Introduction to Cloud Firestore

Agenda

- Understanding Cloud Firestore
- Cloud Firestore Data Model

Cloud Firestore

- Database provided by Firebase and Google Cloud Platform (GCP)

- Cloud-hosted NoSQL database
- Used for mobile, web and server development
- Can be accessed via native SDKs

Cloud Firestore Capabilities

- **Flexible** and Scalable
- **Expressive querying**
- Uses **realtime** listeners to keep the data in sync across client apps
- Addresses network latency and internet connectivity issues by offering **offline support** for mobile and web apps
- Supports seamless **integration** with other Firebase and GCP products

Cloud Firestore Data Model

- Cloud Firestore is a **NoSQL**, document-oriented database.
- There are **no tables or rows** in Cloud Firestore.
- The data is stored in **documents**, which are organized into **collections**.
- Cloud Firestore is optimized for storing large collections of small documents.
- All documents must be stored in collections.

Documents

- The document is the unit of storage in Cloud Firestore.
- It is a **lightweight record** that contains **fields, which map to values**.
- Each document is identified by a name.
- It supports **common data types** such as strings, numbers as well as nested objects.
- The documents can be considered as **lightweight JSON** records as they **limited in size to 1 MB**.

Example: Document in Cloud Firestore

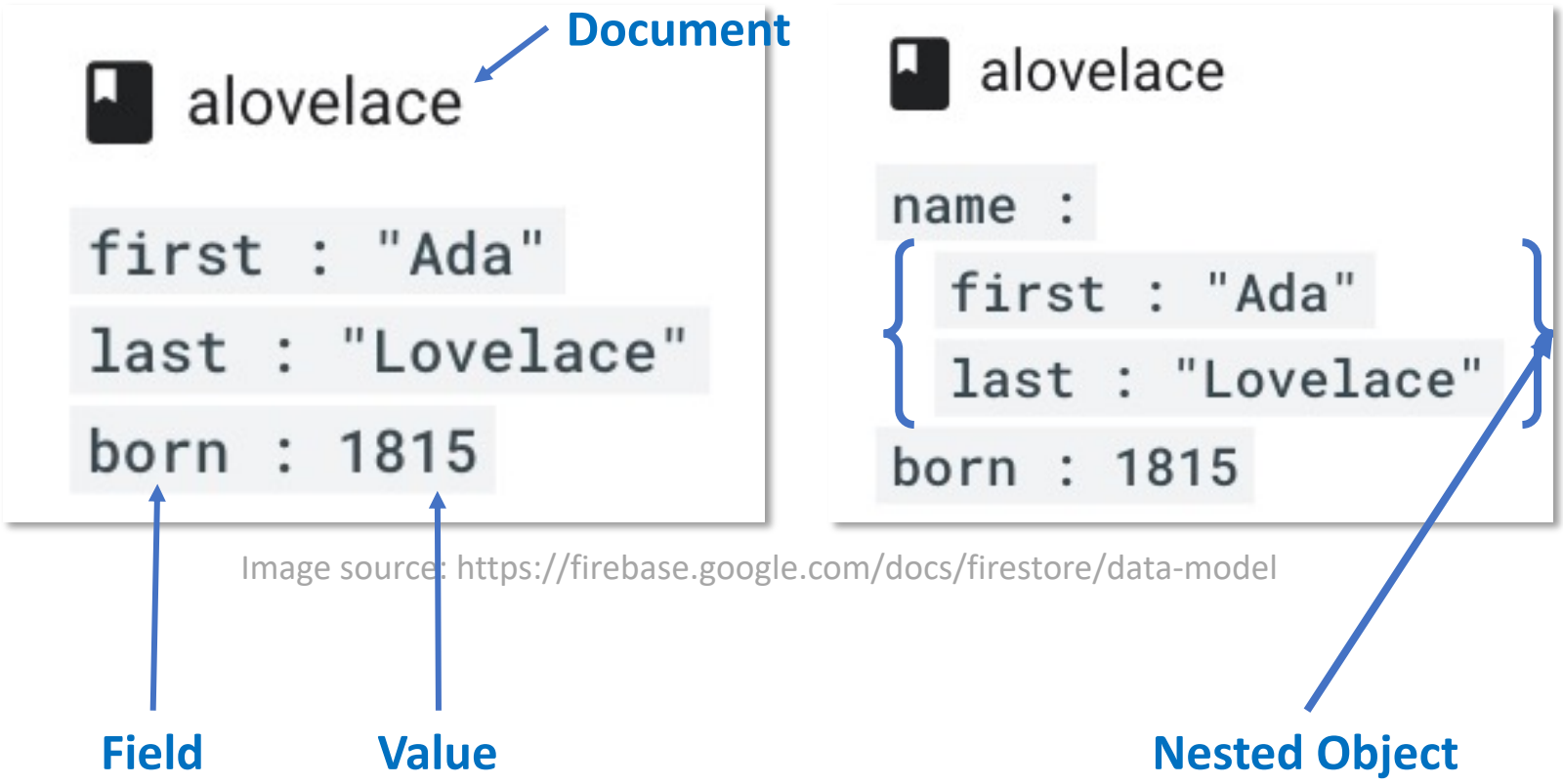

Image source: https://firebase.google.com/docs/firestore/data-model

Collections

- The collections are **containers** for documents.
- Cloud Firestore is a **schemaless** database which allows users to store different fields in each document with different types of values in it.
- Collections **can’t contain any fields** with values **or collections** within it.
- Collection is **automatically created** when the first document is created.
- If all the documents within collection is deleted, the collection no longer exists.

