Entities:

User Entity:

Attributes: User ID, First Name, Last Name, Email, Password, Profile Picture, Role (Student or Mentor), Account Creation Date, Last Login Date.

Relationships: N/A

Mentorship Entity:

Attributes: Mentorship ID, Mentor ID (Foreign Key), Student ID (Foreign Key), Start Date, End Date, Status (e.g., Active, Completed, Pending), Subject/Field of Study, Goals/Expectations, Ratings, Comments.

Relationships:

Many-to-One relationship with the User Entity (Mentor) based on Mentor ID.

Many-to-One relationship with the User Entity (Student) based on Student ID.

Chat and Messaging Entity:

Attributes: Message ID, Sender ID (Foreign Key), Receiver ID (Foreign Key), Message Content, Timestamp.

Relationships:

Many-to-One relationship with the User Entity (Sender) based on Sender ID.

Many-to-One relationship with the User Entity (Receiver) based on Receiver ID.

Scheduling and Calendar Entity:

Attributes: Event ID, User ID (Foreign Key), Event Title, Event Description, Event Date and Time, Location.

Relationships:

Many-to-One relationship with the User Entity (Owner) based on User ID.

Resource Sharing Entity:

Attributes: Resource ID, Uploader ID (Foreign Key), Title, Description, File URL, Upload Date, Subject/Category.

Relationships:

Many-to-One relationship with the User Entity (Uploader) based on Uploader ID.

Goals and Progress Tracking Entity:

Attributes: Goal ID, User ID (Foreign Key), Goal Description, Target Date, Status (e.g., In Progress, Achieved, Failed), Progress Notes.

Relationships:

Many-to-One relationship with the User Entity (Owner) based on User ID.

Feedback and Ratings Entity:

Attributes: Feedback ID, Mentorship ID (Foreign Key), Rating (e.g., on a scale of 1-5), Comments.

Relationships:

Many-to-One relationship with the Mentorship Entity based on Mentorship ID.

Attributes to be Recorded for Normalization:

Normalization is the process of organizing data in a relational database to minimize data redundancy and improve data integrity. For the attributes listed above, you should consider the following normalization rules:

First Normal Form (1NF): Ensure that each attribute contains only atomic (indivisible) values.

Second Normal Form (2NF): Remove partial dependencies, ensuring that non-key attributes are fully functionally dependent on the primary key.

Third Normal Form (3NF): Eliminate transitive dependencies, ensuring that non-key attributes are not dependent on other non-key attributes.

Here are examples of how some of the attributes should be handled following these normalization rules:

In the User Entity, you should break down the User's Name into First Name and Last Name attributes to ensure 1NF.

In the Mentorship Entity, the Subject/Field of Study should be stored in a separate table with a unique identifier to avoid data redundancy (2NF).

In the Goals and Progress Tracking Entity, the Goal Description should be separated from Progress Notes to eliminate transitive dependencies (3NF).