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# Firebase Notes

Note a good chunk of the information below is from the fire base website and this blog post https://firebase.googleblog.com/2017/10/cloud-firestore-for-rtdb-developers.html

Why Firebase for our networking app?

It's a NoSQL database

- NoSql databases offer superior scalability when compared to traditional SLQ or Table based relational databases.
- Its ability to handle large amounts of structured and unstructured data
- Each of these will help our team maintain our application as our app grows in the future.

Firebase is ran by google meaning that is hosted for us thus requiring less maintenance so we can expect dependability from the product as well as have access to a server without having to set one up ourselves. Firebase will also handel the scaling for us.

fire base is great at handling real time data when compared to traditional SQL databases

NoSLQ simply means not SQL. (could have many implementations)

- Then how is data stored in firebase?
- Fire base looks like a key/value store similar to a document database
- Firebase data is URL oriented where each piece of data has a unique URL
- Data can be thought of as a large JSON graph (can be very unstructured)
- Note Firebase DB has been replaced by cloud firestore which is now more structured

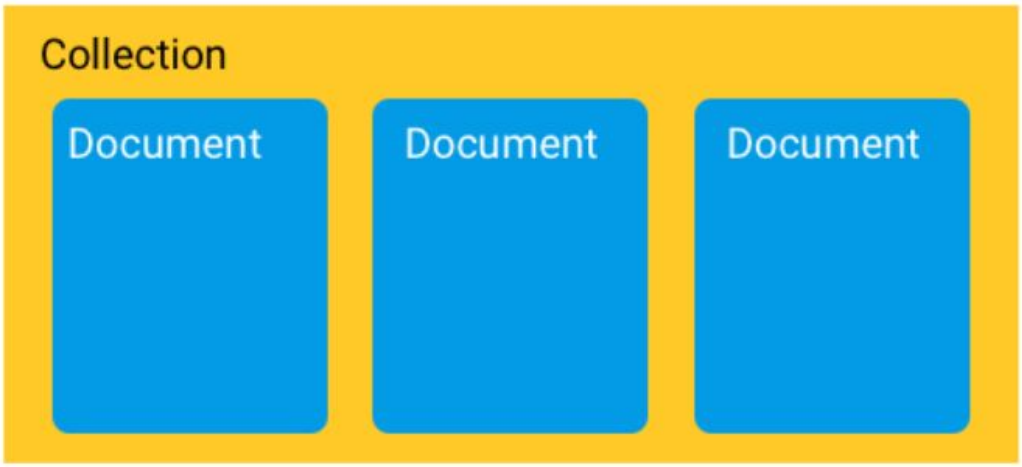
The traditional means of accessing data from a database requires sending a request for data to a server and the server returns the request to the client if you believe that the data may have changed, the client would have to make another request to the database. With Real time data in firebase you begin listening to data at a specific URL and if at anypoint the data changes firebase will notify the client with an event. ( the client is always in sync with the server)

Firebase offers builtin authentication and multi region data replication

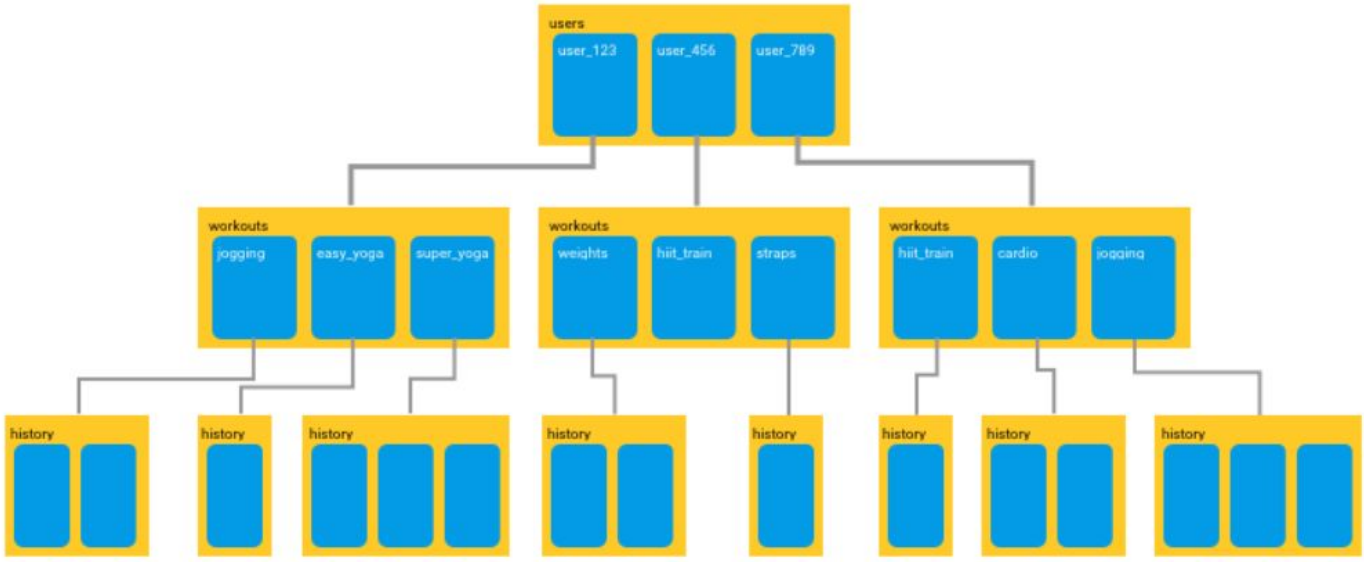
## Cloud Firestore (the latest database firebase uses)

