

The Quiet Connector

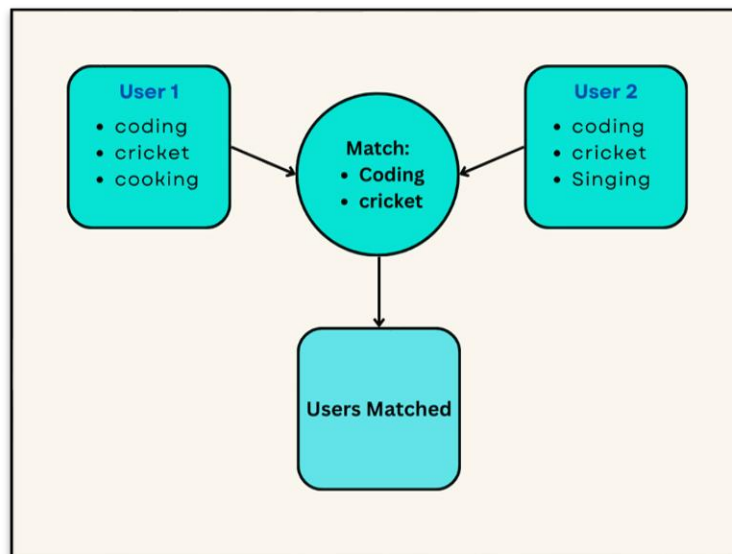
Problem Statement:

Imagine you're an introvert who struggles to initiate conversations or find people who genuinely resonate with your personality. Existing platforms often focus on superficial connections or overwhelming feeds. Design a platform that helps introverts form meaningful, deep, and lasting friendships in a safe and comfortable environment.

Solution Overview:

Personality Based Matching:

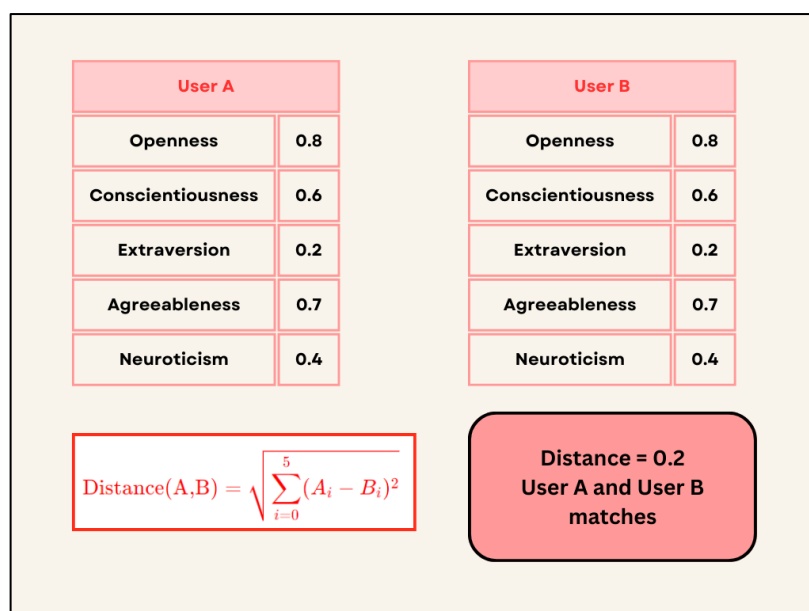
- Every User on creating account, will share their interest (hobbies, favourite books, movies, etc), frequency) and also their age, working professional/Student (as people with common age or occupation are more likely to be friends).
- Users can optionally take Big five inventory test for precise matching according to personality trait. Big Five inventory test contain 44 question can score user's Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness [[Link](#)].
- Now, based on these interests, age and occupation, user will be matched up with other people with common interest, same age group or common occupation. The matched-up users will be displayed on user's dashboard.
- The algorithm for match-up is going to be simple. Let's say a user A has 4 Interest: Coding, Cricket, Gaming, Video editing. In order for user B to match up with user A:
 - user B may have common Interest of user A user B must be of same age group (user B age = user A \pm 2)
 - user B may share same or similar occupation of user A.
 - user B communication style may match with user A.



