



# Bird-Species- Observation- Analysis

Name : Sham Prasath Kannaiyan

Batch : DS-C-WD-E-B34

Batch Type : WD

## Problem Statement

### Need for Bird Population Tracking

- Understanding **bird diversity** in different habitats (Forest & Grassland).
- Monitoring **species distribution** for conservation efforts.

### Impact of Environmental Factors

- Assessing how **climate, habitat, and human disturbances** influence bird populations.
- Studying seasonal patterns and **environmental changes** affecting species behavior.

### Challenges in Data Analysis

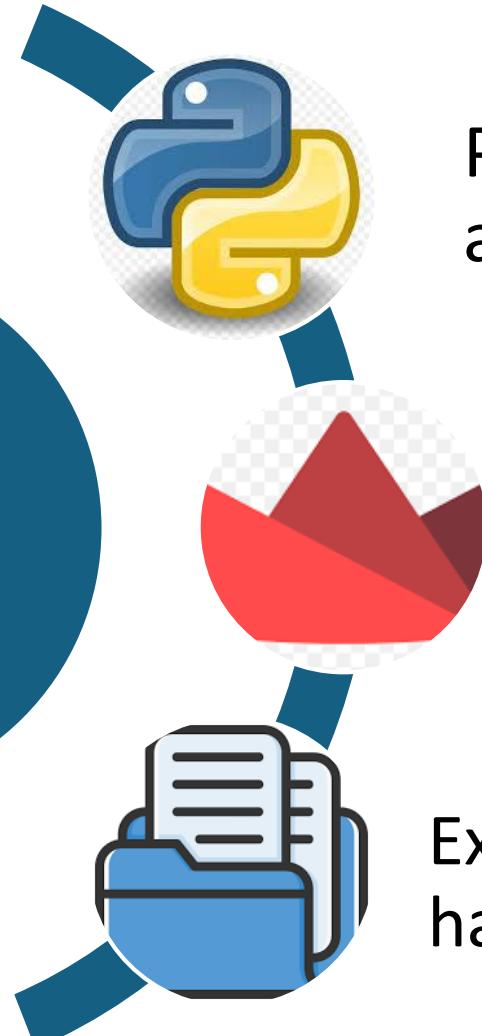
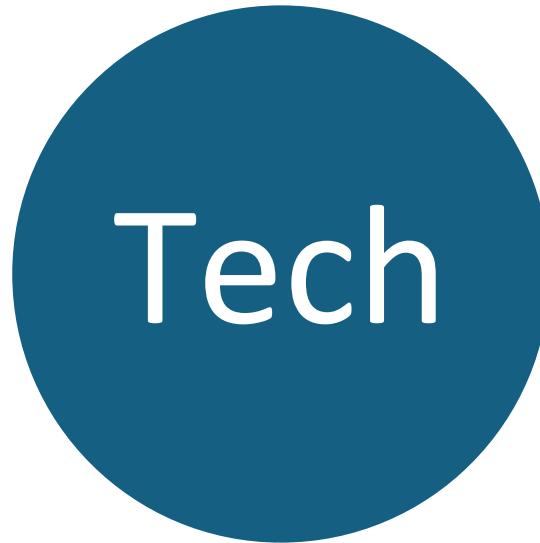
- Large **datasets spread** across multiple locations and formats.
- Difficulty in extracting meaningful insights without proper visualization.

### Objective: Interactive Dashboard

- Create a **Streamlit-based dashboard** for dynamic exploration.
- Provided insights into **seasonal trends, spatial distribution, and species observations**.
- Facilitate **data-driven decision-making** for conservationists and researchers



