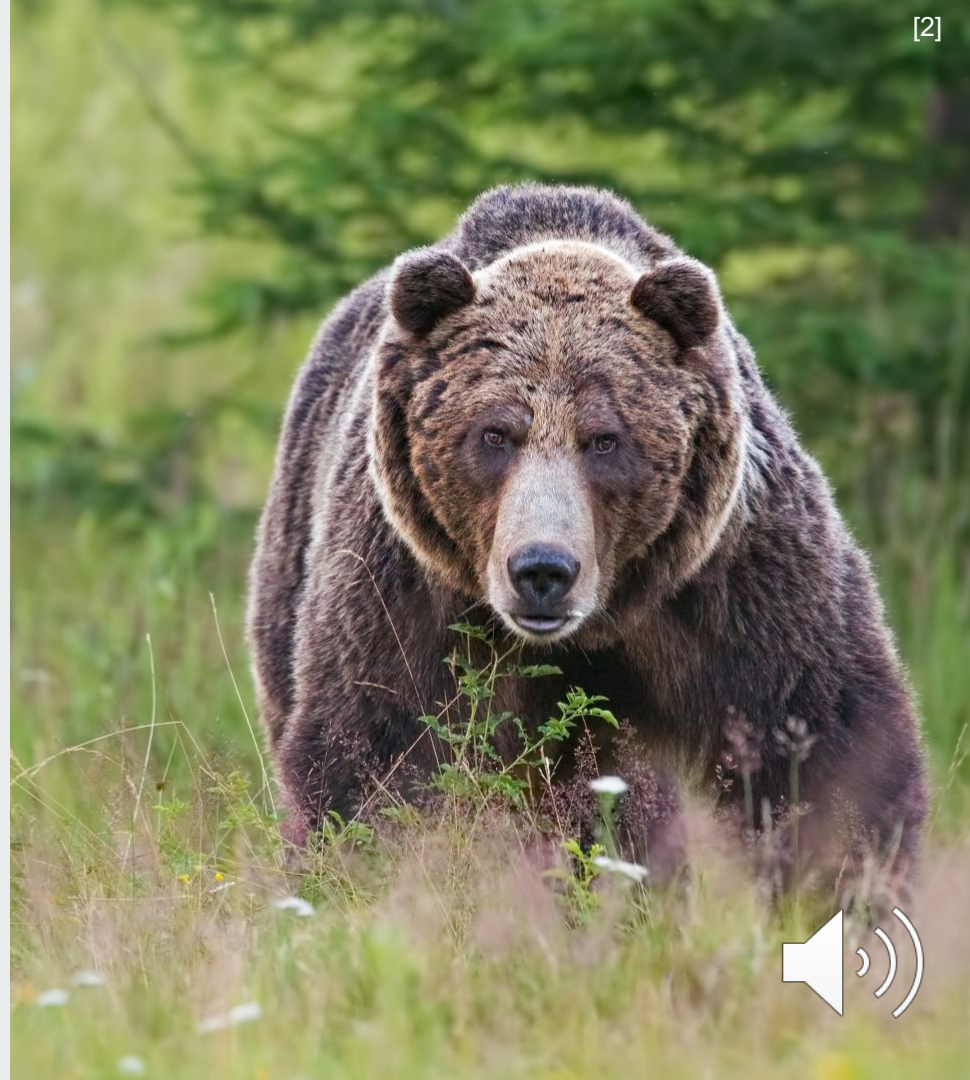




# Bear Attack