- For deeper matching with personality test users has to take Big Five Inventory Quiz. The similarity in personality can be accessed mathematically with Euclidean Distance (Personality traits of the users can be considered as vectors if distance between those vectors is same, they are much likely similar) where:

$$\text{Distance}(A,B) = \sqrt{\sum_{i=0}^5 (A_i - B_i)^2}$$

- Example: If the Euclidean distance is less than **0.5**, then **UserA** and **UserB** are similar.



- User Data would look like this:

```
user = {
  "userId": "123",
  "fullName": "Clark Kent",
  "personality": {
    "openness": 0.8,
    "conscientiousness": 0.6,
    "extraversion": 0.2,
    "agreeableness": 0.7,
    "neuroticism": 0.4
  },
  "interests": ["Coding", "Sports", "Movies"],
  "hobbies": [
    "Competitive Programming",
    "Cricket",
    "Video Editing"
  ],
  "age": 23,
  "books": ["Atomic Habits"],
  "movies": ["Social Network"],
  "occupation": "student"
}
```

Guided Conversation:

For guided Conversation, AI model like ChatGPT can be used to generate prompt for user to start conversation to help user to start a meaningful conversation.

- Library openai can be used.
- The similarity between the users like interest, hobbies, books etc can be used to generate the prompt.
- The generated prompt can also be stored on database so that the prompt can be reused for future users with same similarities.

Themed Group:

- Users can create a group with some theme like sports, books etc with limited number of members.
- Users can search for groups with his/her interest and join them.

- The creator of the group can moderate the group with ability to remove unwanted text or conversation and to remove user who misbehave.
- Other user can also report the misbehaving user.

Tools and Libraries:

- Frontend: React
 - **react-router-dom** - For routing
 - **redux** - State management
 - **openai** - for generating prompts
- Backend: Nodejs
 - **express** - backend framework
 - **mongoose** - ORM for MongoDB
 - **passportjs** - authentication
- Database:
 - **MongoDB**

