

# Non-functional requirements

## 1. Security

- The system must enforce secure authentication (username + password, password recovery via security questions).
- Passwords must be hashed before storage.
- User sessions must expire after 30 minutes of inactivity.
- Inputs must be validated to prevent SQL injection and XSS.

## 2. Performance

- The dashboard must load within **2 seconds** under normal usage ( $\leq 1000$  expense records).
- Expense queries (monthly totals, category breakdown) must respond in under **500 ms** on average.
- Goal tracking calculations must update in real-time when a new expense is added.

## 3. Usability

- The user interface must be simple and intuitive, requiring no more than 3 clicks to add a new expense.
- The system must provide visual indicators (progress bars, color alerts) for goal tracking.

## 4. Reliability & Availability

- User data (expenses, goals) must persist reliably in the database even if the server restarts.
- Error handling must provide meaningful messages without exposing internal errors.

## 5. Maintainability

- The codebase must follow consistent style guidelines.
- At least **80% unit test coverage** for core logic (expense calculation, goal validation).
- Documentation must be provided for the database schema and API

endpoints.

## **6. Portability**

- The application must run on both Windows and MacOS using Node.js  $\geq 18$ .