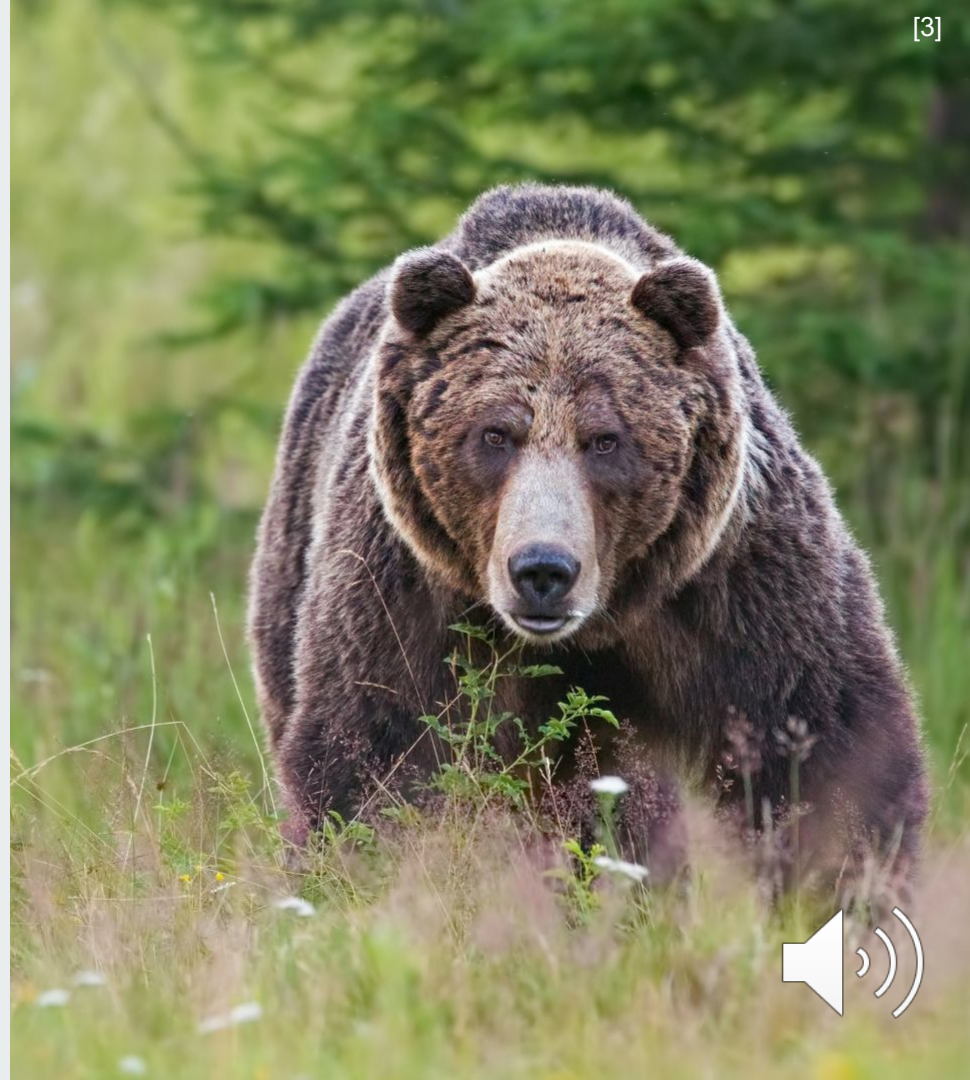
- From 2000–2015, There Were 664 Brown Bear Attacks





