Lifeguard Response Strategies: Analyzing Shark Attack Trends in Florida

Prepared by:
Nancy, Aru, Benoit, Diego

Shark Attacks in Florida: A Growing Concern

- Higher incidence of shark attacks
- Serious consequences for public safety
- Lifeguards face mounting challenges

Our goal: Provide insights to help lifeguards maximize efficiency, optimize protocols, and stay prepared

Florida Lifeguards' Checklist:

• Be where it counts when it matters:
Strategically positioned to respond at the right moment

• Focus on high-risk activities:
Target the most dangerous water activities

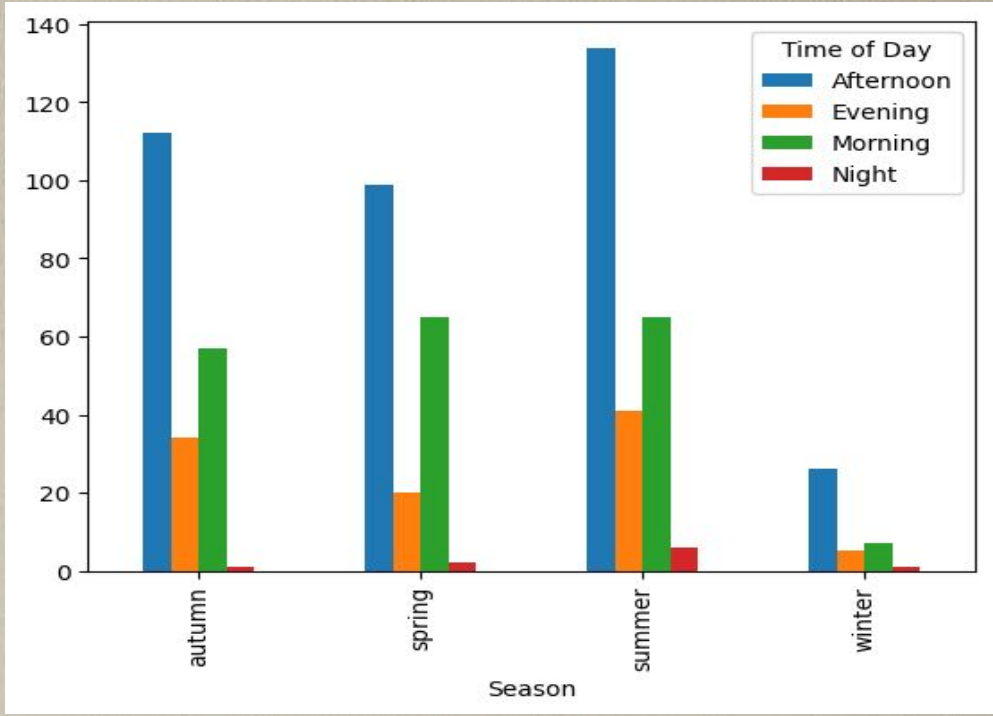
• Prepare for every scenario:
Equipped with the right medical supplies for rapid response

• Optimize teams for high-risk areas:
Structure teams where shark attacks are most likely

Sharks don’t take summers off!

- **Afternoon** shark attacks are significantly higher across all seasons, with **summer and autumn** having the most incidents

- Prioritize **lifeguard staffing** in the afternoons, especially during summer and autumn

