Team 32 (Cream) Project Proposal

Project 12: Low/Non-profit dating app that maximizes usefulness

1. Team and tentative roles:

- **Eli Chandler**
  - Backend Development & Developer Operations (DevOps)
    - Continuous Integration & Continuous Deployment
    - Architecture & Management of Cloud Infrastructure
- **Jack Hittle**
  - Data Scientist
    - Matching Algorithm
    - SQL/Database
- **Chase Kretschmar**
  - Frontend & Backend Development
- **John Minton**
  - Frontend & Backend Development
- **David Wu**
  - Frontend Development

2. Executive Summary

Current mainstream dating apps are focused on profit margins, not helping users find a partner.

Dating apps have become the primary way that people meet, especially among the younger population. However the market is filled with apps that use heavy paywalls and biased match-making algorithms, frustrating users and undermining their true purpose. Even apps that claim to be focused on the user experience like “Hinge” have excessive paywalls.

Our solution will eliminate the need for users to pay to connect with one another. We will create a non-profit dating app “Cream” that relies on ethical and unobtrusive revenue models that can cover costs without impacting the user's experience.

We are confident that this concept will work, demonstrated in the following sections where we outline **market research**, **potential revenue models, project aims, planning, and approach.**

In addition to our research and goals, Cream's team, with strong computer science backgrounds and real-world development experience, is well-equipped to deliver this project. We have assigned roles to match each member's strengths and are committed to overcoming existing barriers with creative and innovative solutions.

Cream will help singles create meaningful connections by offering a paywall-free dating app that prioritizes genuine interactions and mental health over profit.

3. Background and Rationale

More people than ever are using dating apps as their main method of finding a partner, especially young people [1]. Due to the high demand in this space, corporations have jumped on the lucrative opportunity to implement paywalls and alter their algorithms to favor paying individuals, unfairly harming the self image and worth of the rest of the user base [2]. Despite around a third of users to succumbing to the paywall, studies show only one in ten partnered adults meet through dating apps [1].

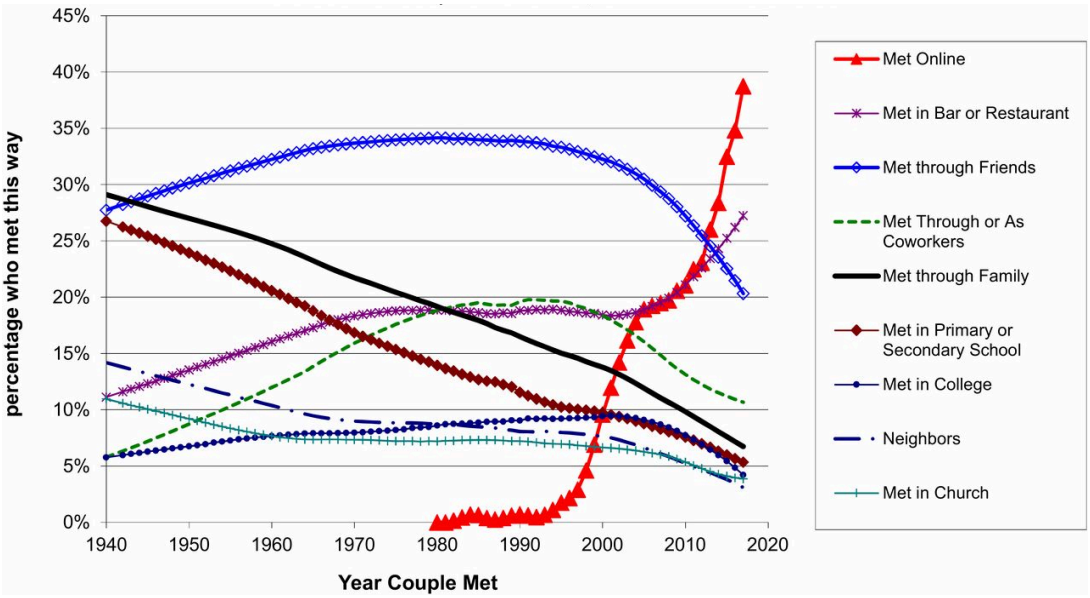
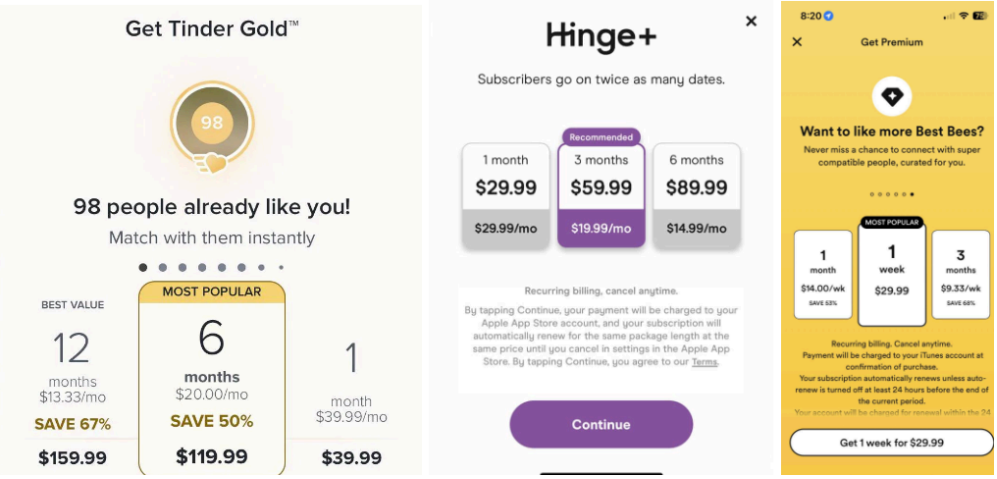