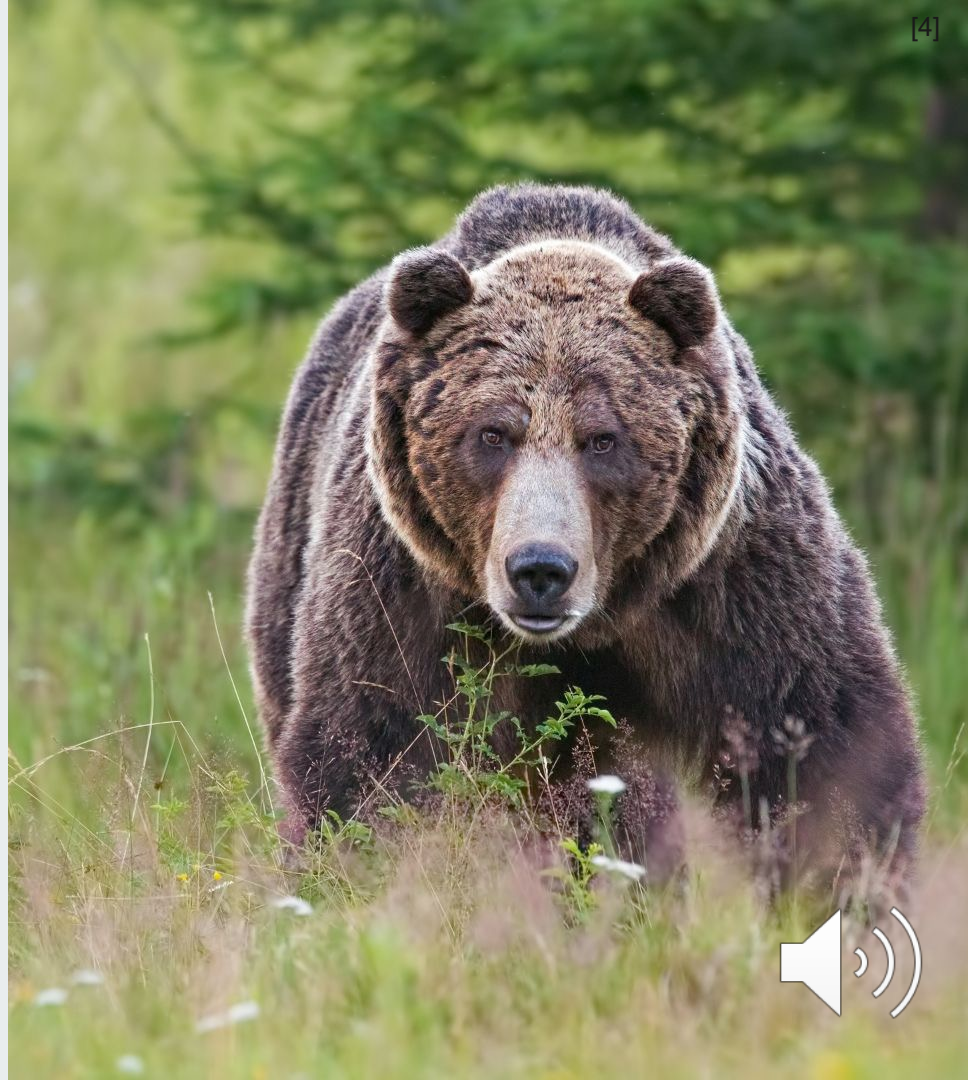
# Bear Attack

- From 2000–2015, There Were 664 Brown Bear Attacks[3]
- **Very Concerning for outdoor enthusiasts, wildlife researchers, and policymakers.**



# Bear Attack

- From 2000–2015, There Were 664 Brown Bear Attacks
- **Very Concerning for outdoor enthusiasts, wildlife researchers, and policymakers.**
- **Humans Are Responsible for 71% of Grizzly Bear Deaths**





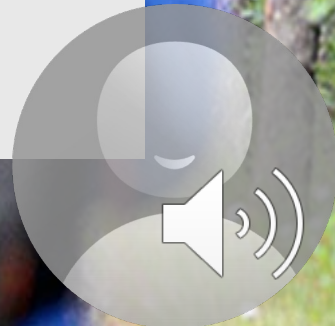
# How to Avoid a **BEAR ATTACK**



**1.What are the temporal and spatial trends in bear attacks across North America?**

**2.Are there identifiable factors, such as seasonality, age of victim, attack description, associated with a higher risk of bear attacks?**

**3.What can be learned to mitigate future bear-human conflicts?**





# Analyzing Bear-Human Conflicts in North America

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## Analyzing Bear Attack

- Spatial Trends
- Risk Factors
- Strategies for Coexistence



# Content

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- Data Sources
- Data Pipeline
- Methodology
- Results
  - Exploratory Data Analysis (EDA)
  - Correlation Analysis
- Findings
- License and References





# Datasets

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## Fatal Bear Attack[1]