Database Schema:

```

user: {
  "id": string,
  "username": string,
  "email": string,
  "password": string
}

user_data: {
  "id": string,
  "full_name": string,
  "age": number,
  "gender": "MALE" | "FEMALE",
  "interests": string[],
  "hobbies": string[],
  "book": string[]
}

personality: {
  "id": string,
  "openness": number,
  "conscientiousness": number,
  "extraversion": number,
  "agreeableness": number,
  "neuroticism": number
}

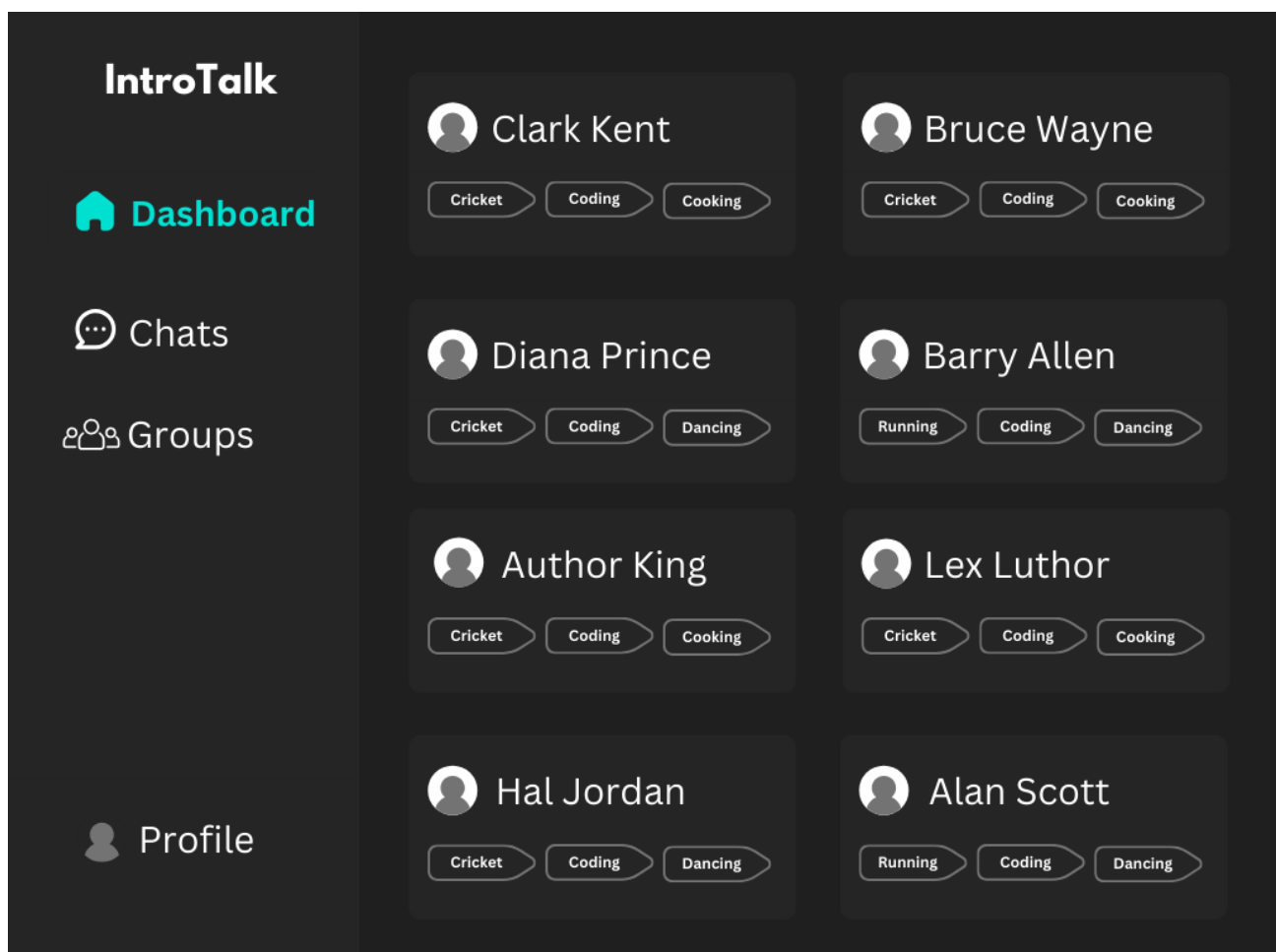
conversation_prompt: {
  "id": string,
  "prompt_text": string,
  "category": string[],
  "tone": string
}

```

Excepted Challenges:

- Implementing the feature for Big Five Inventory Quiz may be tedious. As, there are 44 question users might find the boring and unnecessary task. This can be avoided by reducing the number of questions without affecting the assessment itself. This is why this feature is optional for user.
- Maintain moderated, calm environments to prevent overwhelming interactions can be hard. This can be addressed by disabling notification of users, Limiting number of users per group.

Wireframes:



Feasibility Analysis:

- From 10/12/2024 to 11/12/2024 \Rightarrow can be used for implementing backend logics.
 - Creation of authentication.
 - Creation of database schema.
 - Logics for controllers and models.
 - Sockets for chatting
 - From 12/12/2024 to 14/12/2024 \Rightarrow Implementation of Frontend.
 - Creation of Dashboards (For displaying matched users), user chat box, group chat box.
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Innovation and Creativity:

- Idea for implementation of Euclidean distance formula for finding the closeness of personality traits. In Euclidean formula the personality traits of the users are considered as vectors and the distance between those vectors are found. The close the vector, more similar the personality traits of the users.
- Idea for implementation of **openai** for generation the conversation prompt where the **openai** is given the common interest of the users, tone of conversation and their personality trait as input to generate the conversation prompt.