

Phase 2: Requirement Analysis

Introduction

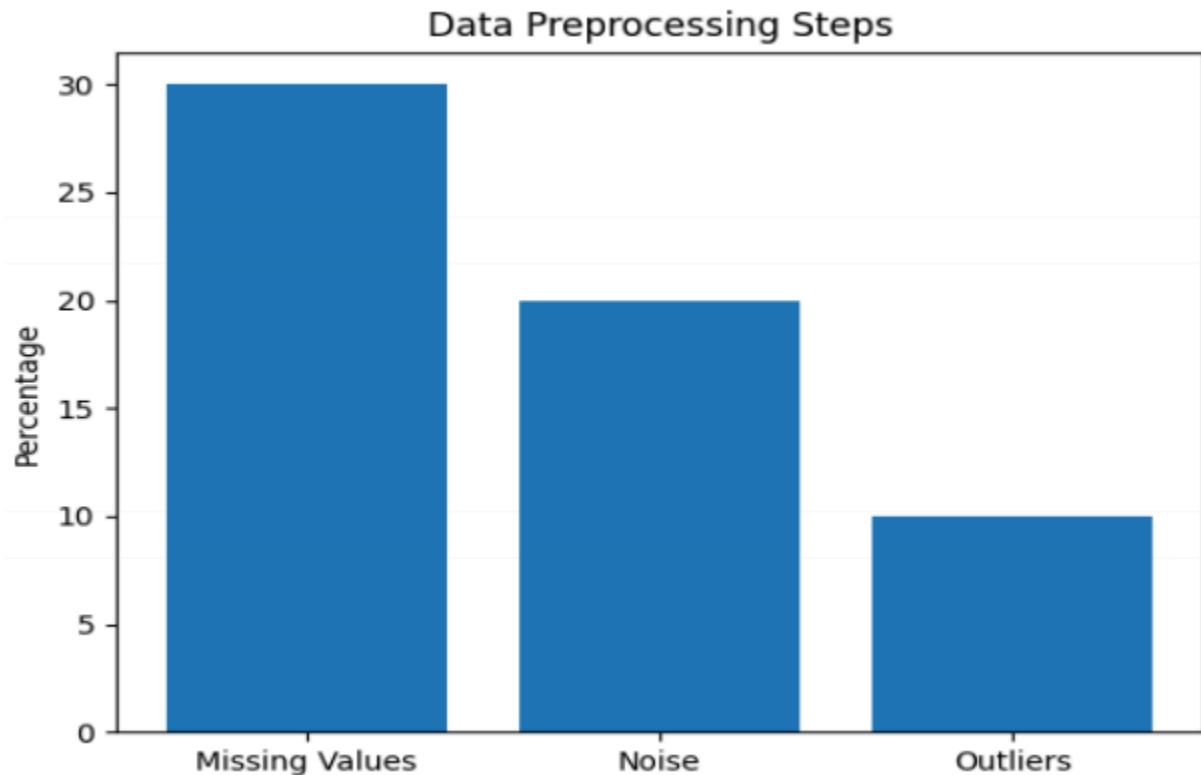
The requirement analysis phase focuses on identifying the functional and non-functional requirements needed to develop the rainfall exploratory analysis and prediction system. This phase ensures that all system objectives, user needs, and technical requirements are clearly defined before development begins.

Functional Requirements

The system should be capable of performing the following functions:

- Upload and store historical rainfall datasets
- Perform data preprocessing such as handling missing values and formatting data
- Conduct exploratory data analysis to identify rainfall patterns and trends
- Generate visualizations such as graphs and charts to represent rainfall distribution
- Apply machine learning algorithms to predict rainfall trends
- Display analysis results and prediction outputs in a user-friendly format

- Allow users to access rainfall insights for agricultural decision-making



Non-Functional Requirements

The system should satisfy the following performance and usability requirements:

- The system should provide accurate prediction results
 - The application should process data efficiently with minimal delay
 - The interface should be simple and easy to use
 - The system should be reliable and capable of handling large datasets
 - The system should be scalable for future improvements
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Hardware Requirements

- Laptop/Desktop computer
 - Minimum 4GB RAM
 - Basic storage for dataset and model files
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Software Requirements

- Operating System: Windows / Linux / macOS
 - Programming Language: Python
 - Development Environment: Jupyter Notebook / Spyder
 - Libraries: NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn
 - Web Framework: Flask
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Conclusion

The requirement analysis phase defines the technical and functional needs of the rainfall analysis system. These requirements provide a clear roadmap for designing, developing, and deploying the project efficiently.