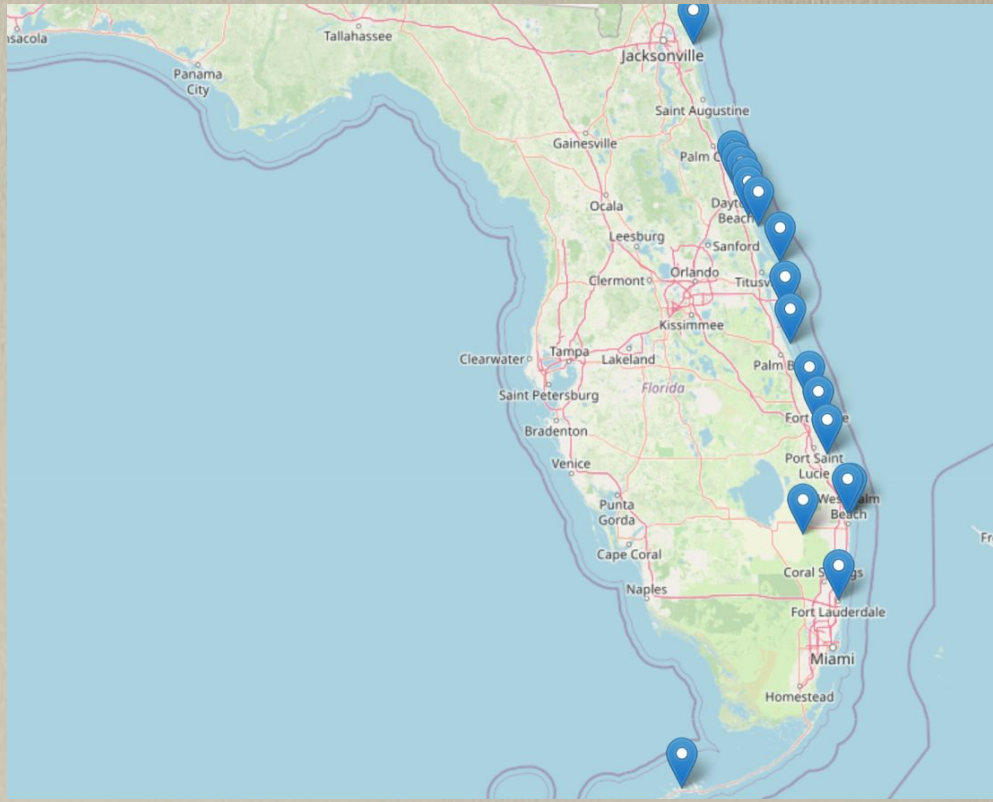


Hotspots for shark attacks

- Shark attacks are **concentrated on the east coast** along popular beach destinations

- **New Smyrna Beach** stands out as the most dangerous coast

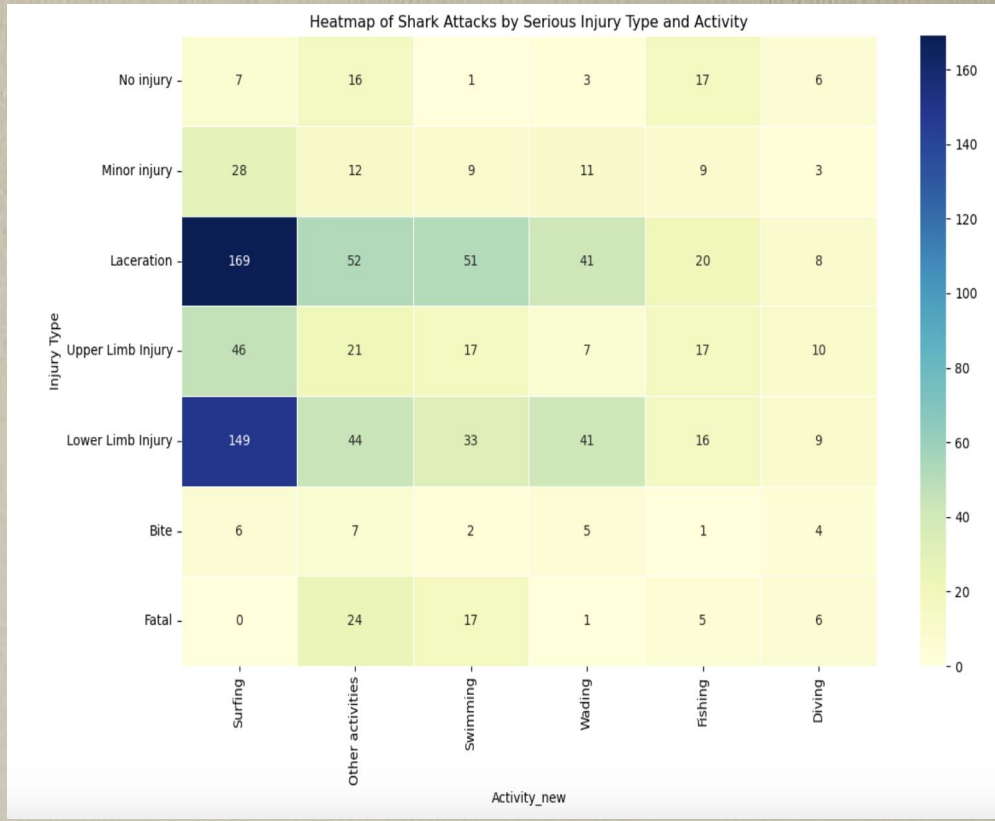
- Set up **early warning systems and patrols** in high-risk zones



