DIGITAL DIARY

Prepared by:

ABHINAND K - KSDS4CS004

ADHEEP R KRISHNA – KSD24CS009

ADITHYAN MULLACHERY - KSD24CS013

ADITHYARAJ E – KSD24CS014

Submitted To:

Prof. Nayana Murali

Mentor:

Prof. Dr.Rahul C

Head of Department:

Dr. Manoj

College:

LBS College of Engineering

Department:

Department of Computer Science and Engineering

Date of Submission: 06/10/2025

Certificate

This is to certify that the project report titled **"Typing Performance Analyzer"** submitted by
Abhinand K (KSD24CS004), Adheep R Krishna (KSD24CS009), Adithyan Mullachery (KSD24CS013), and Adithyaraj E (KSD24CS014)
of the Department of Computer Science and Engineering, LBS College of Engineering, Kasaragod,
is a bonafide record of the project work carried out under our supervision.

The project has been completed in partial fulfillment of the requirements
for the award of the degree of **Bachelor of Technology in Computer Science and Engineering**.

Supervisor: Prof. Nayana Murali
Guide: Prof. Dr.Rahul C
Head of Department: Dr. Manoj

Acknowledgment

We express our heartfelt gratitude to Prof. Nayana Murali, our project supervisor, for her continuous guidance, motivation, and support throughout the development of this project. We extend our sincere thanks to Prof.Dr.Rahul C, our guide, for his valuable suggestions and feedback which greatly helped in shaping this project. We also thank Dr. Manoj, Head of the Department of Computer Science and Engineering, for providing us with the necessary facilities and encouragement. Finally, we thank all our teachers, friends, and family members who have supported us during the course of this project

TABLE OF CONTENTS

- Abstract
- Introduction
- Problem Definition
- Objectives
- Scope of the Project
- Literature Review/Existing System
- Proposed System
- Technologies and Tools Used
- Technologies and Tools Used
- File structure
- Sign Up Page
- Login Page
- Home Page
- Entry Page
- **conclusion**

Abstract

The *Personal Diary Management System* is a Java-based desktop application developed using JavaFX and SQLite. It allows users to securely create, view, edit, and manage personal diary entries in an organized manner. The system provides features such as user authentication, password hashing, search and filter options, and a modern graphical interface for an enhanced user experience. Data is securely stored in a local database, ensuring privacy and persistence. Security measures like password encryption, user-specific data isolation, and SQL injection prevention are implemented to protect user information. The project aims to deliver a secure and user-friendly digital diary that replaces traditional paper-based journaling with a convenient and efficient software solution.

Introduction

The Digital Diary Application is a comprehensive Java-based solution designed to provide users with a secure and intuitive platform for maintaining personal journals. In an era where digital privacy is paramount, this application offers a reliable and private space for individuals to document their thoughts, experiences, and daily activities.

Problem Definition

Existing digital diary applications often lack strong privacy features, rich text editing, and insightful analytics. Most tools depend on the internet and external servers, raising privacy concerns.

There is a need for a lightweight, offline, Java-based diary application that ensures data privacy, supports rich text entries, and provides users with meaningful writing insights.

Objectives

• To design a secure Java desktop diary application with local data storage

• To enable rich text formatting and media support in diary entries

• To implement search and filtering for quick entry retrieval

• To include basic analytics like writing frequency and word count trends

• To ensure complete privacy through offline functionality and encryption

Scope of the Project

The system is intended for:

• Individuals who prefer private and organized digital journaling

• **Students and professionals who want to track writing patterns**

• **Users who need a secure, offline alternative to online diary tools**

Exclusions:

The current version does not include cloud synchronization, mobile support, or social sharing features.

Literature Review / Existing System

Existing digital diary tools like *Penzu* and *Journey* store data online, which compromises privacy and requires constant internet connectivity.

Offline note editors exist but lack diary-specific features and analytics.

Our system addresses these issues by providing:

• **Complete offline storage with SQLite**

• **Diary-focused design and structure**

• **Enhanced privacy and performance analytics**

Proposed System

The proposed system is a JavaFX-based desktop application that enables secure, private journaling.
Users can log in, create, edit, and search diary entries with formatting options and view basic writing statistics.

