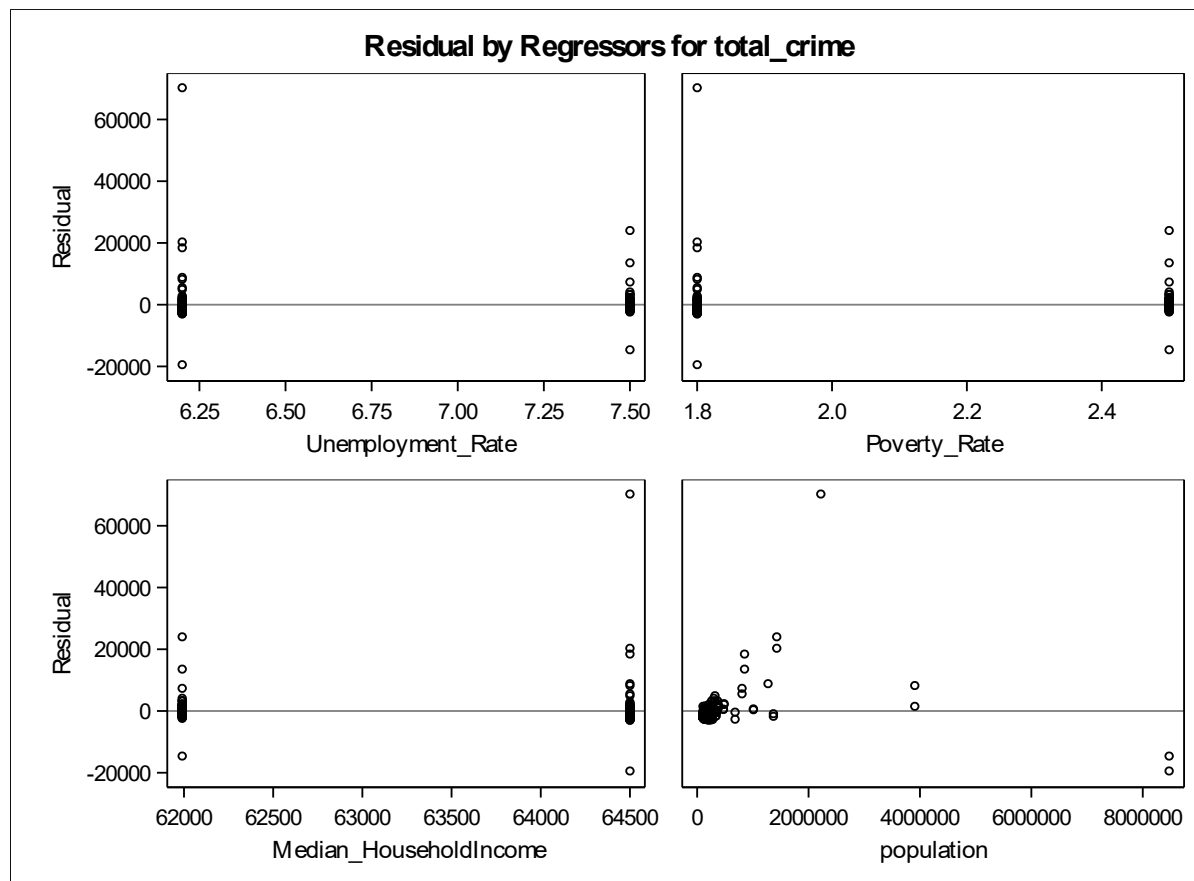
ods noproctitle;
ods graphics/imagemap=on;

proc reg data=work.crime_data alpha=0.05 plots(only)=(diagnostics residuals fitplot
observedbypredicted);

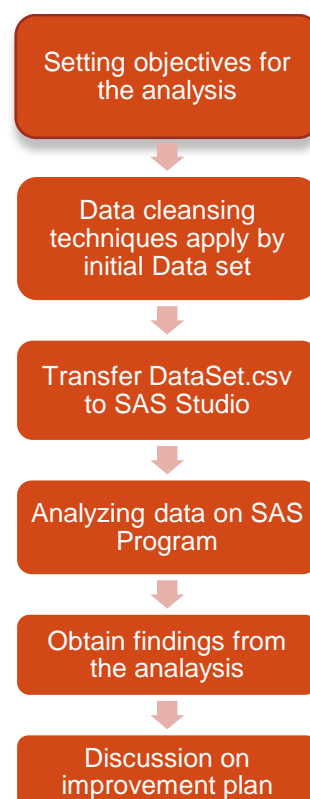
model total_crime= Unemployment_Rate Poverty_Rate Median_HouseholdIncome Population
run;
quit;

```

**Fig16: Regression Analysis**



### 5. Data Flow Diagram:



## **6. Discussion on findings:**

On the first objective the result was found highest crimes among all three states, California, New York and Texas for the year of 2014 and 2015. The crime categories are includes violent crime, murder, theft, rape, lararcy theft property crime etc.