- US and Canada
- 1900 – 2018
- 165 Samples
- CSV

## Bear Attacks North America[2]

- **North America.**
- 1900 – 2024
- 166 Samples
- CSV

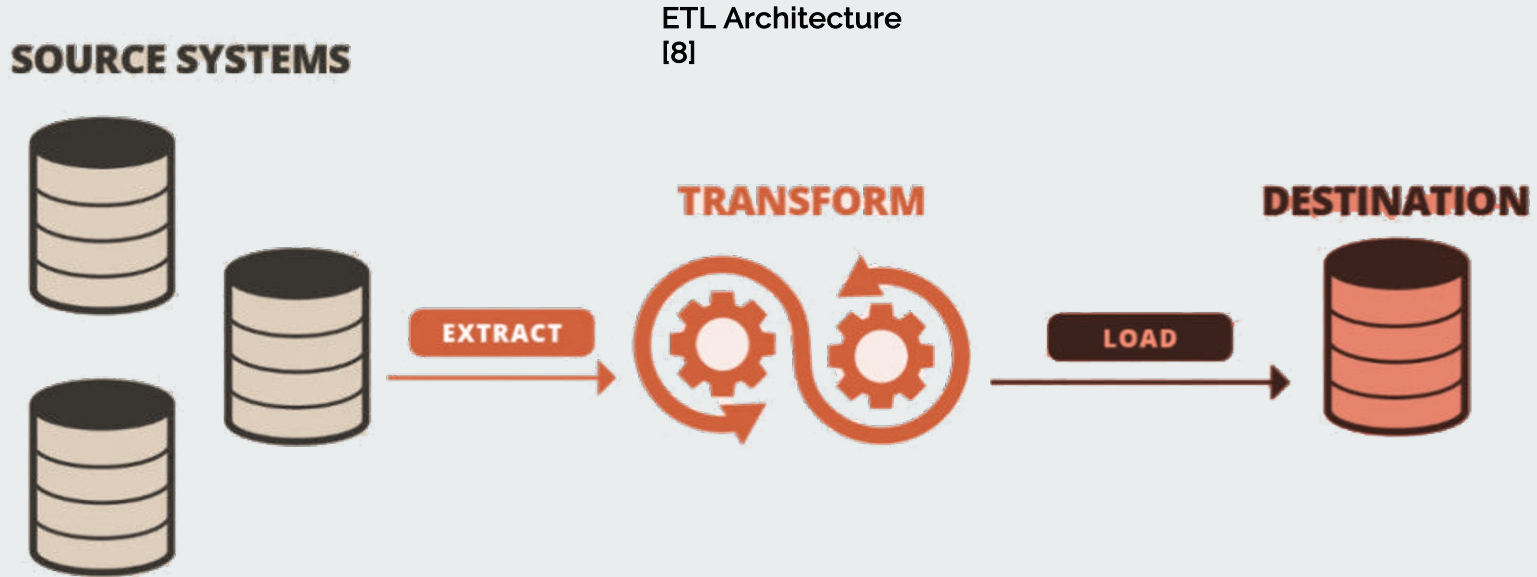
### Sources:

- Kaggle



# Pipeline

- Python
- ETL Pipeline Architecture



# Datasets (Pipeline output)

## Fatal Bear Attack

### Dataset Characteristics

- There were some missing values inside the datasets in the age and time. Those were filled with interpolation methods.
- There were some outliers which were also solved .
- I have normalized the data according to the necessity of good output and reports .

|   | ↕ Date        | ↕ Location   | ↕ Details     | ↕ Bear | ↕ Name       | ↕ Age | ↕ Gender |
|---|---------------|--------------|---------------|--------|--------------|-------|----------|
| 0 | August 2...   | Nunavut      | Three me...   | Polar  | Darryl Ka... | 33    | male     |
| 1 | July 3, 20... | Nunavut      | A polar b...  | Polar  | Aaron Gi...  | 31    | male     |
| 2 | July 9, 19... | Nunavut      | Amitnak ...   | Polar  | Hattie Am... | 64    | female   |
| 3 | December...   | Alaska       | While Stal... | Polar  | Carl Stalker | 28    | male     |
| 4 | Novembe...    | Manitoba     | Mutanen ...   | Polar  | Thomas ...   | 46    | male     |
| 5 | January 5...  | Northwest... | Pernitzky ... | Polar  | Richard P... | 18    | male     |
| 6 | Novembe...    | Manitoba     | Meeko's t...  | Polar  | Paulosie ... | 19    | male     |
| 7 | Septembe...   | Ontario      | Sweatt-M...   | Black  | Catherine... | 62    | female   |
| 8 | June 19, ...  | Alaska       | Johnson,...   | Black  | Erin John... | 27    | female   |