Figure 1: How heterosexual couples meet [3]

Companies with profit motives optimize their apps for user retention, not actually finding suitable matches [2]. They make their apps addictive to keep users paying. It's clear that these profit motives exist; Match Group, owner of Tinder, Hinge, and many other dating sites, is publicly traded, and earned $3.437B in revenue in the year ending March 2024, an 8.17% increase year-over-year [4].



Practices like paywalls and algorithm bias not only fail to create a better, more inclusive experience for users, but can actually create stress, anxiety, perceived body image defects, and low self esteem among users. Our project, Cream, aims to remedy some of the inherent problems in the for profit dating app space. We look to develop a non-profit dating app that optimizes utility and fairness, unlike the mainstream alternatives. Cream's open source and simplistic matching algorithm will ensure that users have an equal chance to form meaningful connections, regardless of the financial barriers that may exist with other dating apps.

Instead of trying to reinvent the wheel with a completely novel app setup, our main point of differentiation will be an environment that encourages genuine connections, not one that prevents them. By eliminating paywalls and addictive mechanics, we will create a space that is healthier and more supportive of our users. Cream will not be infused with a corporate mentality, and will employ an ethical revenue model that will include non-intrusive forms of income, such as cosmetic profile modifications, and partnerships with local businesses for date recommendations.

In sum, Cream solves the challenges of monetization and mental health for dating apps with an equitable, user-centered compromise. We strive to change the app-based dating landscape, placing the emphasis on real-life relationships and user welfare over profitability.

4. Specific Aims

The overall objective of this project is to create a dating app that maximizes usefulness and the user experience without any pay walls. This can be measured by the following key goals:

Profiles (12/8 - 7/9)

Creating a profile. A new user will be prompted to add personal information (such as age, interests, education, etc), photos and prompts onto their profile which will be displayed in a modular manner. A user will be able to toggle between viewing and editing their own profile, and seeing other user profiles.

Profile Customization (23/8 - 7/9)

Profile customization options. Beyond creating a profile, we will allow users to pay to upgrade their customization options. This includes being able to add custom backgrounds to their profile, custom borders to pictures and prompts, and custom fonts.

Matching (29/8 - 12/9)

A core aspect of our app is having a simple matching algorithm that is open source and unbiased. A few of our members will be tasked with creating the algorithm early on, whilst other members are building the basic functioning app. We will measure the algorithm's efficacy by making fake accounts with predetermined personalities and attributes, manually operating them on the dating app to see if they operate the way we intend. On the user side they will have a view that allows them to indicate interest or pass on profiles they have been matched with.

