

CHICAGO CRIME ANALYZER

OVERVIEW:

The **Chicago Crime Analyzer** project is designed to uncover insights from crime data in Chicago, enabling law enforcement agencies, policymakers, and communities to make informed decisions. Through comprehensive data cleaning, exploratory analysis, and visualization, this project provides actionable insights to enhance public safety and improve resource allocation.

SKILLS ACQUIRED:

- Data Cleaning & Preprocessing
- Exploratory Data Analysis (EDA)
- Data Visualization
- Geographic Analysis
- Trend Analysis

TOOLS USED:

- Python
- Power BI

FEATURES:

1. **Data Cleaning and Preprocessing**
 - Addressing missing values and formatting issues for a clean dataset.
2. **Geospatial Analysis**
 - Interactive maps to visualize crime hotspots and high-risk districts.
3. **Crime Type Analysis**
 - Distribution and severity analysis of crime categories.
4. **Arrest Trends**
 - Insights into arrest rates and domestic crime trends.

5. Predictive Modeling

- Risk assessment and forecasts for future crime patterns.

6. Visualization and Dashboards

- Interactive dashboards for dynamic exploration.

EVALUATION METRICS:

The success of the **Chicago Crime Analyzer** project will be evaluated based on the following criteria:

1. Data Preparation

- **Completeness:**
 - All data cleaning steps must be performed, including handling missing values, removing duplicates, and formatting inconsistencies.
 - Proper integration of any additional datasets or external information, if applicable.
- **Accuracy:**
 - The dataset must reflect accurate information after preprocessing, ensuring no loss or misrepresentation of critical data.
- **Documentation:**
 - A clear explanation of the data cleaning process, including decisions made for missing values, outlier treatment, and formatting.

2. Exploratory Data Analysis (EDA)

- **Depth of Analysis:**
 - The EDA must cover all aspects of the dataset, including temporal patterns, crime distributions, and location-based insights.
- **Insights:**
 - The findings should uncover meaningful trends and relationships in the data.
- **Statistical Relevance:**
 - Use of appropriate statistical methods, such as correlations, averages, and distribution analysis, to substantiate insights.

3. Data Visualization

- **Relevance:**
 - Visualizations must align with the project objectives and clearly communicate the key insights derived from the data.
- **Quality:**
 - High-quality, professional charts and maps should be used, ensuring readability and interpretability.
- **Interactivity:**
 - Dashboards must include interactive elements, such as filters, slicers, and drill-throughs, to allow users to explore the data dynamically.

4. Business Insights

- **Actionability:**
 - Insights must address the specific business use cases, such as crime hotspot identification, trend analysis, and arrest efficiency.
- **Stakeholder Relevance:**
 - The findings should be easily understandable by non-technical stakeholders, such as policymakers and community leaders.
- **Impactful Recommendations:**
 - Each insight must be paired with actionable recommendations that can influence decision-making.

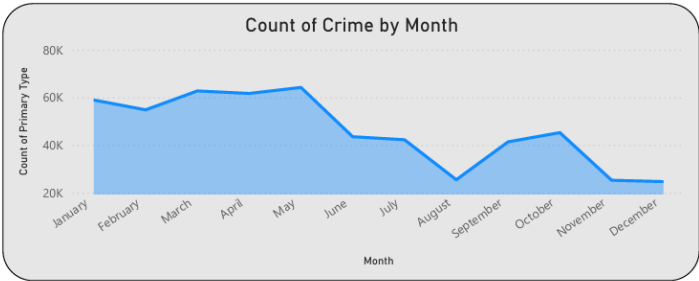
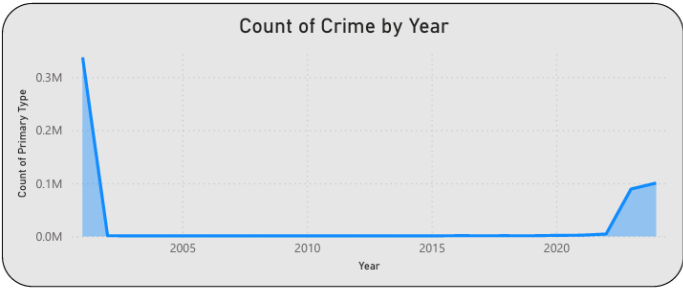
5. Presentation

- **Logical Structure:**
 - The report and presentation must follow a clear and logical flow, starting from the problem statement and ending with actionable insights.
- **Clarity:**
 - Use clear, concise language and avoid unnecessary technical jargon when presenting findings to stakeholders.
- **Visual Aids:**
 - Effective use of visuals, such as dashboards and charts, to complement the narrative and highlight key points.