## Bear Attacks North America

|   | ↕ Name        | ↕ age    | ↕ gender | ↕ Date     | ↕ Month | ↕ Year | ↕ Type  | ↕ Location    | ↕ Description     |
|---|---------------|----------|----------|------------|---------|--------|---------|---------------|-------------------|
| 0 | Mary Port...  | 3.00000  | female   | 19/05/1901 | May     | 1901   | Wild    | West Virgi... | The children ...  |
| 1 | Wilie Port... | 5.00000  | male     | 19/05/1901 | May     | 1901   | Wild    | West Virgi... | The children ...  |
| 2 | Henry Po...   | 7.00000  | male     | 19/05/1901 | May     | 1901   | Wild    | West Virgi... | The children ...  |
| 3 | John Dicht    | 18.00000 | male     | 24/11/1906 | Nov     | 1906   | Wild    | Pennsylva...  | Thinking the ...  |
| 4 | Baby Laird    | 1.00000  | nan      | 05/10/1908 | Oct     | 1908   | Captive | Arizona       | After a bear e... |
| 5 | Frank Wel...  | 61.00000 | male     | 08/09/1916 | Sep     | 1916   | Wild    | Wyoming       | Welch's kill...   |
| 6 | Joseph B...   | 60.00000 | male     | 12/06/1922 | Jun     | 1922   | Wild    | Montana       | Du...s att...     |
| 7 | Olga Gre...   | 9.00000  | female   | 29/08/1929 | Aug     | 1929   | Wild    | Manitoba      | Gre...uK ...      |
| 8 | Percy Go...   | 52.00000 | male     | 12/09/1929 | Sep     | 1929   | Wild    | Alberta       | Goodair, alxa...  |



## **Analytic Points**

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- **Spatial trends**
- **Seasonality**
- **Victim age and other findings.**



# Methodology

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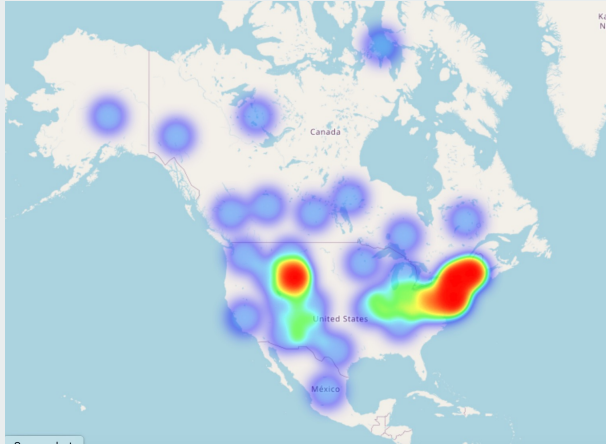
## Technique Used