## Technology Stack

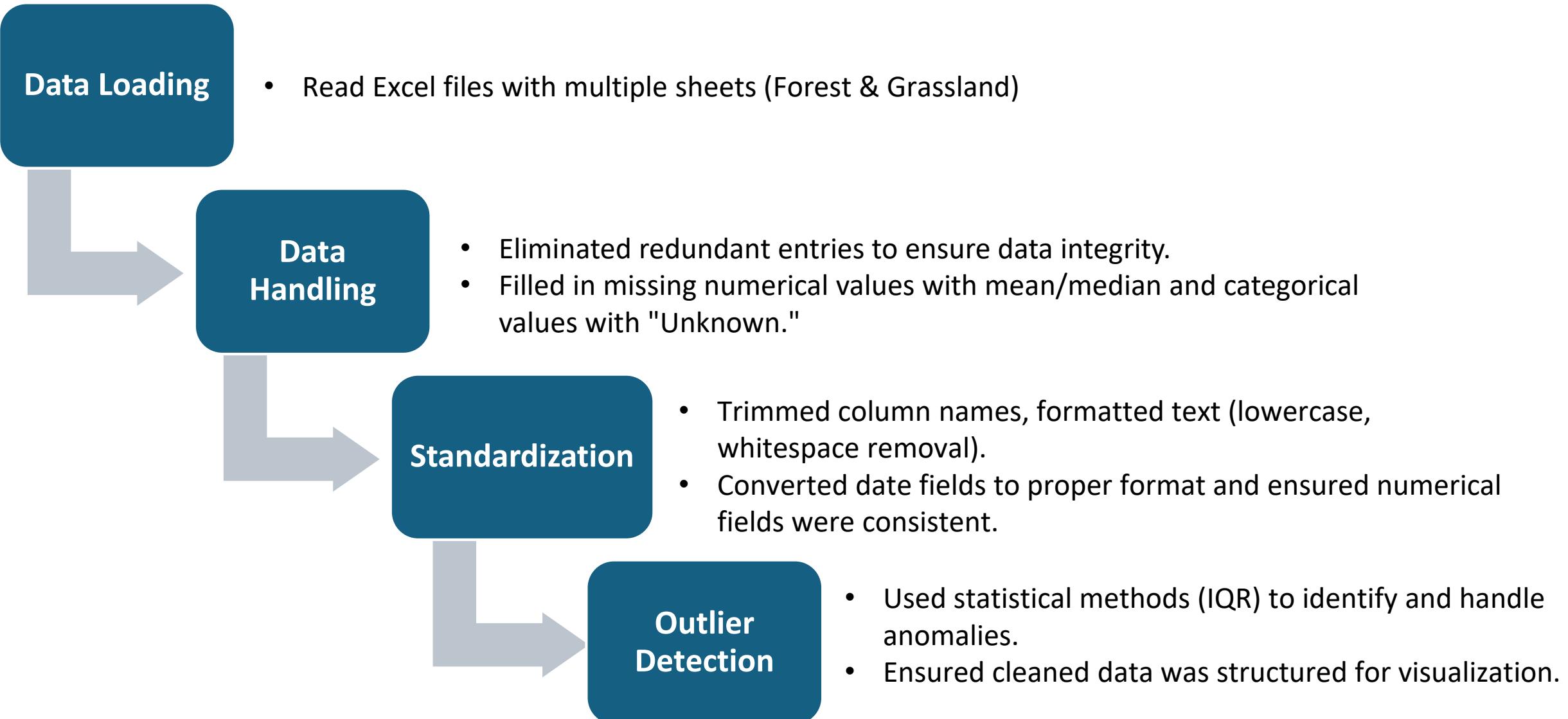


Python for languages  
and libraries

Streamlit & Plotly Icons for  
Visualization

Excel file for  
handling

## Pipeline



## File validation dashboard

---

- **User Uploads the Dataset** – The tool accepts datasets
- **Automated Data Validation** – It scans all sheets for missing values, empty rows, and blank columns.
- **Real-Time Feedback** – Provides instant alerts on data quality:
  - **Clean Sheet**: No missing or empty values.
  - **Issues Detected**: Displays missing columns, empty rows, or incomplete data.
- **Final Report** – The tool confirms whether the dataset is **fully clean** or requires **fixing** before further processing.

 **Dataset Validator for Bird Monitoring Data** 

Upload your Excel (.xlsx) file

 Drag and drop file here  
Limit 200MB per file • XLSX 

 Please upload a dataset to validate.

 **Sheet: NACE**

 This sheet is clean!

 **Sheet: PRWI**

 This sheet is clean!

 **Sheet: ROCR**

 This sheet is clean!

 **Sheet: WOTR**

 This sheet is clean!

 The uploaded dataset is fully clean across all sheets!

# Final dashboard

 Filter Data

Select Location Type

Forest x Grassland x x ▼

Select Admin Unit

anti x cato x choh x  
gwmp x hafe x  
mana x mono x x ▼  
nace x prwi x rocr x  
wotr x

Select Observer

elizabeth oswald x  
kimberly serno x x ▼  
brian swimelar x



## Bird Species Observation Analysis Dashboard

Upload both Forest and Grassland datasets to analyze bird diversity.

 Upload Forest Dataset (Excel)



Drag and drop file here

Limit 200MB per file • XLSX

Browse files

x

 Upload Grassland Dataset (Excel)



Drag and drop file here

Limit 200MB per file • XLSX

Browse files

x

 Cleaned\_Bird\_Monitoring\_Data\_Forest.xlsx 0.8MB

## Future Scope



**Advanced Optimization:** Ai-Driven analytics for detecting bird population trends and habitat patterns



**UI Enhancements:** Real-time data visualization updates and interactive filtering for better user experience



**Data Integration:** Seamless AI expansion to include historical data and advanced event insights.



**Automated Ranking System Generation:** Machine learning-based ranking of species based on population trends and environmental factors



**Standards Compliance:** Ensuring compatibility with ecological data standards and federations.



**Cloud-Based Collaboration:** Real-time database access and multi-user dashboard for enhanced analytics.





# Thank you!

*"Understanding bird populations through data is the key to preserving biodiversity and balancing ecosystems."*

