FUNCTIONAL REQUIREMENTS

User Authentication and Authorization
- Users must be able to register and log in using a secure authentication method using an email or password
- Users should be able to reset their passwords securely.

Task Management
- Users must be able to add new tasks with a title, description, priority, and due date.
- Users must be able to edit existing tasks (update title, description, priority, and due date).
- Users must be able to delete tasks they no longer need.

Task Tracking
- Users should be able to mark tasks as completed or in progress.
- The system should support task status updates in real time.

Task Viewing and Organization
- Users must be able to view all their tasks in a list
- Users should be able to search for specific tasks by keyword.

NON FUCTIONAL REQUIREMENTS

Performance Requirements
- The system should handle up to 500 concurrent users with response times under 3 seconds.
- Tasks should be saved within **1 second** of user input and the task list should load within 2 seconds for 95% of requests.

Security Requirements
- User passwords must be hashed using a strength factor of 12.
- The app must use HTTPS for all communications.

Usability Requirements
- The UI should be responsive and mobile-friendly.
- The dashboard should provide real-time task updates without requiring a page refresh.

Scalability Requirements
- The app should support a database with up to 100,000 tasks without performance degradation.

Availability & Reliability Requirements
- The app should have **99.9% uptime**, ensuring minimal downtime.
- Data should be **backed up every 24 hours** for disaster recovery.
- The system should provide **auto-retry mechanisms** for failed requests.

Maintainability & Extensibility Requirements
- The codebase should follow the **MVC (Model-View-Controller) pattern** for maintainability.
- New features should be **added with minimal changes to existing code**.

Compliance & Legal Requirements
- The app should comply with data protection laws.
- Users should be able to export or delete their data upon request.

Task Tracker Requirements Prioritization

This is a MoSCoW prioritization of the functional and non-functional requirements for the Task Tracker application:

Functional Requirements Prioritization
- ➢ **Must have:**
  - FR1: User Authentication (login, logout, registration)
  - FR2: Task Management (create, edit, delete, mark as complete, display due date, priority, description)

- ➢ **Should have:**
  - FR4: Task Searching (by title, description, priority, due date)
  - FR3: Task Activity Tracking
- ➢ **Could have:**
  - FR5: Task Statistics
- ➢ **Won't have:**
  - AI integration
  - Third-party authentication (Google/GitHub)
  - Advanced reporting
  - Complex workflows e.g user roles/permissions)
  (These are beyond the scope of a basic 3-week project.)
- ➢ **Non-Functional Requirements Prioritization**
- **Must have:**
  - NFR3: Security (protect user data, secure password storage)
  - NFR4: Reliability (Application available 99% of the time)
- **Should have:**
  - NFR1: Performance (page load times, concurrent user handling)
  - NFR2: Usability (intuitive UI, clear error messages)
- **Could have:**
  - NFR5: Maintainability (well-documented codebase)
- **Won't have:**
  - Scalability for thousands of users
  - Advanced monitoring
  - Detailed performance tuning)
  (These are not relevant for a basic, short-term project.)

Explanation of Prioritization Choices:
- **Must have:** User authentication and basic task management are essential for the application to function. Without them, the application would be unusable.
- **Should have:** Task searching and activity tracking greatly enhance the user experience. Users should be able to find their tasks easily and track their activity.
- **Could have:** Task statistics are a nice-to-have feature that provides additional value, but the application can function without them.

- **Won't have:** Any requirements not included are, for now, out of scope.

REQUIREMENTS TRACEABILITY MATRIX

ID	Requirement	Category	Priority	Objective
R1	User login with/pass	Functional	Must	Secure
R2	Add task (title, desc, date)	Functional	Must	Task creation
R3	View tasks sorted by date	Functional	Must	Task visibility
R4	Edit/ delete tasks	Functional	Should	Task management
R5	Set task priority	Functional	Should	Task organization
R6	Track task activities	Functional	Should	Progress tracking
R7	Secure authentication	Non-functional	Must	Data protection
R8	Responsive UI	Non-functional	Should	Usability