Messaging (4/9 - 16/9)

Messaging other users. Upon liking another user, the option to message them will be given. A simple messaging system will be implemented, allowing the sending of texts, images, and reactions to other messages such as likes and directly replying to a specific message. All messages will be in another tab that the user can toggle onto, opening all current and past chats with other users and allowing the selection of a specific chat to open.

Meeting (14/9 - 21/9)

Sending out weekly notifications for speed dating meet ups at local partnered businesses. At its most basic functioning, this will have a feature to send notifications that have opted into a speed dating mail list, detailing the time and place. There will be a view for an admin to create and distribute communications about events taking place.

5. Project Approach

Tools and Technology:

Backend

We have elected to use **C# & ASP.NET Core**. This Object oriented programming language is highly suited for our requirements that utilizes entity relationships and business logic.

To manage our data we will use a relational database, our choice being Postgres due to team experience and it being the industry standard.

Frontend

We have elected to use **React Native** on the frontend, React Native is suited for tandem Browser and Mobile app development, as well as being similar to React, which will allow our bootcamp skills to transfer. Additionally, the client has recommended the usage of React Native.

Cloud Infrastructure

We will use **Terraform** to manage our cloud infrastructure. Terraform is a language for defining cloud infrastructure as code, This allows for easy versioning, teardown, recreation and changes to overall cloud infrastructure.

For cloud infrastructure we will use the **AWS Cloud Platform**. The services we have decided to use are the following:

- **App Runner:** A platform for running and serving a containerised web application
- **Elastic Container Repository:** A repository for storing container images - needed for app runner
- **RDS:** Fully-managed relational database service that can host our postgres database
- **S3:** A general file storage platform that we can use to store images users upload to our platform
- **Cloudfront:** A CDN we can use to optimize the speed and cost of serving images to users.

We have decided on these services overall as they provide a good balance between price, simplicity and complexity that will allow for development within the allotted time frame, and a final product that can run on a reasonably small budget.

Project Management:

- **Agile**: For project management, we intend to follow an Agile methodology, with emphasis on our collaboration with our client to end up with a product they are happy with.
- **Github**: For version control we will use **GitHub**, as it is the industry standard and the team has extensive experience with GitHub, and attended the bootcamp for GitHub.
- **Jira**: Jira will be used for tracking tasks and assigning work, Jira will be integrated with our GitHub repository.
- **Discord**: For real-time discussion we have opted to use Discord as a general chat system, for team meetings, messages etc.

Team Organization:

Frontend

- **David Wu**
    - Head of Frontend Development, managing HTML, CSS, JS, and React Native
- **Chase Kretschmar, John Minton**
    - Assist with frontend tasks and act as liaisons between frontend and backend

Backend

- **Jack Hittle**
    - Main focus on matching algorithm
- **Chase Kretschmar, John Minton, Eli Chandler**
    - Main focus on API development

DevOps and Infrastructure

- **Eli Chandler**
    - Lead DevOps and Cloud Infrastructure, managing AWS and Terraform
- **Jack Hittle**
    - Collaborate with Eli on integrating RDS with backend

Risk Mitigation

Problem: Lack of experience in mobile app creation

Description: Although our team is fairly experienced in the field of web-development, we do lack experience particularly in the mobile field such as apps for phones. As this is a dating app there is a focus on this, and we may run into issues regarding it.

Causal Factor: Majority of the team lacks experience using React Native, which is the framework for mobile apps.

Planning: It will be up to the team to ensure they research mobile app development and to give extra time and care to learning something new. Planning ahead will be important as it's plausible we get stuck on something to do with mobile apps.

Monitoring: Realistically, it will be made clear whether or not we are struggling with the process of creating something available on mobile. Though, we most likely will check-in with each other to ensure everyone is up to speed on how it is going.