OUTPUT:

Total crime
550.00K

Chicago Crime Analyzer

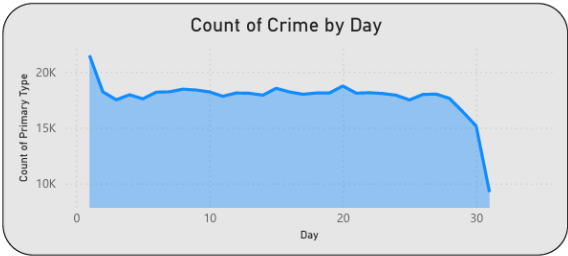


Time

- ☐ 12:00:00 AM
- ☐ 12:01:00 AM
- ☐ 12:04:00 AM
- ☐ 12:05:00 AM
- ☐ 12:07:00 AM
- ☐ 12:10:00 AM
- ☐ 12:15:00 AM
- ☐ 12:20:00 AM
- ☐ 12:25:00 AM
- ☐ 12:26:00 AM

Primary Type

- ☐ ARSON
- ☐ ASSAULT
- ☐ BATTERY
- ☐ BURGLARY
- ☐ CONCEALED CARRY LICENSE ...
- ☐ CRIM SEXUAL ASSAULT
- ☐ CRIMINAL DAMAGE
- ☐ CRIMINAL SEXUAL ASSAULT
- ☐ CRIMINAL TRESPASS
- ☐ DECEPTIVE PRACTICE
- ☐ DOMESTIC VIOLENCE

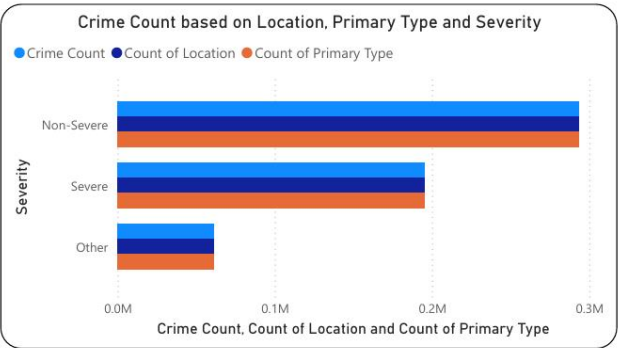
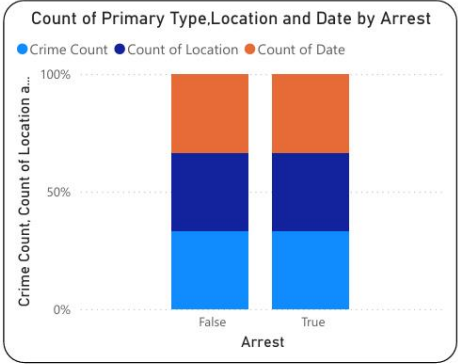
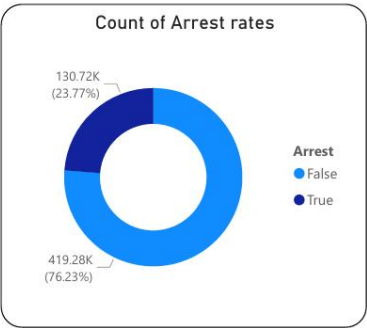
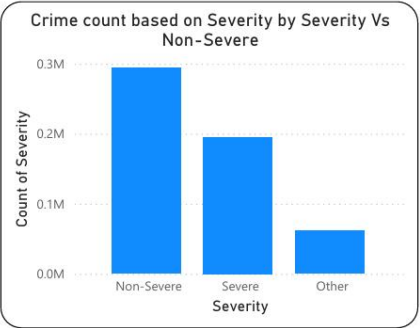
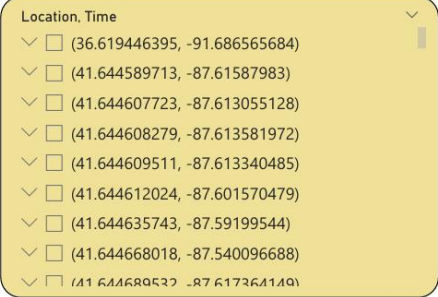
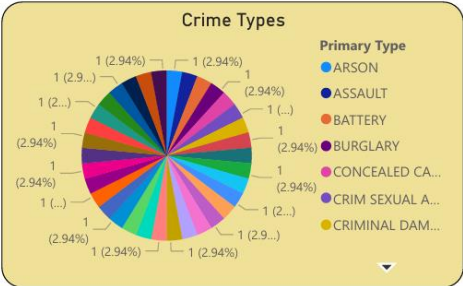
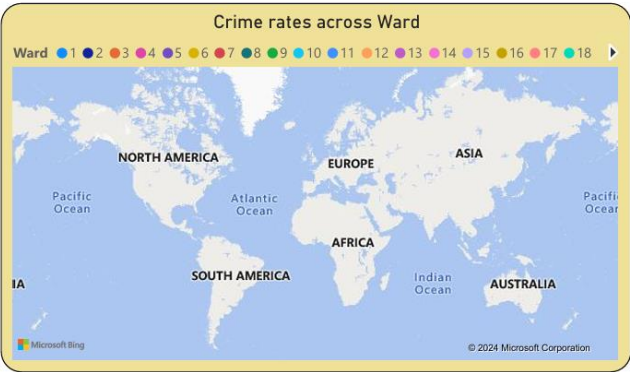


