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HOW TO DESIGN TINDER?

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Most of us have used Tinder at some point in our lives or maybe are still using it. And out of the whole lot, many of you have thought about recreating the App. So here are the guided steps on how to design the Tinder.

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PRIORITIZED REQUIREMENTS

- The system should store all the relevant profile data like name, age, location, and profile images.
- Users should be recommended matches based on their previous choices.
- The system should store the details when a match occurs.
- The system should allow for direct messaging between two users if they have matches.

1. PROFILE CREATION, AUTHENTICATION, AND STORAGE

First, the system should allow a new user to create an account and once the account has been created then it needs to provide the user with an authentication token. This token will be used by the API gateway to validate the user.

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Components Required

- **API Gateway Service:** It will balance load across all the instances, interact with all the services, validate the authentication token of the users and redirect users to the required service as per their request.
- **Distributed File System to store images:** We will use CDN to serve the static images faster.
- **Relational Database to store user information:** We will store the user ID, name, age, location, gender, description, (user preferences), etc.

2. ONE TO ONE CHAT MESSAGING

The system should allow one-to-one chat messaging between two users if and only if they have matched. So we have to connect one client to another. To achieve this we use the XMPP protocol that allows peer-to-peer communication.

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Components Required

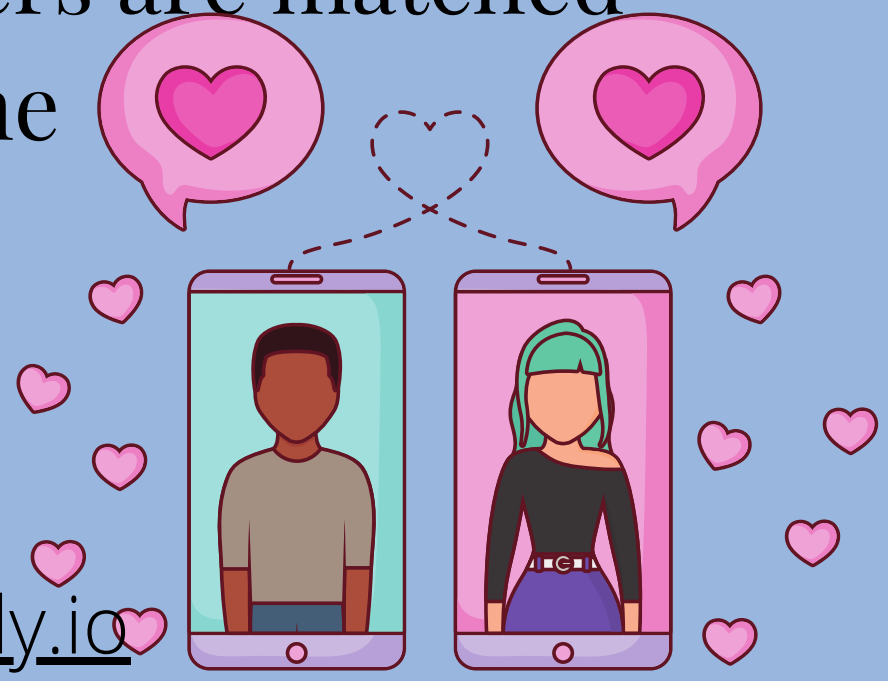
- **Relational Database:** We will use this database to store the user ID and connection ID
- **Cache:** We do not want to access the database every time a client sends a message, so we can use a cache to store the user ID and connection ID.

3. MATCHING RIGHT-SWIPED USER

The server should store the following information

- Users who have matched (both have right-swiped each other)
- One or both of the users have left swiped each other.

This service would also allow the chat service to check if the users are matched and then allow one-to-one chat messaging.



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Components Required

- **Relational Database:** We will use this database to store the user IDs of both the user and we will use indexes on the user ID to make queries faster.

4. SERVER RECOMMENDATIONS TO USERS

The server should be able to recommend profiles to users. These recommendations should take into consideration age and gender preferences. The server should also be able to recommend profiles that are geographically close to the user.

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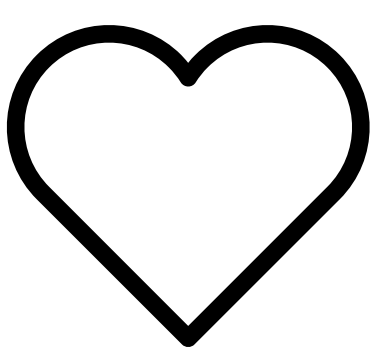
Components Required

- **Relational Database:** We can do horizontal partitioning (sharding) on the database based on the location. Also, we can put indexes on the name and age, so we can do efficient query processing.
- For every database partition, we will have a master-slave architecture. This will allow the application to work even if the primary database fails.



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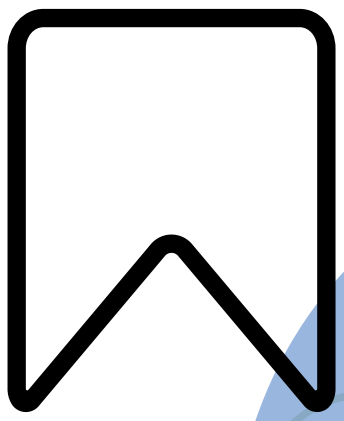

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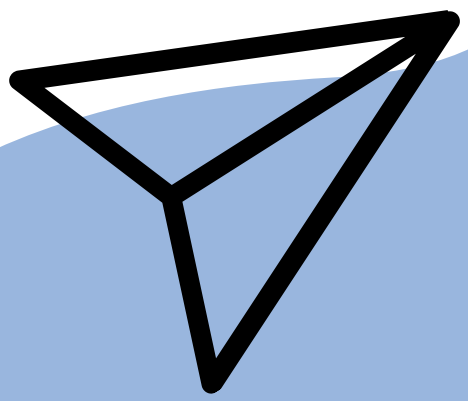

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