Surfing into danger!

- Trauma fatalities and lacerations are highest among **surfers** and **swimmers**

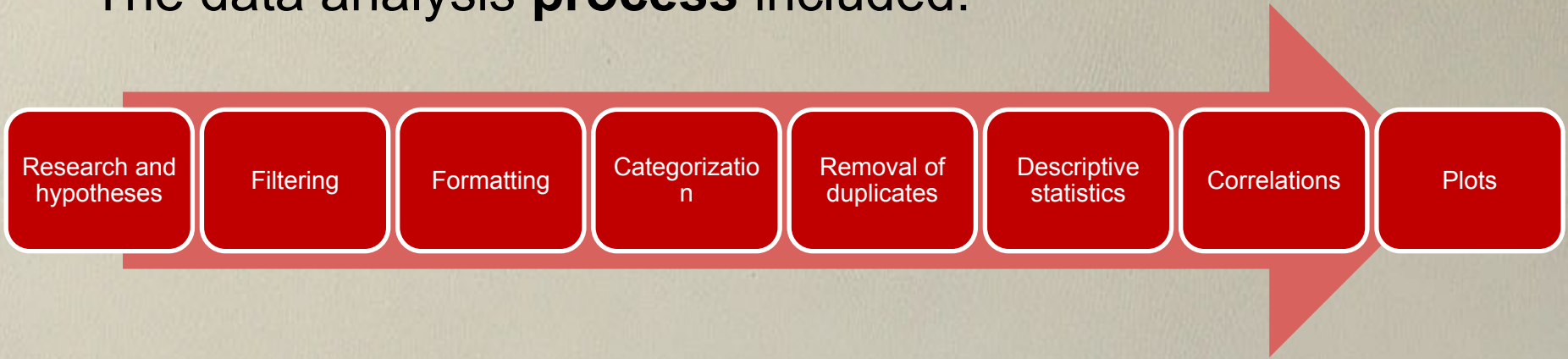
- Focus lifeguards around **high-risk activity spots** and equip staff with appropriate **supplies and training**



Charting the course: Methods

- Python functions/libraries used:
  Panda, **Regex**, **Matplot**, list comprehension, conditional statements, and others

- The data analysis **process** included:



Exploring key relationships

Several additional relationships are yet to be explored and will provide additional valuable insights to the Florida lifeguards team:

Valuable 1	Valuable 2	P-value	Cramer's value	Interpretation
Location	Activity	1.47e-32	0.45	**Strong** association with a **significant** relationship
Location	Season	8.42e-04	0.36	**Strong** association with a **significant** relationship
Location	Time of Day	2.42e-12	0.39	**Strong** association with a **significant** relationship
Activity	Season	3.33e-05	0.16	**Moderate** association with a **significant** relationship
Activity	Time of Day	2.21e-09	0.18	**Moderate** association with a **significant** relationship
Season	Time of Day	4.78e-01	0.08	**Weak** association with **no significant** relationship

Rough waters: Major Obstacles

- Data **quality issues**: Inconsistent and ambiguous data required significant cleaning efforts and learning (googling) new techniques

- Data **visualization challenges**: Limited options available, with most variables being categorical

- **Developing** a codebook (**.py**): Importing function codes from the codebook required additional time to guarantee successful operation

Thank You

Lifeguard Response Strategies: Analyzing Shark Attack Trends in Florida

Prepared by:
Nancy, Aru, Benoit, Diego