Group Project Phase – 3

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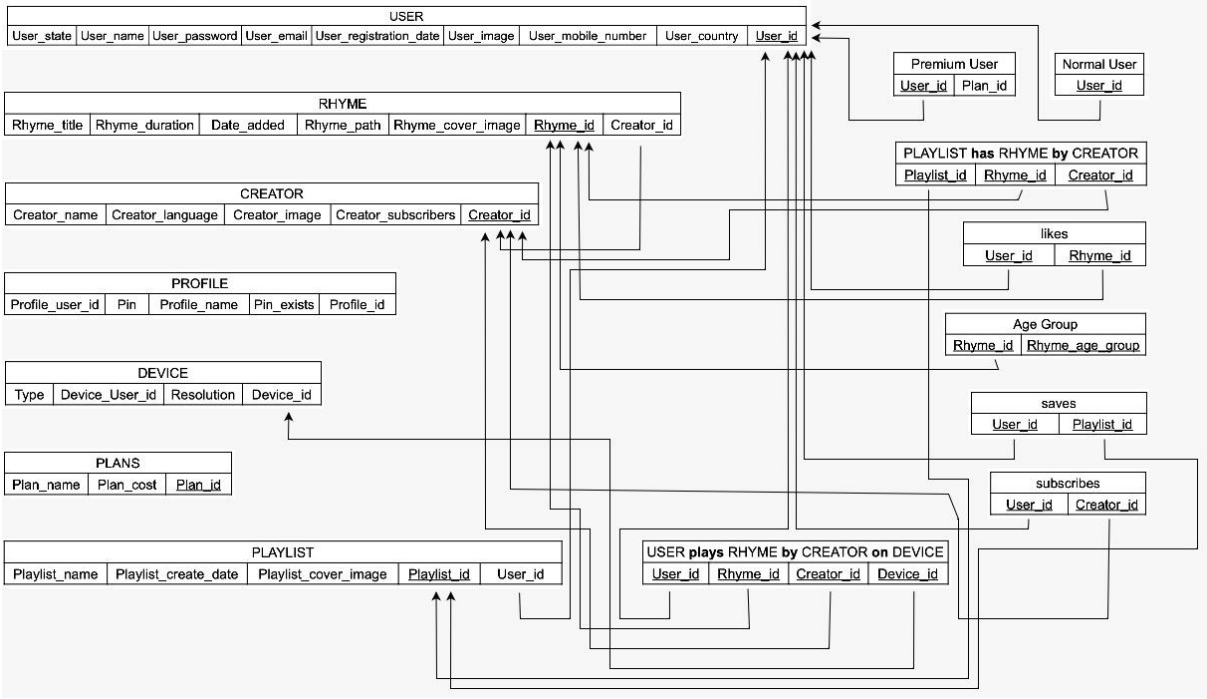
Note:

This assignment has been made while keeping in mind that “First normal form (1NF)is now considered to be part of the formal definition of a relation in the basic (flat) relational model; historically, it was defined to disallow multivalued attributes, composite attributes, and their combinations.” (Fundamentals of Database Systems – 7th Edition, Page 477, Section 14.3.4)

The Relational Model



In this model, some changes were made to the entity types and some new tables were added in order to display the relationships, which are:

- Addition of:
  - Creator_id attribute to the “RHYME” table.
  - User_id attribute to the “PLAYLIST” table.
- Creation of:
  - “PLAYLIST has RHYME by CREATOR” table for the ternary relationship “has”.
  - “USER plays RHYME by CREATOR on DEVICE” table for the quaternary relationship “plays”.
  - “likes” table for the M:N relationship “likes”.
  - “saves” table for the M:N relationship “saves”.
  - “subscribes” table for the M:N relationship “subscribes”.

- "Age Group" table for the multivalued attribute "Rhyme_age_group".

First Normal Form (1NF)

As mentioned in the note, the first normal form is the same as the basic relational model.

Second Normal Form (2NF)

In our database, all the entities have only one attribute in their primary key, and in its first normal form, every non-prime attribute of every table is fully functionally dependent on the primary key. Therefore, our model satisfies the criteria of being in the second normal form.

Third Normal Form (3NF)

As established above, our relational model is in the second normal form and no non-prime attribute of any table is transitively dependent on the table's primary key and therefore, all the non-prime attributes can only be determined by the primary key and not by any other attributes. Therefore, our model satisfies the criteria of being in the third normal form.