Random Password Generator

Java Swing, **MariaDB**, and **Glassmorphism UI**

Java Swing

MariaDB

Security

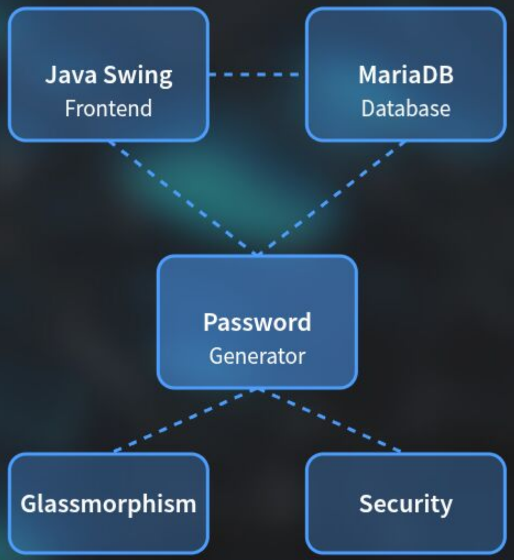
Project Overview

- Secure **random password** generation
- Password storage with **encryption**
- Customizable password **parameters**
- Modern **Glassmorphism UI** design

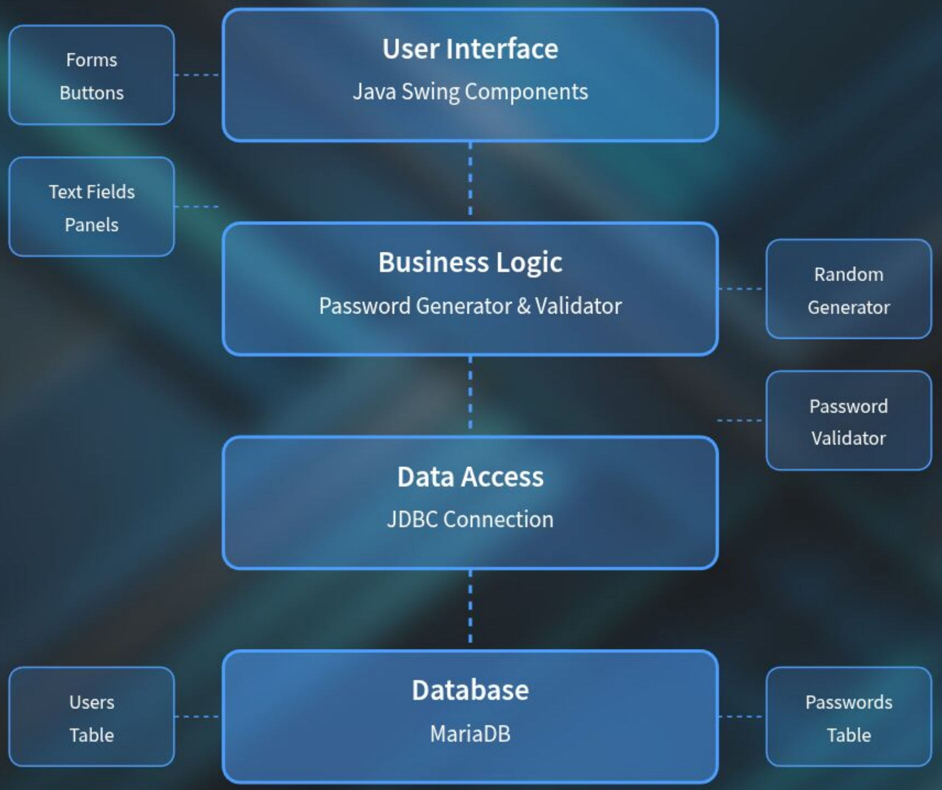
Java Swing

MariaDB

Glassmorphism



Architecture Diagram



Forms
Buttons

Text Fields
Panels

User Interface
Java Swing Components

Business Logic
Password Generator & Validator

Random
Generator

Password
Validator

Data Access
JDBC Connection

Database
MariaDB

Users
Table

Passwords
Table

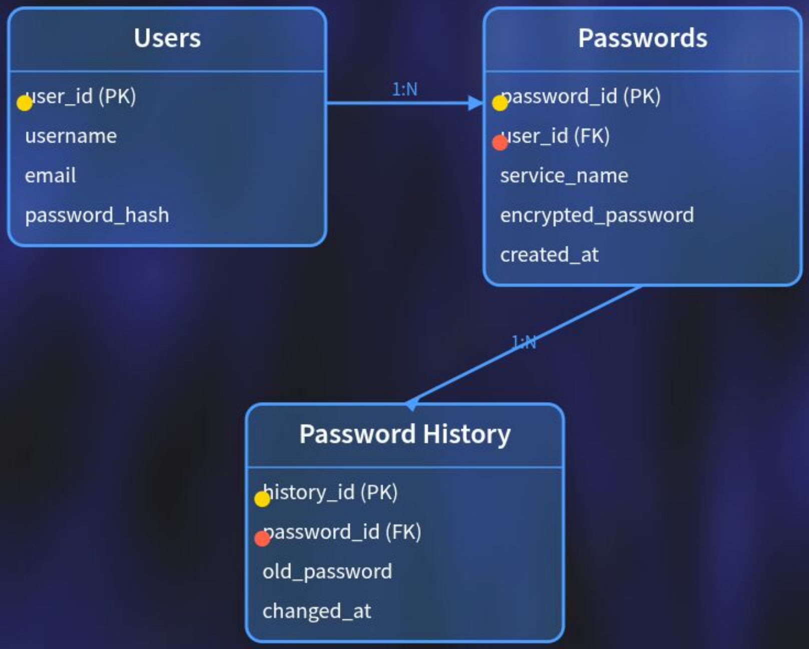
Layered Architecture

- **UI Layer**: Java Swing components
- **Business Layer**: Core password logic
- **Data Layer**: JDBC connection
- **Database**: MariaDB storage

Data Flow

- User input via**forms**
- Validation & generation in **business layer**
- Secure storage in**MariaDB**
- Encrypted**password retrieval**

Database Design



Users

- user_id (PK)
- username
- email
- password_hash

Passwords

- password_id (PK)
- user_id (FK)
- service_name
- encrypted_password
- created_at

Password History

- history_id (PK)
- password_id (FK)
- old_password
- changed_at

Database Schema

- Users: Account information
- Passwords: Encrypted credentials
- History: Password changes