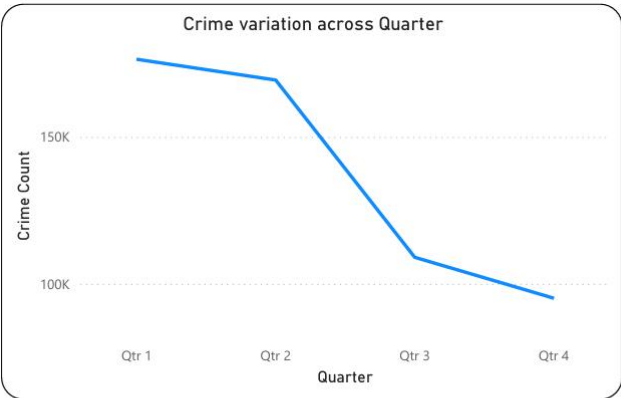
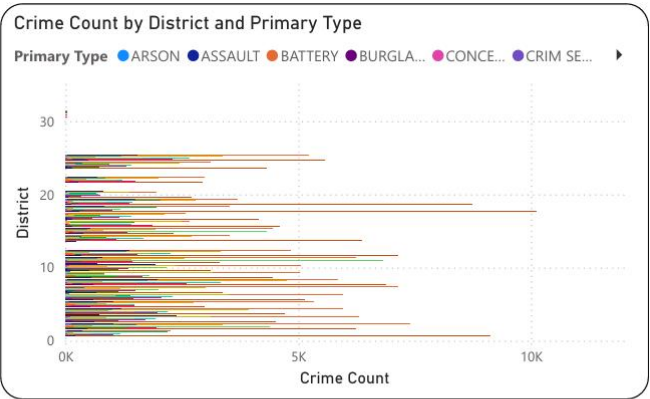
Crimes occuring based on Time Period

HourFormatted	Friday	Monday	Saturday	Sunday	Thursday	Tuesday	Wednesday	Total
01 AM	2315	2392	3442	3854	2231	2100	2144	18478
01 PM	3820	3739	3366	3050	3748	3911	4031	25665
02 AM	1966	1998	3166	3277	1833	1696	1681	15617
02 PM	4146	3909	3502	3238	4117	4040	4107	27059
03 AM	1584	1567	2454	2886	1489	1341	1415	12736
03 PM	4425	4356	3820	3495	4346	4374	4598	29414
04 AM	1236	1294	1890	2255	1121	1149	1062	10007
04 PM	4234	4028	3992	3611	4276	4346	4277	28764
05 AM	1112	1184	1385	1623	1084	1008	1025	8421
05 PM	4560	4248	3792	3700	4301	4273	4442	29316
06 AM	1279	1272	1250	1192	1298	1241	1317	8849
06 PM	4692	4539	4054	4017	4536	4589	4629	31056
07 AM	1949	1971	1367	1243	1876	1908	1824	12138
07 PM	4515	4380	4167	3929	4228	4545	4582	30346
08 AM	2757	2876	1881	1718	2813	2827	2928	17800
08 PM	4439	4397	4321	4058	4369	4345	4449	30378
09 AM	3294	3335	2614	2328	3351	3371	3448	21741
09 PM	4276	4144	4121	4141	4106	4147	4261	29196
10 AM	3398	3430	3002	2685	3456	3300	3510	22781
10 PM	4448	3923	4294	4078	4005	4006	4017	28771
11 AM	3480	3481	3185	2780	3543	3657	3450	23576
11 PM	4077	3142	4131	3399	3256	3318	3288	24611
12 AM	4516	4632	5101	5238	4453	4206	4455	32601
Total	81067	78769	78443	75460	78417	78317	79526	549999

Primary Type

- ☐ ARSON
- ☐ ASSAULT
- ☐ BATTERY
- ☐ BURGLARY
- ☐ CONCEALED CARRY LICENSE VIOL...
- ☐ CRIM SEXUAL ASSAULT
- ☐ CRIMINAL DAMAGE
- ☐ CRIMINAL SEXUAL ASSAULT
- ☐ CRIMINAL TRESPASS
- ☐ DECEPTIVE PRACTICE
- ☐ DOMESTIC VIOLENCE
- ☐ GAMBLING
- ☐ HOMICIDE
- ☐ HUMAN TRAFFICKING
- ☐ INTERFERENCE WITH PUBLIC OFFI...
- ☐ INTIMIDATION
- ☐ KIDNAPPING
- ☐ LIQUOR LAW VIOLATION





Primary Type

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- ☐ CRIM SEXUAL ASSAULT
- ☐ CRIMINAL DAMAGE
- ☐ CRIMINAL SEXUAL ASSAULT
- ☐ CRIMINAL TRESPASS



District	Crime Count
8	35956
2	35364
11	30780
25	30454
6	30174
12	30090
4	29284
3	27839
7	27382
19	26746
9	26367
18	25935
Total	549999

CONCLUSION:

The Chicago Crime Analyzer project demonstrates the transformative power of data analytics in enhancing public safety and law enforcement efficiency. By analyzing historical crime data, the project uncovers critical trends, identifies high-risk areas, and evaluates the effectiveness of arrests. The interactive dashboards and predictive models provide actionable insights, enabling stakeholders to make informed decisions about resource allocation, policy-making, and crime prevention strategies.