Example: Collection in Cloud Firestore

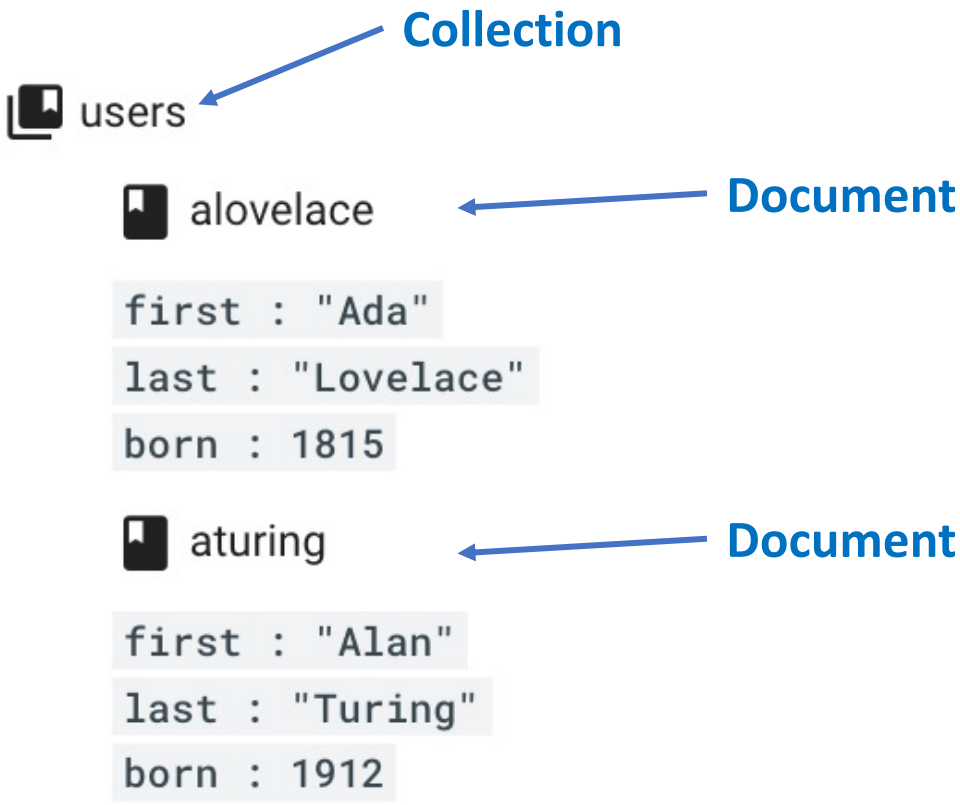

Image source: https://firebase.google.com/docs/firestore/data-model

References

- A reference is a **lightweight object** that points to a **location** in your database which uniquely **identifies each document** in Cloud Firestore.

- The reference does not perform any network operations.
- You may create references for documents to read or write individual document or a reference to collection to query the documents in collection.

Subcollections

- Subcollections are useful to create **hierarchical data structures** in Cloud Firestore.
