**Entities**

**1. Users Collection**

|  |  |  |
| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each user |
| name | String | Name of the user |
| email | String | Email address, unique |
| phoneNumber | String | Phone number of the user |
| passwordHash | String | Hashed password for authentication |
| role | String | Role of the user: "CarOwner", "Buyer", "ServiceProvider", "Admin" |
| profileImage | String | URL or path to the user's profile image |
| verified | Boolean | Indicates if the user is verified (true/false) |
| createdAt | ISODate | Account creation timestamp |

**2. Vehicles Collection**

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| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each vehicle |
| ownerId | ObjectId | Refers to the **Users** collection (Owner of the vehicle) |
| registrationNumber | String | Unique registration number of the vehicle |
| make | String | Vehicle's make (e.g., Toyota, Ford) |
| model | String | Vehicle's model (e.g., Corolla, Mustang) |
| year | Number | Manufacturing year of the vehicle |
| fuelType | String | Fuel type (e.g., Petrol, Diesel) |
| transmission | String | Transmission type (e.g., Manual, Automatic) |
| kilometersDriven | Number | Total kilometers driven by the vehicle |
| location | String | Location where the vehicle is available for sale |
| description | String | Description of the vehicle |
| status | String | Vehicle status ("Available", "Sold") |
| images | [String] | Array of image URLs for the vehicle |
| createdAt | ISODate | Vehicle listing timestamp |

**3. Listings Collection**

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| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each listing |
| vehicleId | ObjectId | Refers to the **Vehicles** collection |
| listedBy | ObjectId | Refers to the **Users** collection (User who listed the vehicle) |
| price | Number | Price of the vehicle |
| listingDate | ISODate | Date when the listing was created |
| isActive | Boolean | Indicates if the listing is still active |

**4. ServiceProviders Collection**

|  |  |  |
| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each service provider |
| userId | ObjectId | Refers to the **Users** collection (The service provider's user) |
| businessName | String | Name of the business |
| address | String | Physical address of the service provider |
| verified | Boolean | Indicates if the service provider is verified |
| rating | Number | Rating of the service provider (average) |
| services | Array | List of services offered, each containing: |
| - serviceId | ObjectId | Refers to a specific service |
| - serviceName | String | Name of the service |
| - description | String | Description of the service |
| - price | Number | Price of the service |

**5. Appointments Collection**

|  |  |  |
| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each appointment |
| vehicleId | ObjectId | Refers to the **Vehicles** collection |
| providerId | ObjectId | Refers to the **ServiceProviders** collection |
| userId | ObjectId | Refers to the **Users** collection |
| serviceId | ObjectId | Refers to the service within **ServiceProviders** collection |
| scheduledDateTime | ISODate | Scheduled date and time of the service |
| status | String | Appointment status ("Booked", "Completed", "Cancelled") |

**6. ServiceHistory Collection**

|  |  |  |
| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each service history entry |
| vehicleId | ObjectId | Refers to the **Vehicles** collection |
| serviceDate | Date | Date of the service |
| description | String | Description of the service performed |
| document | Object | Embedded document with: |
| - documentType | String | Type of document ("RC", "PUC", "Insurance") |
| - fileURL | String | URL of the document file |
| - uploadedAt | ISODate | Date when the document was uploaded |

**7. Documents Collection**

|  |  |  |
| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each document |
| ownerId | ObjectId | Refers to the **Users** collection (Owner of the document) |
| documentType | String | Type of document ("RC", "PUC", "Insurance") |
| fileURL | String | URL to the document |
| uploadDate | ISODate | Date when the document was uploaded |

**8. Reviews Collection**

|  |  |  |
| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each review |
| reviewerId | ObjectId | Refers to the **Users** collection (User leaving the review) |
| targetId | ObjectId | Refers to the target user or service provider (can be a **User** or **ServiceProvider**) |
| roleReviewed | String | Role being reviewed ("Seller", "ServiceProvider") |
| rating | Number | Rating score (e.g., 1-5) |
| comments | String | Review comments |
| date | ISODate | Date the review was posted |

**9. AdminActions Collection**

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| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each admin action |
| adminId | ObjectId | Refers to the **Users** collection (Admin performing the action) |
| targetType | String | Type of target being acted upon ("User", "Listing", "Review") |
| targetId | ObjectId | ID of the target (user, listing, review) |
| actionType | String | Action performed ("Verify", "Ban", "Flag", "Resolve") |
| notes | String | Additional notes for the action |
| timestamp | ISODate | Timestamp of the action |

**10. ChatRooms Collection**

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| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each chat room |
| type | String | Type of chat room ("BuyerSeller", "OwnerProvider") |
| participants | Object | Embedded object containing: |
| - buyerId | ObjectId | Refers to the **Users** collection (Buyer) |
| - sellerId | ObjectId | Refers to the **Users** collection (Seller) |
| - ownerId | ObjectId | Refers to the **Users** collection (Car Owner) |
| - providerId | ObjectId | Refers to the **ServiceProviders** collection |
| listingId | ObjectId | Optional, refers to **Listings** collection |
| appointmentId | ObjectId | Optional, refers to **Appointments** collection |
| createdAt | ISODate | Timestamp when the chat room was created |

**11. ChatMessages Collection**

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| --- | --- | --- |
| **Column** | **Data Type** | **Description** |
| \_id | ObjectId | Unique identifier for each message |
| chatRoomId | ObjectId | Refers to the **ChatRooms** collection |
| senderId | ObjectId | Refers to the **Users** collection (Sender of the message) |
| message | String | Content of the message |
| sentAt | ISODate | Timestamp when the message was sent |
| isRead | Boolean | Indicates whether the message has been read (true/false) |

