

Re-Design Database

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Added:

Historical Achieve Collection:

```
{
  "archiveID": "Unique Identifier",
  "missionID": "Reference to Missions Collection",
  "historicalData": "Blob",
  "media": ["Array of URLs"],
  "publications": ["Array of Document References"]
}
```

Role/justification:

This collection will store extensive historical data and related media for each mission, which researchers like in the persona document can access for academic purposes.

Structures:

When Dr. Jane Doe selects the historical archive page, the application will query this collection to present her with a wealth of historical mission data.

Community Forum Collection:

```
{
  "postID": "Unique Identifier",
  "userID": "Reference to Users Collection",
  "content": "String",
  "timestamp": "Date",
  "replies": [
    {
      "replyID": "Unique Identifier",
      "userID": "Reference to Users Collection",
      "content": "String",
      "timestamp": "Date"
    }
  ]
}
```

Role/Justification:

This forum collection will facilitate community discussion, allowing users to post questions, share insights, and replay to other members posts.

Structure:

As users engage with the community forum, the application will interact with this collection to display posts, manage discussions, and enable community interactions.

///The rest below remained the same as its still well-suited to meet initial goals of the MVP.

Space Exploration Dashboard: Database Design

Choice of Database Technology: MongoDB

Justification:

The nature of space exploration data can evolve, so having a database that's flexible and allows for change without migrations is beneficial.

I can easily store related data in a single independent document. For instance, all details about a space mission, including its objectives, crew members, milestones, etc., can reside in a single document.

As I collect more data about space missions, planets, events, etc., MongoDB can scale horizontally by adding more nodes to the system.

Data Structures:

a) Users Collection

```
{
  "userID": "Unique Identifier",
  "username": "String",
  "password": "Encrypted String",
  "role": "String (Admin/User/Guest)",
  "profileDetails": {
    "name": "String",
    "email": "String",
    "preferences": {
      "theme": "String",
      "notifications": "Boolean"
    }
  }
}
```

Role in Application:

This collection will store details about users who have registered on the dashboard. It will be used for authentication, user-specific preferences, and roles.

b) Missions Collection

```
{
```

```
"missionID": "Unique Identifier",
"missionName": "String",
"launchDate": "Date",
"crewMembers": ["Array of Names"],
"objectives": ["Array of Objectives"],
"missionStatus": "String (Ongoing/Completed/Upcoming)"
}
```

Role in Application:

This collection will house all details related to different space missions. It will be used to display mission updates, objectives, crew members, and their statuses.

c) Events Collection

```
{
  "eventID": "Unique Identifier",
  "eventName": "String",
  "eventDate": "Date",
  "description": "String",
  "relatedMission": "missionID"
}
```

Role in Application:

This collection will store all events related to space exploration. It could be a spacewalk, a spacecraft landing, or a celestial event. The related Mission field will allow for linking events to specific missions if needed.

d) SpaceWeather Collection

```
{
  "weatherID": "Unique Identifier",
  "date": "Date",
  "solarFlares": "Number",
  "radiationLevel": "Number",
  "temperature": "Number",
  "notes": "String"
}
```

Role in Application:

This collection will track various space weather metrics. Users can view these metrics to better understand the environment in which missions operate.

How Data Structures are Used in the Application

Users Collection: Used during login and registration. Admin users can manage the dashboard, while regular users can personalize settings.

Missions Collection: Whenever a user visits the "Mission Updates" section, the application queries this collection.

[Events Collection](#): In the "Event Calendar", the application will fetch events from this collection. If an event is tied to a specific mission, it can pull relevant mission data.

[Space Weather Collection](#): In the "Space Weather" section, the application will query this collection to display space weather updates.