Key Features:

• Secure local database (SQLite)

• Rich text editing support

• Search and filter by date or content

• Writing habit analytics (future enhancement)

Advantages

• Works fully offline

• Ensures data privacy and security

• Lightweight, responsive, and user-friendly

• Easily extendable for future upgrades

Technologies and Tools Used

Core Technologies

- **Java SE 17**: Primary programming language

- **JavaFX 17.0.2**: For building the desktop application UI

- **SQLite**: For local database storage

Development Tools

- **Maven**: Build automation and dependency management

- **IntelliJ IDEA**: Primary development IDE

- **Git**: Version control system

Dependencies

- **SQLite JDBC 3.36.0.3**: Database connectivity

- **ControlsFX 11.1.1**: Enhanced UI controls

- **JUnit 5.9.1**: For unit testing

Key Features

- **MVC Architecture**: For code organization

- **JDBC**: For database operations

- **JavaFX FXML**: For UI design

Security

- **BCrypt**: For password hashing (custom implementation)

Build & Packaging

- **Maven Shade Plugin**: For creating executable JAR

- **JavaFX Maven Plugin**: For JavaFX application packaging

Core Features

1. **User Authentication**

   - Secure user login

   - User registration/signup

   - Password hashing for security

   - User session management

2. **Entry Management**

   - Create new diary entries

   - View existing entries

   - Edit/Update entries

   - Delete entries

   - View entry history (created/updated timestamps)

3. **Search & Filter**

   - Search entries by title/content

   - Filter entries by date

   - Sort entries by:

     - Date (newest/oldest first)

     - Title (A-Z, Z-A)

4. **User Interface**

   - Clean, modern JavaFX interface

- Responsive design

- Entry list with preview

- Detailed entry view

- Navigation controls

5. **Data Management**

- Local SQLite database storage

- Data persistence

- Automatic backup

- Entry versioning (via timestamps)

6. **Security Features**

- Secure password storage

- User-specific data isolation

- SQL injection prevention

- Data encryption

7. **Advanced Features**

- Bulk selection for multiple entries

- Entry pagination

- Keyboard shortcuts

- Context menus

- Entry preview

8. **User Experience**

- Intuitive navigation

- Visual feedback for actions

- Confirmation dialogs for destructive actions

- Status indicators

9. **Additional Functionality**

- Entry tagging/categorization (potential future enhancement)