- It is a collection associated with a specific document.
- Subcollections are helpful in creating **lightweight documents**.
- Documents in subcollections can **contain subcollections** as well, allowing you to further nest data. You can nest data up to **100 levels deep**.

Example: Subcollections

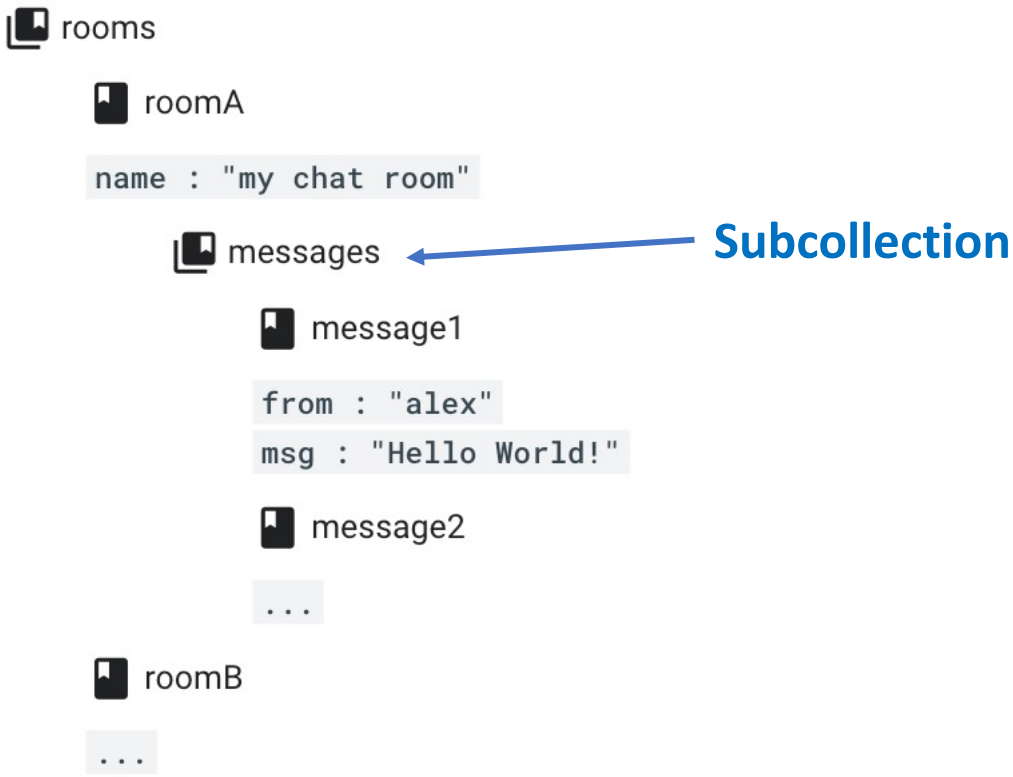

Image source: https://firebase.google.com/docs/firestore/data-model

References

- https://firebase.google.com/docs/firestore/quickstart
- https://firebase.google.com/docs/firestore
- https://firebase.google.com/docs/firestore/data-model