



Explanation

The above ERD is a representation of the data model that will be used for the storage of the user data for the app. There is a choice within Firebase of using either the Realtime Database, or the Cloud Firestore database. Both are NOSQL databases that allow for easy storage of objects.

Realtime Database stores data as JSON objects, meaning that and data reads retrieve the entire JSON tree beneath what is retrieved. This makes flatter, more spread out tables preferable for efficient reads that retrieve minimal excess data. As such it is recommended that the primary/foreign key set-up, show in in the above ERD be used if Realtime Database is used in as the database of choice.

Cloud Firestore uses key:value pairs stored in documents, that are stored in collections. Subcollections can also be stored within documents. This allows objects to be stored within objects. In this case it allows the RoutesCompleted column to simply be an array of Route's, rather than an array of RoutID's as in the Realtime Database version of the data model. Firebase claims that entire subtrees are not retrieved on data reads meaning that a simpler, more tree-like data model can be used instead.