Senior Design Project

Project short-name: Coupl

Project Specification Report

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1 Introduction

1.1 Description

The main purpose of Coupl is to enable the user to meet with another user on a micro scale. Compared to the popular dating apps like Tinder [1], OkCupid [2], etc., which provide only chatting ability between the matched users, our application will create an actual dating experience. To provide physical dates instead of virtual ones in a feasible manner, only the users that are already in the same place will be matched together. That way, a face-to-face date will be possible within a few minutes.

To be able to match people in the same place, the application will be based on organized social events such as musical concerts, parties, art exhibitions, etc. Place owners will be able to organize events in their place at a time they determine. All of these events will be visible to application users and some will be specifically recommended to the users that like these types of activities. Place owners will be given a QR code upon organizing an event and they will be displaying this QR code at the time of the event in their place. These QR codes will be used to create virtual meeting rooms which users will join by scanning the code with their mobile phones.

When a user joins this room of event participants, they will be matched with the others according to their choices at that moment and also the correlation between their past activities and the others'. When a match occurs in the application, the pair will be united together by the application using several different methods according to the size and logistics of the event location. In one such scheme, the pair will both go to the same subarea in the event hall and meet there. As a theme of the application, female users will have priority on deciding the location in this meeting process. After they meet, the pair will have a specified amount of time to decide whether or not they will be dating for the rest of the event. In case of a positive response from both sides, their match will be complete and they will be taken out of the matching pool for the rest of the event. In case of a negative response from either of the sides, they will continue to use the application to look for further matching possibilities.

With these factors considered, Coupl will create a very interactive dating/matching experience for the users while also enjoying the social activities/events that they normally participate in. This will help reducing the social impacts of the current alternative application models[3]. Also by matching the users that participate in the same activities, it will be made sure that there is readily some similarity in their likings.

1.2 Constraints

1.2.1 Implementation Constraints
- The application will be developed for both Android and IOS mobile devices.

- Java Spring framework will be used for the back-end development.
- Google Location services will be used for location sharing.
- The project will be hosted on GitHub and Git will be used to provide version control.
- English and Turkish languages will be supported.

1.2.2 Economic Constraints

- The application will be free to use for both the users attending the events and the event organizers.
- Place owners will be motivated to organize events with the application since it will attract more people to their places.
- The application will be usable only by those who have a smartphone.

1.2.3 Ethical Constraints

- Users must give the application permission to use their location during the events they attend.

1.2.4 Social Constraints

- Place owners should allow event posters to be hung at their places, which contain the QR code to enter the rooms in the application,.
- Place owners should disclose the information about size and design of the place.
- Female users should have priority on choosing the place of meeting.

1.2.5 Security Constraints

- Accounts that do not follow the rules must be detected and suspended/banned.
- All user data except the public ones must be stored securely.
- The matching algorithm should be inaccessible in a way that the users cannot change its results intentionally.

1.3 Professional and Ethical Issues

- Since the application will require the users to set up their profiles with their personal information, this personal information must be stored securely.
- Even the users' public information must not be accessible by other users who are not currently participating in the same event.
- Some more sensitive information such as the phone number must be shared with other users only after getting permission.
- The event and matching history of a user will not be shared to third parties and will be deletable upon the user's request.
- Users' location must only be used during the events with users' permission.

2 Requirements

2.1 Functional Requirements

2.1.1 Displaying the Upcoming Events

- On the main screen of the application, users will see the upcoming events that are near them.
- Events that are similar to the user's event history will be recommended above the other events.

2.1.2 Joining Meeting Rooms by Scanning QR Codes

- The users will join event meeting rooms by scanning the QR codes on their phones. The QR code can be scanned either from the built-in QR code scanner that the application provides or from a third-party QR code scanner.
- If the user scans the event QR code from a third-party QR code scanner without the application installed on their device, they will be redirected to a website where they can download the application first.

2.1.3 Matching with People in the Meeting Rooms

- The matching will be made by an algorithm taking multiple factors into consideration including:
    - Users' preference of people from the current event pool.
    - Users' past participated events
    - Users' matches from previous events.
    - Compatibility of users based on the information from their profiles.

2.1.4 Meeting with the Matched Person in the Event Area

- There will be several possible schemes for this process according to the capabilities of every event and place.
- One possible scheme preferably for larger events will be:
    - One of the matched users will choose a place from the predetermined meeting areas.
    - The chosen meeting area will be marked on the event area map and displayed to both of the matched users.
- Another scheme preferably for smaller places will be:
    - One of the matched users will choose a color or an image.
    - Both of the matched users will put their phones up in a visible way so that they can see each other and meet.
- Another scheme that can be preferred in outdoors events (because GPS does not work well indoors) will be:
    - Matched users will see each other's location on a map and will walk towards each other.

- When the matched users meet in the given time limit, they will have the choice to confirm this match on the app. If the app receives confirmation from both sides, the match will be successful and they will be taken out from the meeting pool.

2.1.5 Viewing Event and Match History

- Users will be able to view the events they previously attended and the people they matched with on those events.

2.1.6 Creating and Modifying User Profile

- When the users create their accounts, they will be able to create a profile where they will display their preferences and their traits. This information will be seen by the possible matches and will also be used by the matching recommendation algorithm.
- Users will be able to modify their profile data.

2.2 Non-functional Requirements

2.2.1 Usability

- The application must be easy to use for both novice users and users with experience from similar applications.
- It must be easy for place owners to set up the application for the event.

2.2.2 Privacy and Security

- The application should only use the location information of a user during the event to make sure that the user is actually attending the event.
- Only the users that actually attend the event should be able to join that event's room in the application.
- Users should give permission in order to scan the QR and should be able to disable the permission status of the application.

2.2.3 Performance

- The application should be able to verify the QR code in real-time.
- Matching recommendations must be processed in a reasonable amount of time so that the users will not wait for a noticeable time when they join an event.

2.2.4 Scalability

- The application should be able to handle a high number of users for each event room.
- Matching recommendation algorithm's performance should be scalable with respect to the number of all the users registered in the application.

3 References

[1] "Tinder®," *Tinder*. [Online]. Available: https://tinder.com/tr/about-tinder. [Accessed: 10-Oct-2021].

[2] "Okcupid," *OkCupid*. [Online]. Available: https://www.okcupid.com/. [Accessed: 10-Oct-2021].

[3] Stoicescu, Maria. (2020). Social impact of online dating platforms. A case study on tinder. 1-6. 10.1109/RoEduNet51892.2020.9324854.