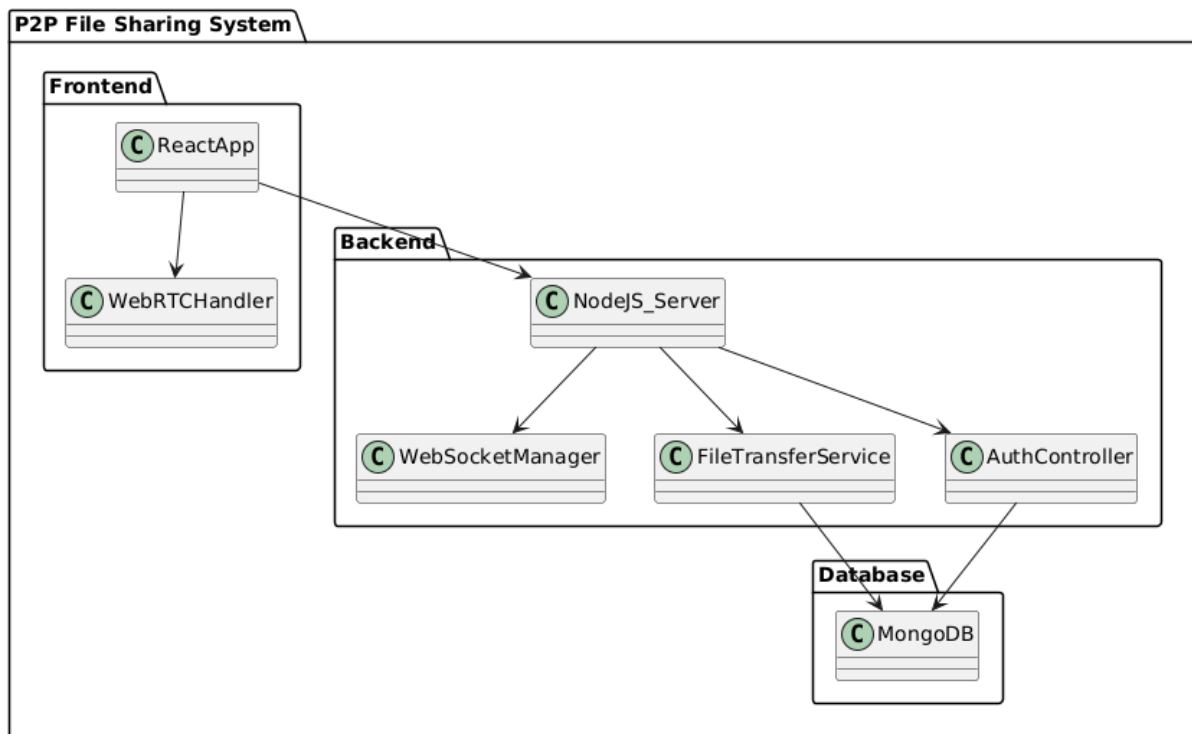The **Package Diagram** represents the architecture of the **Peer-to-Peer (P2P) File Sharing System**. It is divided into three main components:

- **Frontend**: Handles the user interface and WebRTC communication.

- **Backend**: Manages WebSocket, authentication, and file transfers.

- **Database**: Stores user authentication details and file transfer history.

Below is the **UML Package Diagram** for the system:

2. Sequence Diagram - Behavioural View

The **Sequence Diagram** illustrates the flow of a **file transfer process** between two users in a P2P network using WebRTC. The key steps are:

1. **UserA selects a file to send.**

2. **A connection request is sent to User B via the backend.**

3. **User B accepts the request, and WebRTC establishes a direct connection.**

4. **The file is split into chunks and transferred peer-to-peer.**

5. **The transfer is logged in the database for history tracking.**

6. **User B is notified upon successful file reception.**

Below is the **UML Sequence Diagram** for the system:

UserA   UserB   ReactApp (UserA)   NodeJS Server   ReactApp (UserB)   WebRTC Peer Connection   MongoDB

Select file to send

Request connection with UserB

Notify incoming file transfer request

Accept connection request

Notify acceptance

Establish P2P Connection

Send file chunks

Receive file chunks

Log transfer history

Store transfer details

Notify file received successfully

UserA   UserB   ReactApp (UserA)   NodeJS Server   ReactApp (UserB)   WebRTC Peer Connection   MongoDB