## How is the data structured now?

Its a document model database where all data is stored in documents that consist of key value pairs where the values can contain just about anything and where the documents are grouped into what firebase calls “collections”.

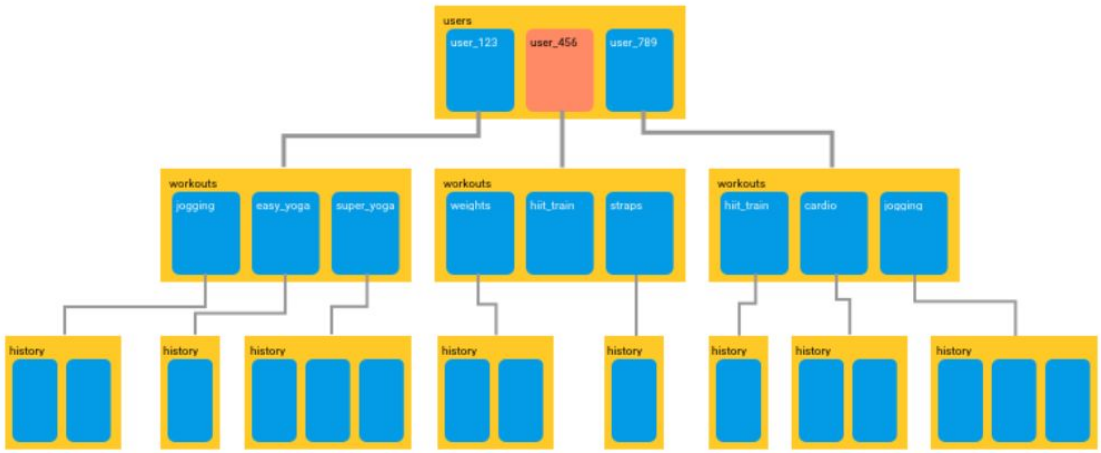



We can then take this collection of documents and collections and use them to point to other collections of documents as seen below.




The changes from The old firebase DB to the new version called Cloud Firestore has some advantages.

1. All queries are shallow meaning that you can access data simply by querying for a single document and not a documents subcollections if it has any. This allows us to query data without also accessing and downloading unnecessary data.




***In this example, the document at the top can be fetched without grabbing any of the documents in the subcollections below***

**<u>This is a another reason why firebase is a better option for our web app</u>**

| NoSQL | SQL |
|---|---|
| Different data storing formats | Stores data in a table |
| Flexible properties | Records have the same properties |
| New properties can be added on the fly | Altering schemas/backfilling data required |
| Dynamic or flexible schemas | Strict schema |
| Scales well horizontaly | Scales well vertically |
| Supports integrated caching | Supports In-line memory |

Cloud firestore syntax: Will add after our next scrum. We need to have a conversation with the team on what data we will need to store based on the classes we have and what may need to change in the classes so that we can fit the needs of our web application. After which i will take Aarons html code and put it into a .NET application and connect firebase to the application from which Rayce and I can start building up some of the back end.