- Exploratory Data Analysis
- Correlation Analysis

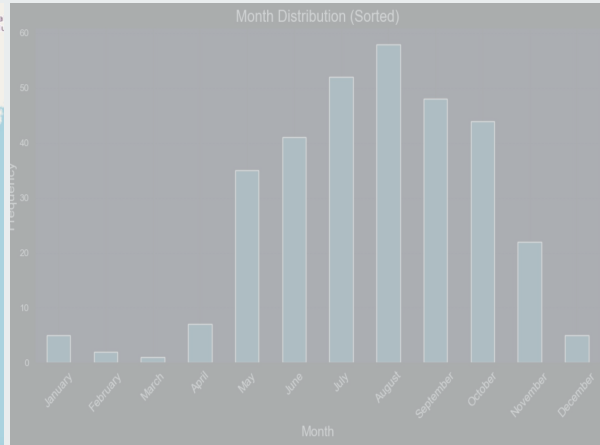


# Results: Exploratory Data Analysis

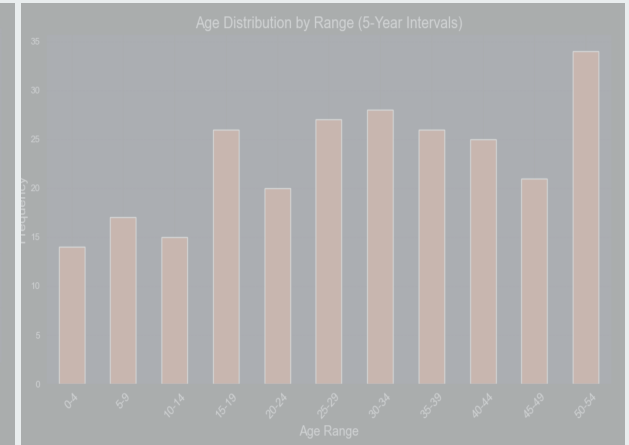
## Spatial Trends



## Seasonality



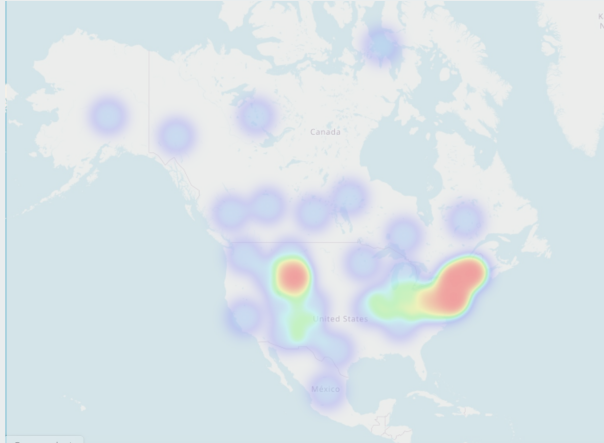
## Victim Age Effect



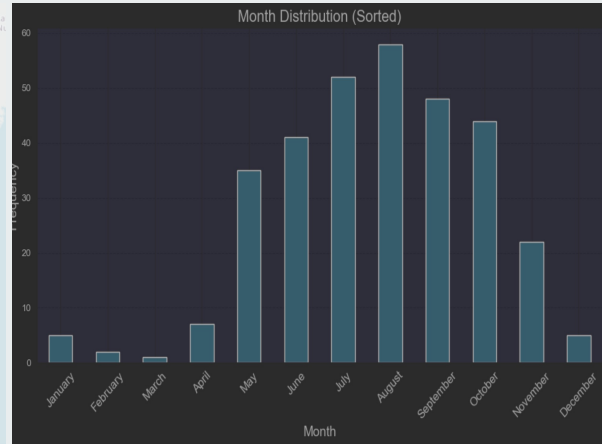


# Results: Exploratory Data Analysis

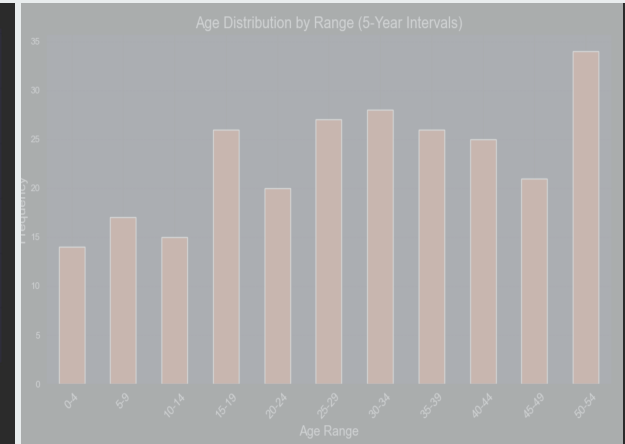
## Spatial Trends



## Seasonality

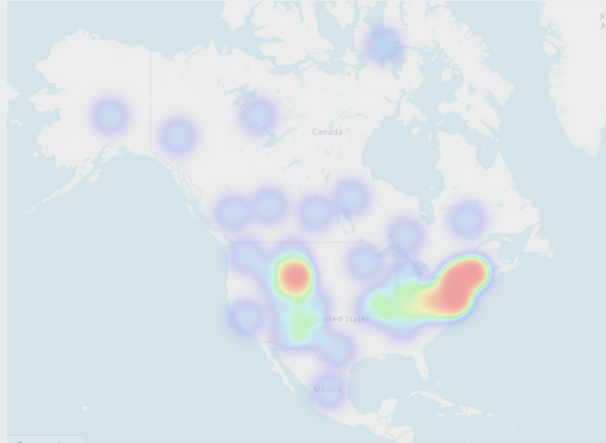


## Victim Age Effect

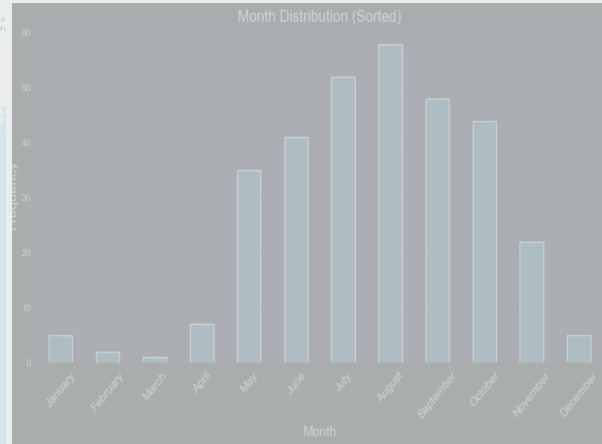


# Results: Exploratory Data Analysis

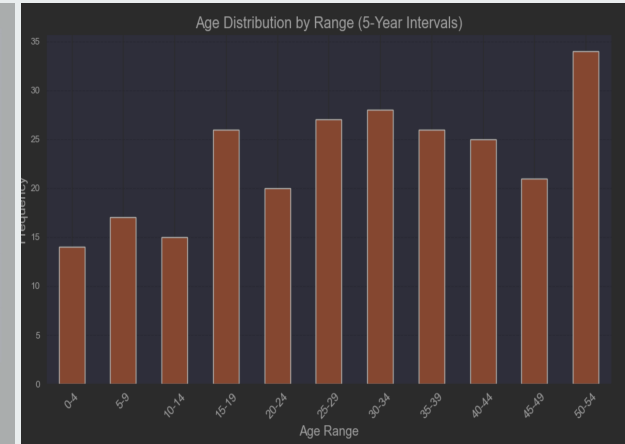
## Spatial Trends



## Seasonality



## Victim Age Effect



# Findings

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## Findings

- If we see the chart we can realise that Alaska has the highest Bear attack incidents alone. After that Montana, British Columbia, Alberta and Wyoming states have the highest attack. Those states share most of the attack.
- As we can see in the chart, Bear attacks are significantly higher in summer. Especially July, August and September are on the peak of attack. But in the winter season the number of attacks is very low. January, February and March are the lowest month of attack.
- From the chart we can observe that almost every age of people are getting attacked. There is no simple pattern that we describe.





