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Environmental Databasky

Project Description

Environmental Database - database storing animals, plants, and their environments. Users would be able to search for animals and plants in specific environments. It would be useful for animal-lovers and people who are researching animals in different biomes. Potential users could be animal-lovers, researchers, scientists, etc.

Data Requirements

- Account stuff
    - Email
    - Username
    - Password
- Saved bookmarks (stuff they like)
    - AnimalID, EnvironmentID, UserID,
- Location (For animals near you service)
    - Biome, Country,
- Organism Stats
    - ID, Sci-Name, Biome, Org_Type, *Weird biology terms*
- Biome Stats
    - Biome(Name, BiomeID)
- Country Stats
    - Name, CountryID (Gonna ref Biome as well)

Functional Requirements

- Do you want to subscribe to Animals near You?
- *Filtering/searching for specific Organism/biome
- Animal suggestions (Pending Confirmation)
- Ability to bookmark favorite organism, biome, country

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PART 2

Organism Table

orgID,
orgName,
sciName,
(biomeID,)
orgType,
possible biology terms later

Biome Table

biomeID,
biomeName,

Country Table

countryID
countryName

User Table

userID,
username,
password,
email

Country-Biome Table

countryID,
biomeID,

Bookmarks

bookmarksID
(userID)
(organismID)
(biomeID)

(countryID)

Relationships:

Many organisms to one biome
Many countries to many (at least one) biomes (Country-biome table)
Many bookmarks to one user
One bookmark to at most one biome
One bookmark to at most one country
One bookmark to at most one organism

Schema:

Organism(OrgID,OrgName,SciName,OrgType, BiomeID)
Bookmark_Organism(BookmarkID, OrgID)
Organism_Location(OrgID, LocationID)

Biome(BiomeID, Bname)
Bookmark_Biome(BookmarkID, BiomeID)
Location_Biome(LocationID, BiomeID)

Location(LocationID, Name)
Bookmark_Location(BookmarkID, LocationID)

User_Bookmark(UserID, BookmarkID)

User(UserID, Username, Password, Email)

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PART 3

1.

Organism(OrgID,OrgName,SciName,OrgType, BiomeID)
OrgID -> OrgName, SciName, OrgType, BiomeID
SciName -> OrgID, OrgName, OrgType, BiomeID

Bookmark_Organism(BookmarkID, OrgID)
BookmarkID -> OrgID
Organism_Location(OrgID, LocationID)
None
Biome(BiomeID, Bname)→
BiomeID -> Bname
Bookmark_Biome(BookmarkID, BiomeID)
BookmarkID -> BiomeID
Location_Biome(LocationID, BiomeID)
None
Location(LocationID, Name)
LocationID -> Name
Bookmark_Location(BookmarkID, LocationID)
BookmarkID -> LocationID
User_Bookmark(UserID, BookmarkID)
BookmarkID -> UserID

User(UserID, Username, Password, Email)
UserID -> Username, Password, Email
Username -> UserID, Password, Email
Email -> UserID, UserName, Password

2.

a. All tables are in BCNF since all functional dependencies are either trivial or the left hand side is a superkey of the table.

b. All tables are in 3NF since the tables are all in BCNF

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3.

Organism(OrgID,OrgName,SciName,OrgType, BiomeID)
Bookmark_Organism(BookmarkID, OrgID)
Organism_Location(OrgID, LocationID)

Biome(BiomeID, Bname)
Bookmark_Biome(BookmarkID, BiomeID)
Location_Biome(LocationID, BiomeID)

Location(LocationID, Name)
Bookmark_Location(BookmarkID, LocationID)

User_Bookmark(UserID, BookmarkID)

User(UserID, Username, Password, Email)