**🔧 Firebase Realtime DB Structure (ERD-style Documentation)**

**1. trips**

Represents available travel trips.

| **Field** | **Type** | **Description** |
| --- | --- | --- |
| tripId | String | Unique ID for each trip (e.g., trip1) |
| availableSeats | Integer | Seats available for booking |
| img | String | Image URL for the trip |
| name | String | Trip name (e.g., "trip to cairo") |
| price | Number | Trip price |

**Firebase Path**: /trips/{tripId}

**Sample Path**: /trips/trip1/availableSeats

**2. users**

Holds user data under a unique userId.

| **Field** | **Type** | **Description** |
| --- | --- | --- |
| email | String | User's email |
| phone | String | User's phone number |
| role | String | (Optional) user role, e.g., "user" |

**Firebase Path**: /users/{authUID}/{generatedID}

**3. bookings**

Each booking is stored per user.

| **Field** | **Type** | **Description** |
| --- | --- | --- |
| date | Date | Booking date |
| location | String | Location of the trip |
| timestamp | DateTime | Booking creation timestamp |

**Firebase Path**: /bookings/{userUID}/{bookingID}

**4. ratings**

Stores ratings given by a user to a trip or service.

| **Field** | **Type** | **Description** |
| --- | --- | --- |
| comment | String | Textual feedback |
| stars | Integer | Star rating (e.g., 4) |

**Firebase Path**: /ratings/{userUID}/{ratingID}

**🔄 How to Interact**

**✅ Read Data**

javascript

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import { getDatabase, ref, get } from "firebase/database";

// Example: Get all trips

const db = getDatabase();

get(ref(db, 'trips')).then(snapshot => {

if (snapshot.exists()) {

console.log(snapshot.val());

}

});

**📝 Write Data**

javascript

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import { getDatabase, ref, set } from "firebase/database";

// Example: Add new user

set(ref(db, 'users/' + authUID + '/' + generatedID), {

email: "example@gmail.com",

phone: "01000000000",

role: "user"

});

**✏️ Update Data**

javascript

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import { update, ref } from "firebase/database";

// Example: Update available seats

update(ref(db, 'trips/trip1'), {

availableSeats: 7

});

**❌ Delete Data**

javascript

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import { remove, ref } from "firebase/database";

// Example: Delete a booking

remove(ref(db, 'bookings/userUID/bookingID'));

**🧩 Diagram Structure (Text-Based ERD)**

pgsql

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│ trips │

├────────────┤

│ tripId │◄────────────────────┐

│ name │ │

│ price │ │

│ img │ │

│ seats │ │

└────────────┘ │

│

┌────────────┐ │

│ bookings │────────────────────┘

├────────────┤

│ userUID │

│ location │

│ date │

│ timestamp │

└────────────┘

┌────────────┐

│ users │

├────────────┤

│ authUID │

│ email │

│ phone │

│ role │

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┌────────────┐

│ ratings │

├────────────┤

│ userUID │

│ stars │

│ comment │

└────────────┘