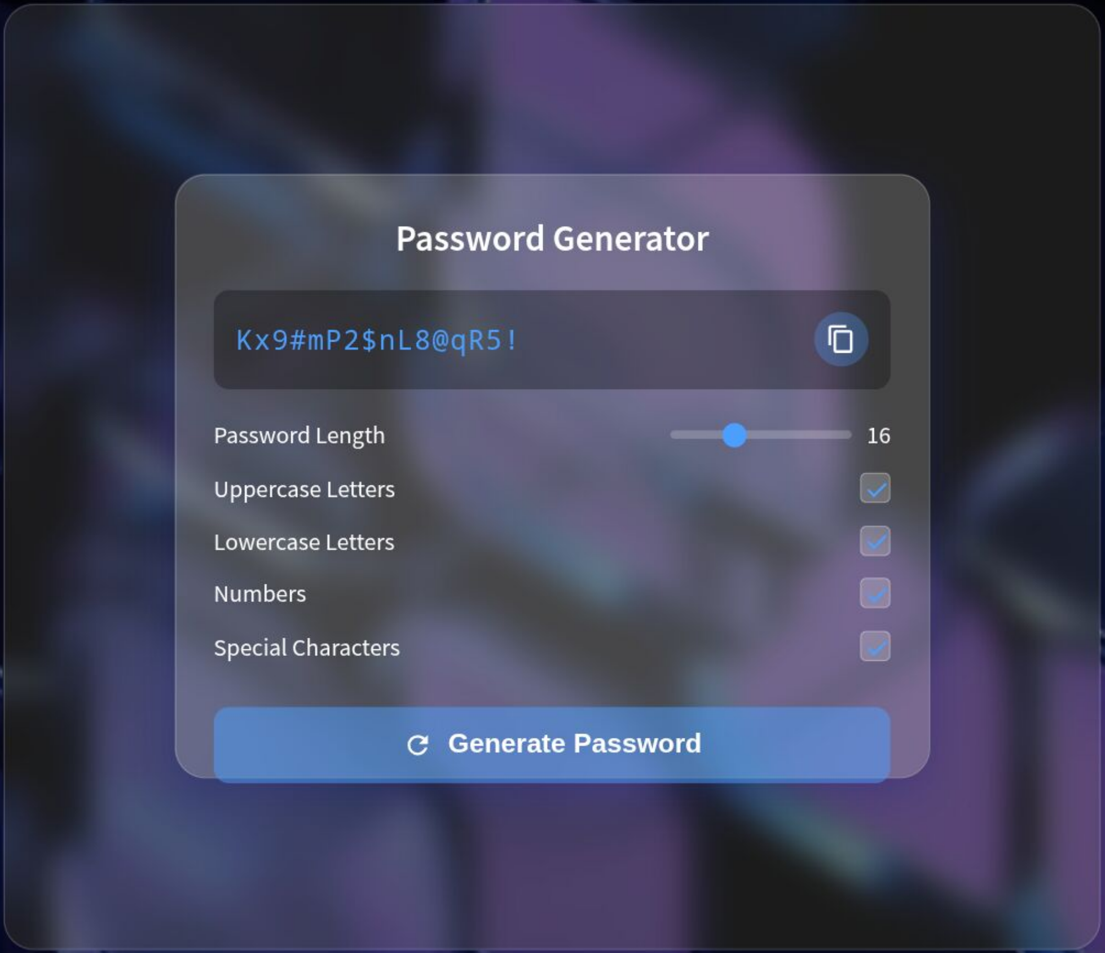
Security Features

- Encryptionfor sensitive data
- Hashingfor user passwords
- Audit trailwith history

Relationships

- User tomanypasswords
- Password tomanyhistory records

UI Design



Password Generator

Kx9#mP2$nL8@qR5!