# What should we do to avoid the Bear Attack

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## TODO

- We have to be more cautious while hiking and camping in dangerous places like Montana, British Columbia, Alberta and Wyoming. And also areas beside New York and Toronto.
- Avoid activity during summer , specially in July, August and September. Those Months are the most Dangerous months of bear attack.
- While going into the Zoo , always stay away from Bear case and never cross a certain line.



**Thank You.**



# License and References



## Licences:

- Creative Commons Attribution 4.0 International (CC BY 4.0):  
<https://creativecommons.org/licenses/by/4.0/deed.en>

## References:

- [1] [Fatal Bear Attack.](https://raw.githubusercontent.com/szabolcsfule/bear_attacks/master/bear_attacks.csv)  
[https://raw.githubusercontent.com/szabolcsfule/bear\\_attacks/master/bear\\_attacks.csv](https://raw.githubusercontent.com/szabolcsfule/bear_attacks/master/bear_attacks.csv)
- [2] [Bear Attacks North America](https://www.kaggle.com/datasets/stealthtechnologies/bear-attacks-north-america/data)  
<https://www.kaggle.com/datasets/stealthtechnologies/bear-attacks-north-america/data>
- [3] <https://worldanimalfoundation.org/advocate/bear-attacks-statistics/#From-2000%E2%80%932015,-There-Were-664-Brown-Bear-Attacks>