**Firestore Database Structure for eBook Reader & Buyer**

**1. Users Collection**

**Collection:** users

* **Document ID:** userId (Auto Generated)
  + username: "JohnDoe"
  + email: "[johndoe@email.com](mailto:johndoe@email.com)"
  + password\_hash: "hashed\_password"
  + created\_at: Timestamp

**2. Books Collection**

**Collection:** books

* **Document ID:** bookId (Google Books ID or Custom ID)
  + title: "The Great Gatsby"
  + author: "F. Scott Fitzgerald"
  + description: "A classic novel..."
  + thumbnail\_url: "<https://example.com/image.jpg>"
  + preview\_url: "<https://books.google.com/gatsby>"
  + download\_url: "<https://example.com/download.pdf>"
  + is\_local: false
  + added\_at: Timestamp

**3. User's Library**

**Subcollection:** users/{userId}/library

* **Document ID:** bookId
  + progress: 45.5 (percentage)
  + purchased: true
  + purchased\_at: Timestamp

**4. Bookmarks Collection**

**Subcollection:** users/{userId}/bookmarks

* **Document ID:** bookmarkId (Auto Generated)
  + book\_id: "bookId"
  + page\_number: 15
  + note: "Important quote here"
  + created\_at: Timestamp

**5. Highlights Collection**

**Subcollection:** users/{userId}/highlights

* **Document ID:** highlightId (Auto Generated)
  + book\_id: "bookId"
  + page\_number: 32
  + highlighted\_text: "The best lines in the book..."
  + color: "yellow"
  + created\_at: Timestamp

**6. Notes Collection**

**Subcollection:** users/{userId}/notes

* **Document ID:** noteId (Auto Generated)
  + book\_id: "bookId"
  + page\_number: 25
  + note\_text: "Remember this for later"
  + created\_at: Timestamp

**7. Purchases Collection**

**Subcollection:** users/{userId}/purchases

* **Document ID:** purchaseId (Auto Generated)
  + book\_id: "bookId"
  + price: 9.99
  + purchase\_source: "Google Books"
  + purchase\_date: Timestamp

Users ⇄ Books (Many-to-Many via User\_Books)

📌 Users ⇄ Bookmarks (One-to-Many)

📌 Users ⇄ Highlights (One-to-Many)

📌 Users ⇄ Notes (One-to-Many)

📌 Users ⇄ Purchases (One-to-Many)

**Firebase Firestore Implementation**

**1. Initialize Firestore**

import { getFirestore, doc, setDoc, collection, addDoc, getDocs } from "firebase/firestore";

import { initializeApp } from "firebase/app";

const firebaseConfig = {

apiKey: "YOUR\_API\_KEY",

authDomain: "YOUR\_APP.firebaseapp.com",

projectId: "YOUR\_PROJECT\_ID",

storageBucket: "YOUR\_APP.appspot.com",

messagingSenderId: "SENDER\_ID",

appId: "APP\_ID"

};

const app = initializeApp(firebaseConfig);

const db = getFirestore(app);

**2. Add a New User**

async function createUser(userId, username, email, passwordHash) {

await setDoc(doc(db, "users", userId), {

username: username,

email: email,

password\_hash: passwordHash,

created\_at: new Date()

});

}

**3. Add a Book**

async function addBook(bookId, title, author, description, thumbnailUrl, previewUrl) {

await setDoc(doc(db, "books", bookId), {

title: title,

author: author,

description: description,

thumbnail\_url: thumbnailUrl,

preview\_url: previewUrl,

is\_local: false,

added\_at: new Date()

});

}

**4. Add a Book to User's Library**

async function addUserBook(userId, bookId, progress, purchased) {

await setDoc(doc(db, `users/${userId}/library`, bookId), {

progress: progress,

purchased: purchased,

purchased\_at: purchased ? new Date() : null

});

}

**5. Add a Bookmark**

async function addBookmark(userId, bookId, pageNumber, note) {

await addDoc(collection(db, `users/${userId}/bookmarks`), {

book\_id: bookId,

page\_number: pageNumber,

note: note,

created\_at: new Date()

});

}

**6. Fetch All Books**

async function fetchBooks() {

const querySnapshot = await getDocs(collection(db, "books"));

querySnapshot.forEach((doc) => {

console.log(doc.id, " => ", doc.data());

});

}