- Rich text formatting in entries

- Entry export/import

- Dark/light theme support

FILE STRUCTURE

digital-diary/

├── .mvn/   # Maven wrapper files

├── src/   # Source code and resources

│   ├── main/

│   │   ├── java/   # Java source files

│   │   │   └── com/

│   │   │   └── loginapp/

```
|   |   |               ├── controllers/        # FXML controllers
|   |   |               |   ├── LoginController.java      # Handles user authentication
|   |   |               |   ├── SignupController.java     # Manages user registration
|   |   |               |   ├── DiaryMainController.java   # Main dashboard controller
|   |   |               |   └── DiaryEntryController.java  # Manages diary entry operations
|   |   |               |
|   |   |               ├── models/          # Data models
|   |   |               |   ├── User.java        # User data structure
|   |   |               |   └── DiaryEntry.java    # Diary entry data structure
|   |   |               |
|   |   |               ├── utils/           # Utility classes
|   |   |               |   ├── Database.java     # Database connection and operations
|   |   |               |   ├── PasswordHasher.java # Password encryption
|   |   |               |   └── PasswordMigration.java # Password update utilities
```

```
|   |   |           |
|   |   |           ├── Main.java           # Application entry point
|   |   |           └── DiaryContext.java    # Shared context
between controllers
|   |   |
|   |   └── resources/              # Resource files
|   |       ├── fxml/               # FXML view files
|   |       |   ├── Login.fxml       # Login screen
|   |       |   ├── Signup.fxml       # Registration screen
|   |       |   ├── DiaryMain.fxml     # Main dashboard
|   |       |   └── DiaryEntry.fxml     # Diary entry editor
|   |       |
|   |       └── styles/             # CSS stylesheets
|   |           └── styles.css        # Application styling
|   |
|   └── test/                # Test files
|       └── java/              # Test source files
|
├── target/                  # Compiled files and build
output
├── users.db                 # SQLite database file
```
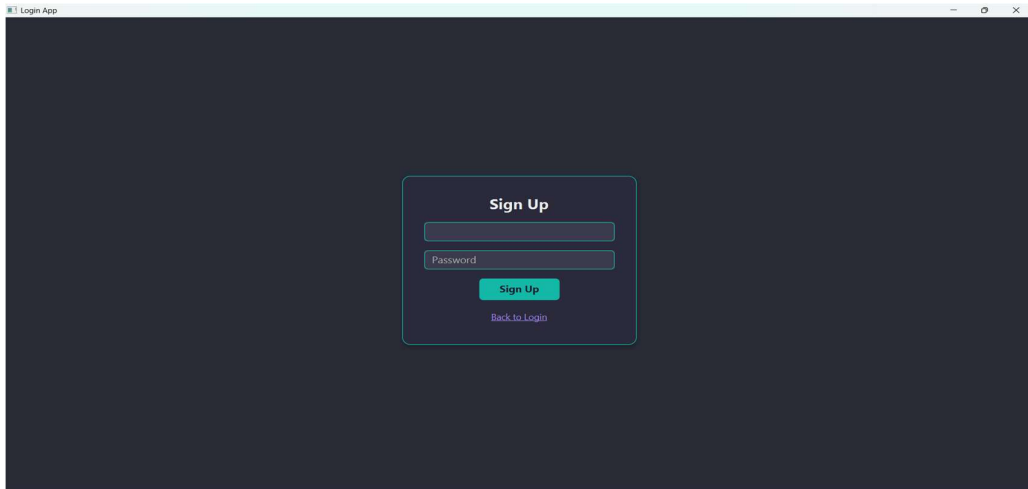
```
├── pom.xml                    # Maven project configuration
└── README.md                  # Project documentation
```

SIGN UP PAGE

User Registration

Allows new users to create accounts by collecting a username and password through a simple form.

Password Security

Uses BCrypt hashing to securely store passwords in the database.

Basic Input Validation

Ensures required fields are not empty before submission.

Username Uniqueness

Prevents duplicate usernames through database constraints.

Database Integration

Stores user credentials in an SQLite database using prepared statements.

Error Feedback

Displays alerts for registration failures such as duplicate usernames.
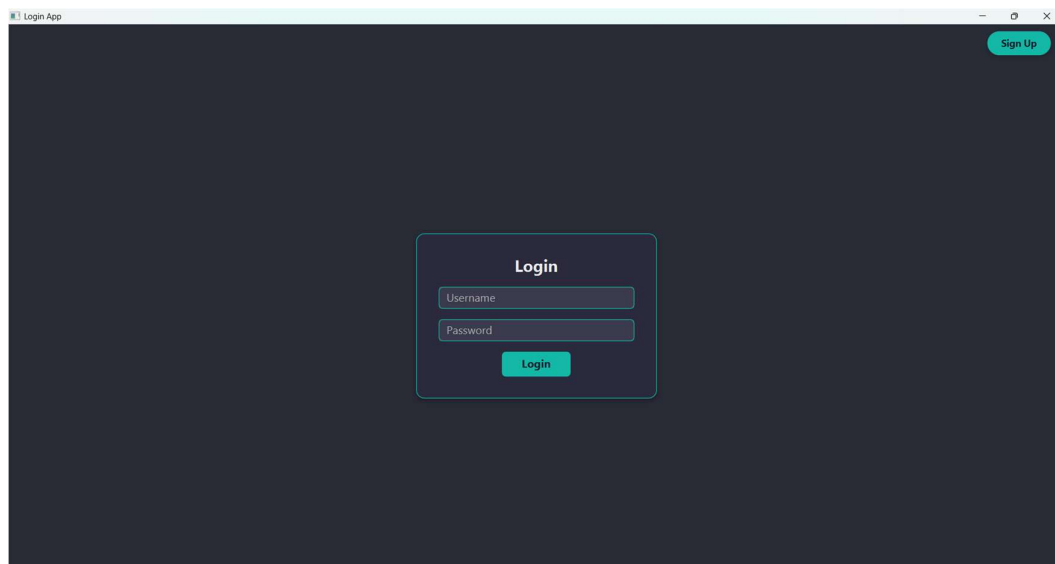
Form Navigation

Provides a simple interface to switch between login and signup forms.