Second objective was identify the highest crime across all states. Which California was amongst the highest crime observed with the overall Population.

There are a lot of factors that could possibly causing the increasing of crime rates, such as following

### **Causes of Crimes:**

#### **a) Increasing the population:**

Increase in population is the biggest cause of crime and much of the world's worries. Although population increase is related to each and every cause mentioned here, it still needs to be looked at as a cause of crime. The increase of population triggers of a dynamo effect in society and this leads to the creation of more people with some form of frustration or resentment towards society as such.

#### **b) Poverty:**

Economic deprivation or simply poverty is a major cause of crime all around the world. People are often driven to great lengths of desperation by poverty and this is a major cause of crime all around the world. The fact that such frustration is created is in itself a very dangerous thing for society on the whole as global inflation has risen significantly over the last few years. Although it does seem that in our world today, the rich get richer and the poor get poorer.

#### **c) Depression and other social and mental disorders:**

Depression is also a major cause of crime. Other than depression, people with grave mental disorders also end up committing crimes. Such people should be treated before their tendencies and ailments get out of hand. A person under depression or some other serious mental disorder can also easily cause harm to themselves.

#### **d) Drugs:**

Drugs are a bane, no matter how we look at them. A person addicted to drugs is unable to support their addiction and more often than not they end up in a life of crime to fuel their habits. It is not unknown anywhere in the world that a drug addict ends up committing crimes to raise money for their habits. Besides that there are also a large number of people that are involved in the drug trade. Though these people may not really be drug users themselves, they often lure others into drugs and crimes

There are few suggested ways in order to reduce crime rate based on the motivating factors stated above such as the following:

### **Factors of Reduces the Crime Rates**

**a). Increase employment:**

To decrease the poverty rate the government needs to increase the employment rate. For this, the government can invest more in infrastructure such as fixing old bridges, building mass transit, converting to clean sources as well as invest in core services such as school, childcare and elder care which will eventually generate both public benefits and jobs. Further, free community college could train more people for the working environment

**b). Increase minimum wage:**

If the minimum wage was increased most people would benefit and the poverty rate will decrease. Cities and some states are taking the lead raising the minimum wage to a living wage. Furthermore, it was suggested that strengthening unions and collective bargaining rights would also bring upward pressure on wages across the board

**c). Strengthening security system**

It is proven that fear can be used as a tool against crime. When people are aware that there are monitored security cameras installed and also police personnel surrounding the area in which they desire to commit crime at; they will possibly change their intention of committing the crime in the fear of getting caught. Hence, adequate security cameras as well as sufficient police personnel allocation are very crucial in order to reduce the crime rate

**d). Focus on gun control:**

Where there are no guns, there are no gun deaths. A simple and practical way to start impacting armed violence is to try to stem the flow of illegal guns. I believe in the gun control approach as a first step. (Iain Overton).

### **7. Conclusion:**

For this project, the data was used by US Department of Federal Bureau of Investigation (FBI). The initial data was not cleaned. So first we start set our objectives, then cleaned chosen the data across three states. Such as California, Texas, and New York. After the cleaning process the data was uploaded in SAS Studio for analysis purpose based on objective sets. After the analyzing data we obtained required finding and discuss them on improvement.

## 8. References:

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