Password Length 16

Uppercase Letters ☑

Lowercase Letters ☑

Numbers ☑

Special Characters ☑

Glassmorphism Design

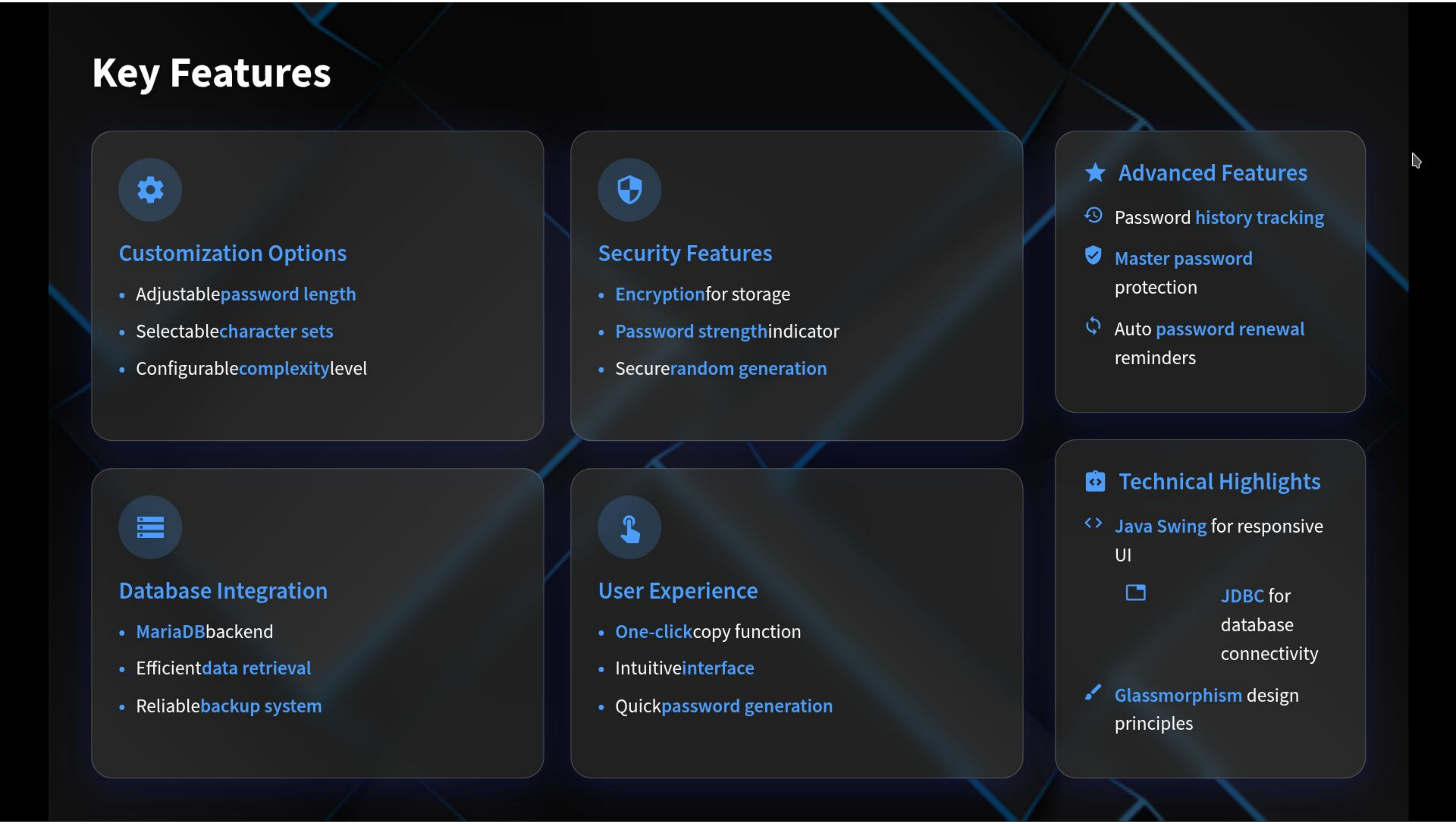
- Transparencywith blur effects
- Frosted glassappearance
- Subtle bordersand shadows

Color Scheme

- Blackfor depth & contrast
- Whitefor text & highlights
- Bluefor accents & actions

UI Components

- Password displaywith copy button
- Options panelwith controls
- Generate buttonwith icon



Key Features

Customization Options

- Adjustablepassword length
- Selectablecharacter sets
- Configurablecomplexitylevel

