

LoopLink Java OOP Project - Documentation

Project Overview

LoopLink is a Java-based desktop application inspired by Facebook. It demonstrates core Object-Oriented Programming (OOP) principles, integrates with a MySQL database using JDBC, and features a user-friendly GUI built with Swing. Users can register, login, create posts, view others' posts, and manage friendships.

Project Structure

```
LoopLink/
├── lib/           # MySQL Connector JAR file
├── db/           # Database connection logic
├── model/        # Java OOP data models (User, Post, Comment, Like, Friend)
├── dao/          # Data access logic for each model (UserDAO, PostDAO, etc.)
├── gui/          # GUI Frames using Swing (LoginFrame, RegisterFrame, etc.)
├── util/         # Utility class for session management
├── assets/       # Images/icons
├── Main.java     # Entry point of the application
└── README.md     # Instructions and documentation
```

Use of Four Pillars of OOP

1. Encapsulation

Each model class (e.g., User, Post, Comment) encapsulates its fields and provides public getter and setter methods. This restricts direct access and ensures controlled interaction with object properties.

2. Inheritance

Although LoopLink doesn't use classical inheritance extensively, Swing components (like JFrame, JPanel) are extended in GUI classes (e.g., LoginFrame extends JFrame), demonstrating use of Java's inheritance mechanism.

3. Polymorphism

Polymorphism is achieved through method overriding and event-driven programming. For example, JButton's action listener uses lambda expressions or anonymous inner classes that override the actionPerformed method.

4. Abstraction

DAO classes (UserDAO, PostDAO) provide abstract interaction with the database. Users of these classes do not need to understand the underlying SQL queries—just call methods like login() or addPost().

Technologies Used

- Java SE (JDK 24)
- Swing (for GUI)
- JDBC (Java Database Connectivity)
- MySQL (Database - XAMPP)
- IntelliJ IDEA (IDE)

Core Features

- User Registration and Login
- Creating and viewing posts
- Sending and receiving friend requests
- Viewing friend list
- Session management
- Scrollable feed and responsive UI

Project Structure

LoopLink/

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|—— lib/ # MySQL Connector JAR file

|

| |—— mysql-connector-java.jar

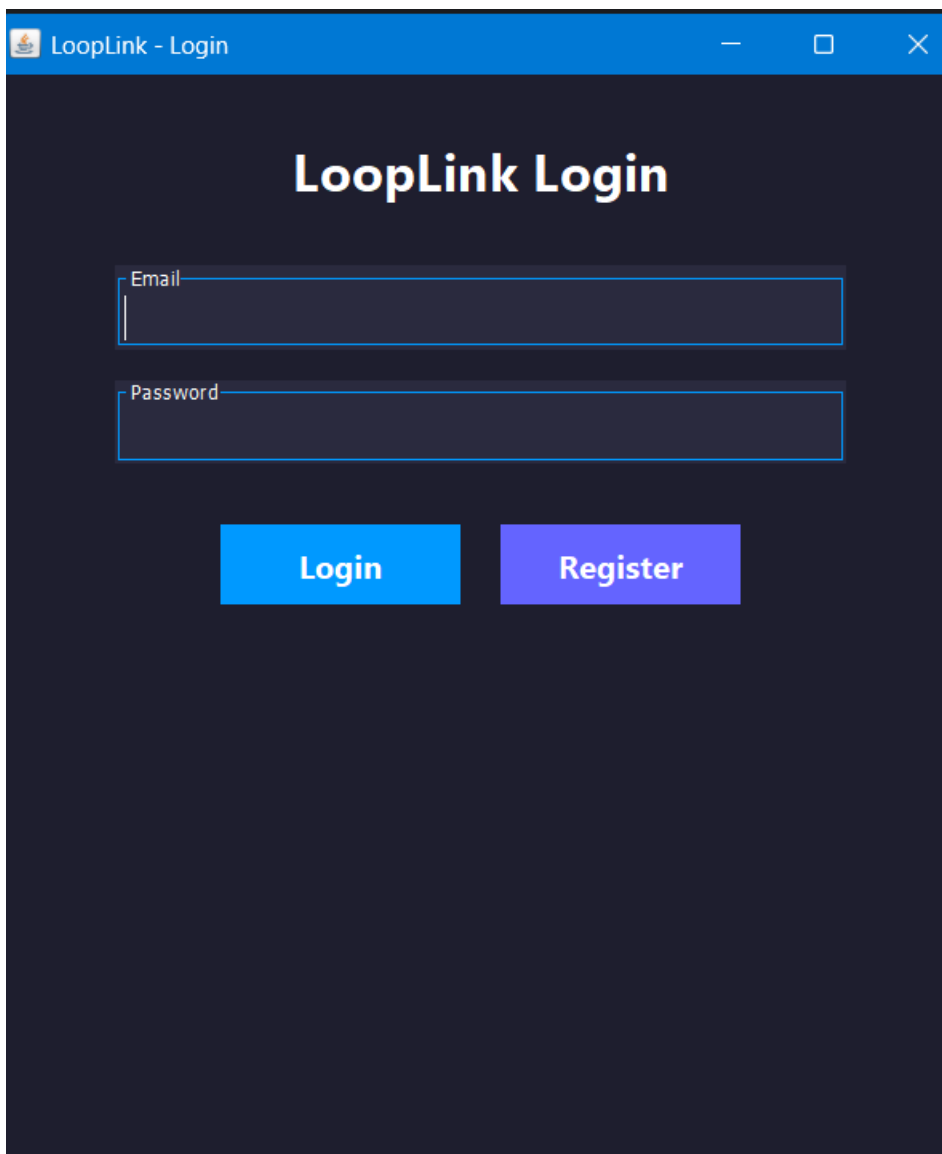
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|—— db/ # Handles database connection

```
|   └── DBConnection.java
|
|
└── model/           # Java OOP data models
    ├── User.java
    ├── Post.java
    ├── Comment.java
    └── Like.java
|
|
└── dao/             # Database access logic
    ├── UserDAO.java
    ├── PostDAO.java
    ├── CommentDAO.java
    └── LikeDAO.java
|
|
└── gui/             # Graphical User Interface (GUI) files
    ├── LoginFrame.java
    ├── RegisterFrame.java
    ├── HomeFeedFrame.java
    ├── CreatePostFrame.java
    └── ProfileFrame.java
|
|
└── util/            # Utility/helper classes
    └── Session.java
|
|
└── assets/          # Logos, icons, and images
```

| |—— logo.png
| |—— background.jpg
|
|—— Main.java # Main class to launch the app
|—— README.md # Project instructions

Project Pics:



LoopLink - Register

Create New Account

Full Name

Email

Password

Register

[← Back to Login](#)

LoopLink - Home Feed

Create Post

Friend Request...

Suggestions

Profile

Logout

Home Feed

Like

Comment

📷

Just came back from the mountains. Nature is magical! #travel #peace

Like

Comment

💻

Started working on a new Java project today. Feeling productive.

Like

Comment

🎧

Listening to some Lo-Fi while studying. It helps me concentrate so much!

Like

Comment

🔥

Who else watched the new season of 'Stranger Things'? Absolute madness!

Like

Comment

🍕

Late-night cravings got me again. Ordered a pepperoni pizza 🌧️😋