Escalation: In the case where an individual requires quite a bit of help, there are four other people to assist and likely the combination of all of us will be able to solve the majority of problems as long as we ask for help. We are fortunate enough to also have had David attend the bootcamp on React so we have a foundation there.

Problem: Lack of experience in C# and .NET

Description: While a few of our team members are taking CS335 (where C# is taught), we are all taking it alongside this class so a potential issue will be being unfamiliar with C#. Luckily enough though, it is fairly similar to Java which we have fairly good experience in.

Causal Factor: Lack of experience in C# up until this semester.

Planning: Many members of our team are taking CS335 this semester, which teaches C# API development. This is the exact skill we need. If the learned information in CS335 is not sufficient, we can easily back it up with independent learning.

Additionally our team is experienced in Java programming, which is a language that is very transferable to C#.

Monitoring: We have easy access to communication methods such as Jira, GitHub Issues and discord to discuss and monitor any issues that may arise due to our lack of experience in C#. The class facilitates check-ins with clients and each other, so we should not have any issues here.

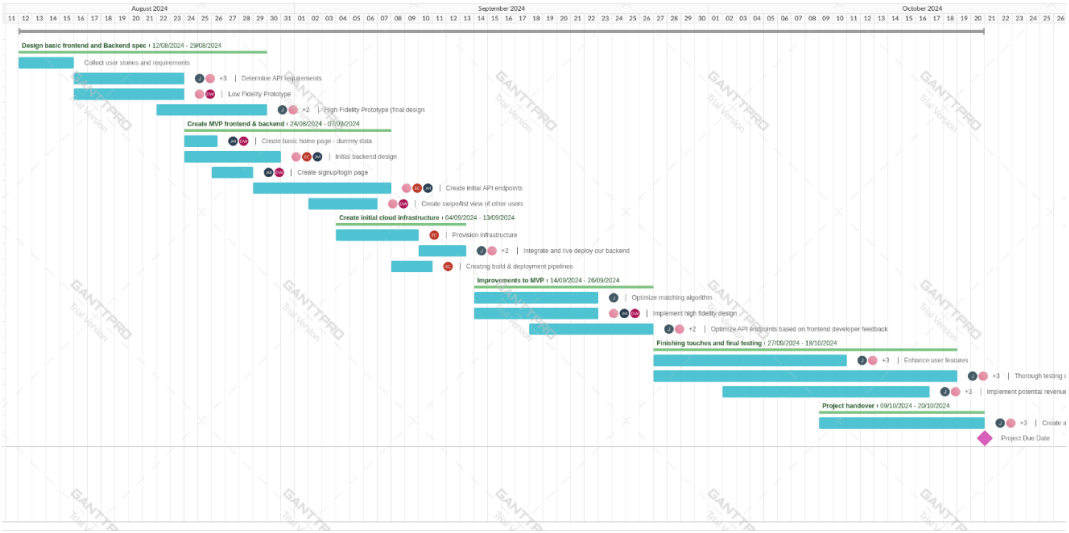
Escalation: If we find C# to be too much of an issue we could either switch to a more familiar language, or make John focus more on backend since he is the most experienced member of the team in C#

Project Deliverables

- **Functioning iOS and Android app**
    - Profile creation and customisation
    - Viewing and interacting with others
    - Messaging features
    - Clean UI
    - No Paywalls
- **Matching algorithm**: Fair and open source
- **Cloud Infrastructure**: Cost-efficient and reproducible cloud infrastructure using terraform on AWS
- **Revenue features**: One or many of the potential revenue models as discussed
- **Testing and quality insurance**: App has been thoroughly tested, with unit, integration and manual testing.
- **Documentation**:
    - Detailed swagger UI documentation
    - Thoroughly commented code
    - Any necessary docs around setup and maintenance

6. Project Plan

PDF Version of Gantt chart



7. Table of Authorship

Section	Author(s)
Title Page	Eli Chandler
Executive Summary	Eli Chandler, David Wu
Background	John Minton, David Wu, Jack Hittle
Specific Aims	Chase Kretschmar, David Wu, Jack Hittle
Project Methodology	Eli Chandler, Chase Kretschmar
Project Plan	All of us

References

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