Security Features

- Encryptionfor storage
- Password strengthindicator
- Securerandom generation

★ Advanced Features

Password history tracking

Master password protection

Auto password renewal reminders

Database Integration

- MariaDBbackend
- Efficientdata retrieval
- Reliablebackup system

User Experience

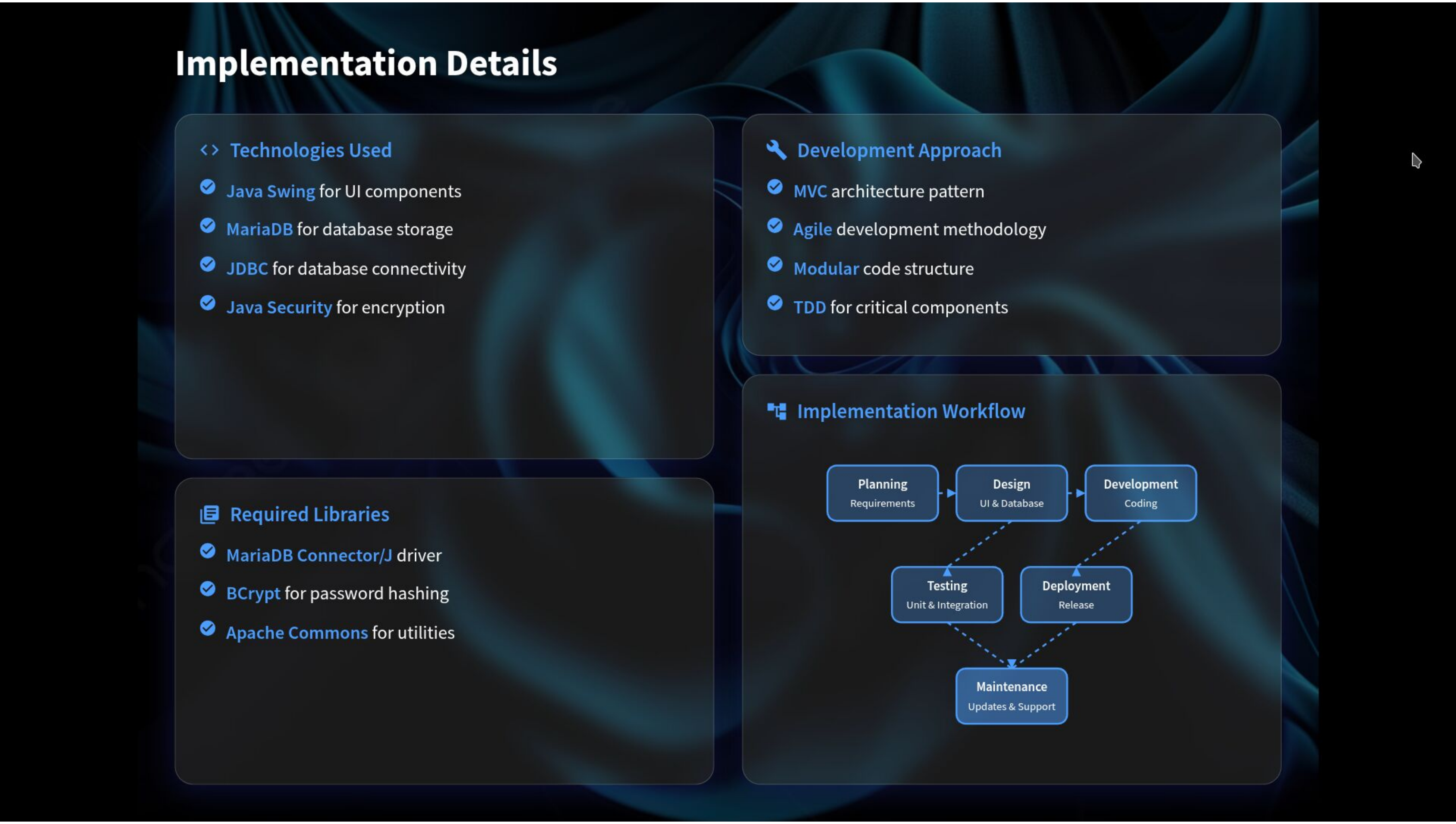
- One-clickcopy function
- Intuitiveinterface
- Quickpassword generation

Technical Highlights

<> Java Swing for responsive UI

JDBC for database connectivity

Glassmorphism design principles



Implementation Details

Technologies Used

- Java Swing for UI components
- MariaDB for database storage
- JDBC for database connectivity
- Java Security for encryption

Required Libraries

- MariaDB Connector/J driver
- BCrypt for password hashing
- Apache Commons for utilities

Development Approach

- MVC architecture pattern
- Agile development methodology
- Modular code structure
- TDD for critical components

Implementation Workflow

Planning
Requirements

Design
UI & Database

Development
Coding

Testing
Unit & Integration

Deployment
Release

Maintenance
Updates & Support

Conclusion

Project Benefits

- Enhanced password security with strong generation
- Reliable data storage with MariaDB backend
- Modern user experience with Glassmorphism UI

Potential Improvements

- Optimize performance for large datasets
- Add multi-language support
- Develop mobile version of the application

Future Enhancements

- Cloud synchronization across devices
- Biometric authentication integration
- Secure password sharing functionality

Thank You

For your attention and interest