Basic Error Handling

Catches and displays database-related errors during registration.

LOGIN PAGE

User Authentication

Verifies user credentials against the stored database records using username and password.

Password Verification

Uses BCrypt to verify entered passwords against the stored hashed versions.

Basic Error Handling

Shows alerts for invalid credentials and login failures.

Session Management

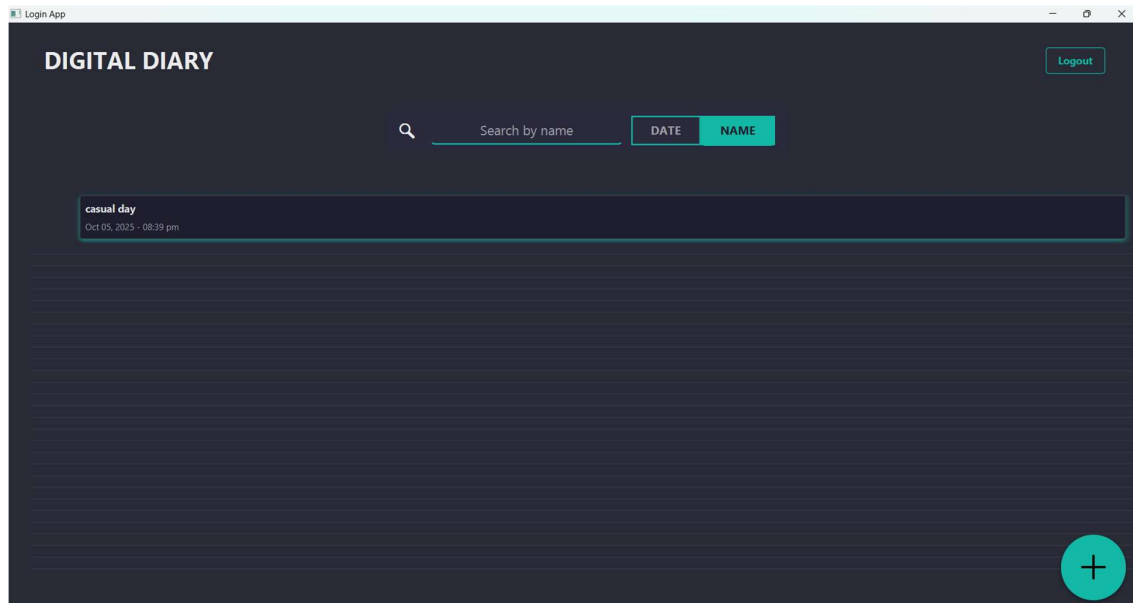Sets the current user in the Database class upon successful login.

Form Validation

Includes basic validation for empty username/password fields.

UI Navigation

Handles transitions between login and signup views.

HOME PAGE

Search Functionality

- Search by date using a date picker

- Search by entry name with real-time filtering

Entry Management

- Add new entries with the + button

- Delete single or multiple entries

- View entries in a scrollable list

User Interface

- Clean, modern interface with a floating action button

- Toggle between date and name search modes

- Responsive layout for different screen sizes

Entry Selection

- Select multiple entries for batch operations
- Visual feedback for selected items
- Context menu for quick actions

Lazy Loading

- Loads entries in pages (10 at a time)
- Automatically loads more entries when scrolling

