

1. ****Users Collection****

Each user should have a dedicated document containing their personal information, settings, and references to other important collections or documents.

```
**Collection**: `users`  
**Document**: `{userId}`  
**Fields**:  
- `username`  
- `email`  
- `profilePicUrl`  
- `createdAt`  
- `channels` (Array of channel-Id's)
```

2. ****Channels Collection****

This collection will store data about each channel. Each document in the channels collection represents a single channel.

```
**Collection**: `channels`  
**Document**: `{channelId}`  
**Fields**:  
- `name`  
- `description`  
- `createdAt`  
- `createdBy` (Reference to user document)  
- `members` (Array of userIds)
```

3. ****Threads Collection****

Each channel can have multiple threads. Threads are grouped under their respective channels. Threads can be a separate collection that references the channels.

Messages can be stored in a subcollection under each thread. This allows you to load messages only for a specific thread, optimizing data retrieval.

```
**Collection**: `threads`  
**Document**: `{threadId}`  
**Fields**:  
- `channelId` (Reference to channel document)  
- `title`  
- `createdAt`  
- `createdBy`  
- `firstMessage` (Snapshot of the first message for quick display in the respective channel)  
- `messages` (subcollection `threads/{threadId}/messages`):  
    **Document**: `{messageId}`  
    **Fields**:
```

- `text`
- `createdAt`
- `sentBy` (Reference to user document)
- `type` (text, image, etc.)

4. ****Direct Messages Collection****

Direct Messages between users can be modeled similar to threads but without a channel association. Each set of users having a DM can have a unique document.

****Collection****: `direct_messages`

****Document****: `{dmId}`

****Fields****:

- `participants` (Array of userIds or reference)
- `createdAt`
- `messages` (subcollection `direct_messages/{dmId}/messages`):
 - **Document****: `{messageId}`
 - **Fields****:
 - `text`
 - `createdAt`
 - `sentBy`
 - `type` (text, image, etc.)