# Comparison

## 1. Original vs. Updated Diagrams

The initial versions of the diagrams lacked certain functional and structural elements like biometric verification, detailed authentication flow, and clear dependencies among components. Based on the sequence diagram updates, the following improvements were made:

- Class Diagram:  
 - Added methods and clarified relationships (e.g., added aggregation and composition).  
 - Clearly defined responsibilities of Authentication Manager and Security Manager.  
  
- Use Case Diagram:  
 - Included additional use cases like "Forgot Password", "Enter Biometrics", and Admin’s Role in password recovery.  
 - Enhanced interaction between actors and the system.  
  
- Activity Diagram:  
 - Now supports both Sign Up and Log In flows.  
 - Includes conditionals for password recovery and biometric verification.

These updates provide a more accurate representation of the system behavior and make the authentication workflow more secure and user-friendly.

## 2. Comparison Between Diagrams

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| --- | --- | --- | --- | --- |
| Feature / Diagram | Class Diagram | Use Case Diagram | Activity Diagram | Sequence Diagram |
| Purpose | Describes structure and classes | Shows functionalities from user's perspective | Displays workflow of processes | Represents object interactions over time |
| Focus | System components and relationships | User actions and system responses | Step-by-step execution | Order and logic of communication |
| Actors involved | None directly | User, Admin, Security Manager | User | All objects/classes |
| Good for | Development and code structure | Requirements gathering | Logic implementation | Visualizing real-time interaction |

## 3. Comparison With Traditional Login Systems

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| --- | --- | --- |
| Feature | Traditional Login | Fingerprint/face recognation Login System (Our System) |
| Security | Password-based (weak if reused) | Biometric + password (stronger) |
| Authentication | Email + Password only | Email + Password + Biometric |
| User Experience | May require multiple attempts | Faster, more convenient |
| Data Handling | Simple DB interaction | Encrypted DB + Logs |
| Password Recovery | Standard reset link | Reset + Admin approval flow |

## 4. Tool Comparison (Optional)

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| Tool | Purpose | Pros | Cons |
| Draw.io | Diagram drawing | Easy to use, free, exportable | Manual styling |
| Lucidchart | Diagramming | Professional-looking, templates | Limited features in free version |
| StarUML | Class/Sequence diagrams | Code generation, formal modeling | More suitable for advanced use |