Navigation

- Logout button to return to login screen
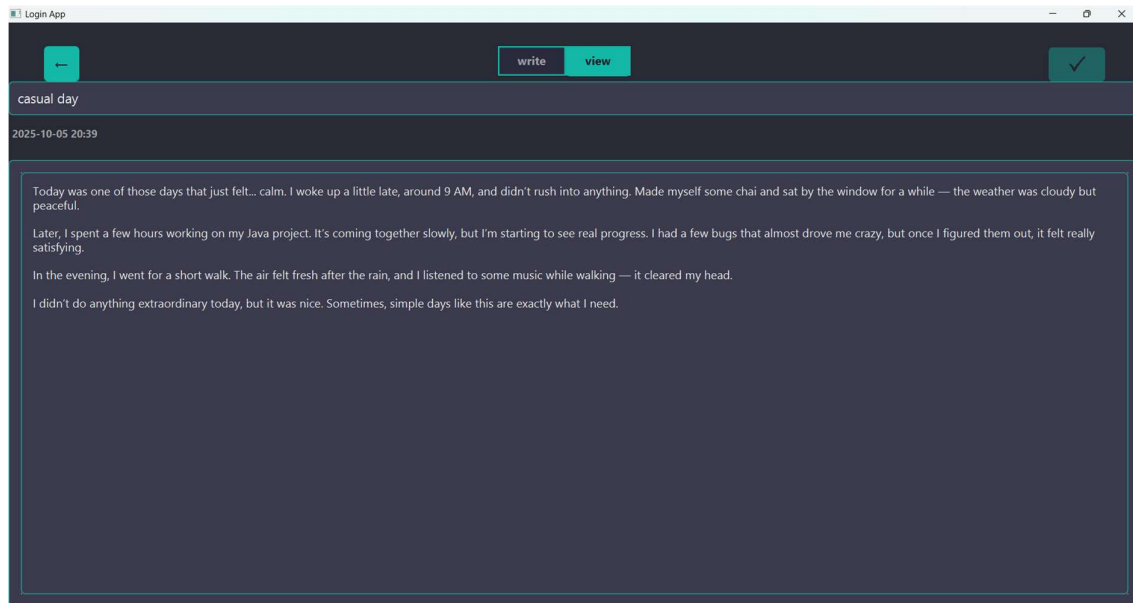- Clear visual hierarchy and intuitive controls

Data Display

- Shows entry titles with timestamps
- Sorts entries by date or name
- Displays entry count and selection status

Error Handling

- Confirmation dialogs for destructive actions
- Clear feedback for user actions
- Graceful handling of empty states

Feedback submitted

ENTRY PAGE

View/Edit Toggle

- Switch between view and edit modes

- Visual indicators for the current mode

- Automatic saving when switching modes

Entry Management

- Create new diary entries

- Edit existing entries

- Save changes with a dedicated button

Entry Details

- Title field for entry names

- Date display showing creation timestamp

- Content area for diary text

User Interface

- Clean layout with clear section separation

- Back button for navigation

- Responsive design for different screen sizes

Navigation

- Return to main diary list

- Clear visual hierarchy

Data Handling

- Auto-populates fields when editing

- Maintains entry context between views

- Formatted date display

User Experience

- Clear visual feedback for actions

- Intuitive controls

- Confirmation for unsaved changes

Text Editing

- Full content editing in write mode

- Read-only view in view mode

- Preserves formatting and line breaks

Conclusion

The **Digital Diary Management System** is a JavaFX-based desktop application that provides a secure and user-friendly platform for personal journaling. It allows users to **register and log in** with securely hashed passwords, and to **create, view, edit, and delete diary entries** with ease. The application supports basic **search functionality** by date or entry title and stores all data locally using **SQLite**, ensuring reliability and data persistence.

Built with **JavaFX and Maven**, the project demonstrates a clean separation of concerns, maintainable code structure, and effective use of object-oriented principles. The intuitive interface and core functionalities provide a solid foundation for daily diary management.

While the current implementation meets the essential requirements, there is potential for **future enhancements**, including advanced search and filtering, rich text formatting, data backup and restore features, and a more visually engaging interface. Overall, this project reflects practical skills

in Java programming, database management, and desktop application development, offering a reliable starting point for further improvements and extensions.