**Application Flow: File Mapping with Data Usage and Updates**

**A diagram of a software application

AI-generated content may be incorrect.**

**1. Start**

**Frontend:**[**App.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: None (initializes app state).**
* **Action: No data is updated.**

**2. Welcome/Login/Register Screen**

**Frontend:**[**Auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: User input (email, password, name, phone).**
* **Action: Data is collected from user but not yet sent or stored.**

**3. Register**

**Frontend:**[**Auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data Sent: { email, password, name, phone } (to backend).**
* **Backend:**
  + [**auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**receives registration data.**
  + [**User.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**validates and creates a new user document.**
  + **Data Updated:**
    - **User document is created in MongoDB (users collection).**
* **Action: User data is created and stored in the database.**

**4. Login**

**Frontend:**[**Auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data Sent: { email, password } (to backend).**
* **Backend:**
  + [**auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**checks credentials.**
  + [**User.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**reads user document.**
  + **Data Read:**
    - **User document is read from MongoDB.**
  + **Data Created:**
    - **JWT token is generated and sent to the client.**
* **Action: No data is updated in the database, but a token is created and user info is stored in local storage on the client.**

**5. Main Menu**

**Frontend:**[**App.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**,**[**SubjectList.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: JWT token and user info (from local storage or app state).**
* **Action: No data is updated.**

**6. Add Subject**

**Frontend:**[**SubjectList.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data Sent: { title, description, userId } (to backend).**
* **Backend:**
  + [**subjects.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**receives subject data.**
  + [**Subject.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**creates a new subject document.**
  + **Data Updated:**
    - **Subject document is created in MongoDB (subjects collection).**
* **Action: Subject data is created and stored in the database.**

**7. Select Subject**

**Frontend:**[**SubjectList.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: List of subjects (fetched from backend).**
* **Backend:**
  + [**subjects.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**fetches all subjects.**
  + [**Subject.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**reads subject documents.**
  + **Data Read:**
    - **Subject documents are read from MongoDB.**
* **Action: No data is updated.**

**8. Subject Detail**

**Frontend:**[**SubjectDetail.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data:**
  + **Subject details (fetched from backend).**
  + **Comments for the subject (fetched from backend).**
* **Backend:**
  + [**subjects.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**fetches subject by ID.**
  + [**comments.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**fetches comments for subject.**
  + [**Subject.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**and**[**Comment.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**read documents.**
  + **Data Read:**
    - **Subject document and Comment documents are read from MongoDB.**
* **Action: No data is updated.**

**9. Add Comment**

**Frontend:**[**CommentList.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data Sent: { text, subjectId, userId } (to backend).**
* **Backend:**
  + [**comments.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**receives comment data.**
  + [**Comment.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**creates a new comment document.**
  + **Data Updated:**
    - **Comment document is created in MongoDB (comments collection).**
* **Action: Comment data is created and stored in the database.**

**10. Back to Main**

**Frontend:**[**SubjectDetail.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: None (navigation only).**
* **Action: No data is updated.**

**11. Logout**

**Frontend:**[**App.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**or**[**Auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: JWT token and user info (cleared from local storage and app state).**
* **Action: No data is updated in the database, but client-side session data is cleared.**

**12. End/Logout**

**Frontend:**[**App.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)

* **Data: None (app ready for new login/registration).**
* **Action: No data is updated.**

**Backend File Roles and Data:**

* [**auth.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**: Handles registration and login; creates/reads user data.**
* [**subjects.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**: Handles subject creation and retrieval; creates/reads subject data.**
* [**comments.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**: Handles comment creation and retrieval; creates/reads comment data.**
* [**User.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**: User schema; validates and stores user data.**
* [**Subject.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**: Subject schema; validates and stores subject data.**
* [**Comment.js**](vscode-file://vscode-app/c:/Users/stephen.perelgut/AppData/Local/Programs/Microsoft%20VS%20Code/resources/app/out/vs/code/electron-browser/workbench/workbench.html)**: Comment schema; validates and stores comment data.**

**Summary:**

* **Data is created in the database during registration, subject creation, and comment creation.**
* **Data is read from the database during login, subject listing, subject detail, and comment listing.**
* **No data is updated in the database during login, logout, or navigation—only client-side state is affected in those cases.**