# Software Requirements Specification (SRS) for WeatherWise

1. **Introduction**

1.1 Purpose

The purpose of this document is to define the non-functional requirements for the WeatherWise weather forecasting application. These requirements address the qualities and characteristics of the system, ensuring its performance, security, usability, and reliability.

1.2 Scope

The non-functional requirements of WeatherWise encompass aspects beyond specific functionality. They include performance, security, usability, and reliability considerations that shape the overall quality of the application.

2. **Non-Functional Requirements**

2.1 Performance

2.1.1 Response Time

The system shall provide weather information within 2 seconds of a user's request.

The 95th percentile response time for weather data retrieval shall not exceed 5 seconds.

2.1.2 Scalability

The system shall be designed to handle a minimum of 1000 simultaneous users without significant degradation in performance.

2.1.3 Caching

The system shall implement data caching to reduce the load on external weather data sources.

Cached data shall be updated at least once every 30 minutes.

2.2 Security

2.2.1 Data Encryption

All data transmitted between the user's device and the server shall be encrypted using TLS (Transport Layer Security).

User data, including login credentials and personal information, shall be stored securely, following best practices.

2.2.2 Authentication

The system shall implement secure authentication mechanisms, including password hashing and salting.

2.2.3 Data Privacy

User data, including search history, shall be kept private and not shared with third parties without user consent.

2.2.4 Security Auditing

Regular security audits and penetration testing shall be conducted to identify and address potential vulnerabilities.

2.3 Usability

2.3.1 User-Friendly Interface

The user interface shall be intuitive and user-friendly, following best practices for user experience (UX) design.

Users shall have the option to customize the interface, such as font size and dark mode.

2.3.2 Accessibility

The system shall be designed to comply with accessibility standards (e.g., WCAG 2.1) to ensure usability for users with disabilities.

2.4 Reliability

2.4.1 Uptime

The system shall aim for 99% uptime.

Scheduled maintenance and downtime shall be communicated to users in advance.

2.4.2 Disaster Recovery

The system shall have a disaster recovery plan in place, including regular data backups and redundancy measures to minimize data loss and downtime.

3. **Constraints**

3.1 Data Sources

Weather data shall be obtained from reputable weather APIs and sources, and the application's functionality may be impacted by the availability and reliability of these external sources.