Concept Brainstorm

CS-422 UI Design, Prof Andruid Kerne (Fall 2024)

CookCraft

A recipe recommender application to suggest based on ingredients available and other user preferences such as cuisines.

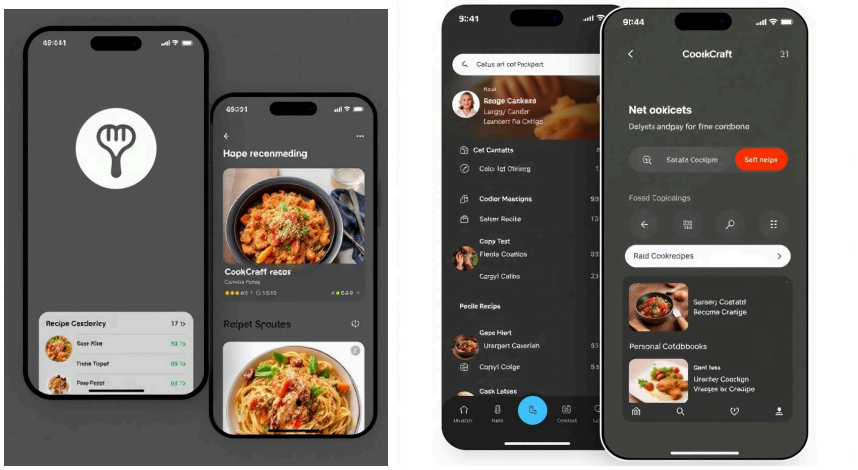

Figure 1 - A mock screen for recipe display and user's cookbook

As students living away from home, many of us face the challenge of preparing meals, often for the first time. The lack of experience, busy schedules, and restricted budgets can make cooking a tad overwhelming. I have frequently come across recipes on social media that I save but never get the chance to actually try, often lack the motivation, necessary ingredients, or cooking skills to follow through.

The CookCraft app will recommend recipes based on ingredients given by the user. Users will be able to save their favorite recipes, share their recipes with each other and even create a personal cookbook for their favorite homemade specialities and have interactive voice guidance for preparing recipes. The app will bridge the gap between what users have at home and creative, healthy recipes, promoting a waste-free cooking experience.

Recipe Display: The app will show a simplified version of the recipe at first (e.g., image, title, and key ingredients). Users can then tap or swipe to access more detailed layers, such as full ingredient lists, preparation steps, and cooking tips. Interactive elements like recipe cards, save buttons, and voice commands will visually suggest their functionality, ***affording*** the users a natural pathway through the app. **Layering and Stemming in Search**: When users search for a recipe or ingredient, show the most relevant results in a clean list, with the option to dive deeper into each result for additional information. This prevents information overload while still giving users control. **User Control and Freedom**: Allow users to easily navigate back, undo actions, and customize their experience (e.g., creating personal cookbooks), giving them control over their app interactions.

Target Users - The application can have a huge user base and in the initial release user studies can be centered to students and faculty on campus. The app can be enhanced to allow chefs to publish their own recipes, providing a platform to showcase their work. This would add value by offering users professionally curated recipes while giving chefs a space to reach a wider audience. As part of this expansion, home cooks could also use the platform to share their personal recipes, creating a more diverse and rich recipe database for users.

The research regarding recipe recommendation apps has been quite insightful regarding the roadblockers faced by the publishers. In **"RecipeRadar: An AI-Powered Recipe Recommendation System"** paper by Xing, T., Gao, J. (2024) *(Source: Arai, K. (eds) Intelligent Systems and Applications. IntelliSys 2024. Lecture Notes in Networks and Systems, vol 1067. Springer, Cham)* - tested the possibility of using a neural network to work on the quality of recipes recommended. In another paper **"Recipe Recommendation Based on Ingredients using Machine Learning"** published in IJARCCE in

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March 2019 focussed on a content-based filtering algorithm which had a lot of success but required enhancements in the object detection accuracy.

The research has helped lay a foundation on what underlying algorithm can be used and how to gather the data for CookCraft. The feature to allow users to add recipes to the database would overcome the shortcomings of data diversity and computation resource constraints as pointed out in the RecipeRadar research.

Investopoly

A Monopoly-based stock market simulator can blend the strategic elements of the classic Monopoly board game with stock market investing, creating a fun and educational experience.

Figure 2 - Mocks for Investopoly

Investopoly is a gamified stock market simulator designed to make investment strategies accessible, engaging, and educational. Combining the timeless appeal of Monopoly with the complexities of stock market investing, the app transforms learning about financial markets into an interactive, fun experience. By blending gameplay with real-world investment principles, Investopoly empowers users to build essential financial skills and confidence in navigating the stock market.

The game board mirrors Monopoly's format, but instead of traditional properties, each space represents a stock from a different industry or sector (e.g., technology, healthcare, utilities). Players "land" on stocks and can choose to invest virtual money in them. The value of stocks will fluctuate based on simulated market trends and events, allowing players to buy, hold, or sell shares strategically during their turn or at key moments in the game.

Players land on spaces representing stocks from different industries and invest virtual money. The process is streamlined with **affordances** for easy trading, visible portfolio status, and clear **signifiers** for buying, selling, or holding stock.Clear visual cues and icons (e.g., up/down arrows for stock performance) will act as signifiers, guiding players on what actions they can take. When a user lands on a stock, buttons for **buy**, **sell**, or **hold** light up, indicating their available choices. Immediate **feedback** is provided as stock prices change due to market events, making the learning process interactive and engaging. The **layering** of information will ensure that players are not overwhelmed with information, gradually revealing more in-depth content (e.g., stock splits, market crashes) as they advance in their knowledge.

Target Users - Any one with an interest to gain a foundational understanding of investing without the risk of losing real money. These users are often intimidated by the complexity of financial markets and are looking for a fun, low-stakes way to learn. User studies can be done on students, friends, high school students etc.

Based on a review of similar stock market simulation applications such as Robinhood's Paper Trading and Stockfuse, most either focus on providing a realistic market simulation without gamification or assume users already have prior knowledge of investing. Investopoly distinguishes itself by combining educational content with engaging gamified elements. It offers

a unique blend of Monopoly-style gameplay and stock market simulation. This approach makes Investopoly accessible and enjoyable for users of all experience levels, effectively bridging the gap between financial education and interactive entertainment.

Career Trails

The app helps students explore and navigate diverse career paths by showcasing interactive road maps based on real professional journeys and skills

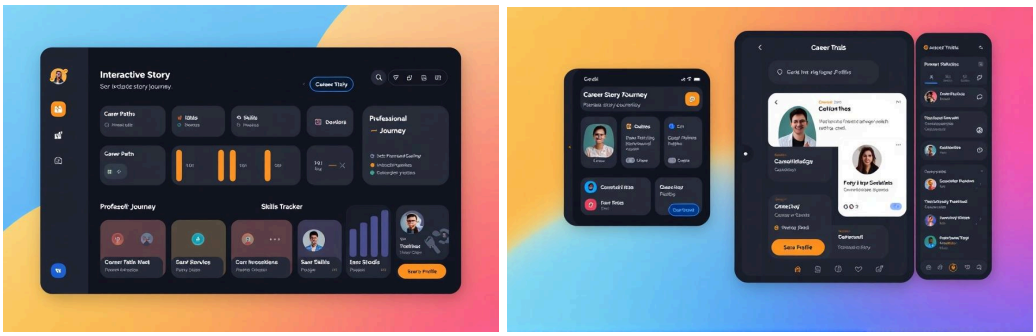

Figure 3 - Career Trails Mocks

During orientation week, I met many freshmen exploring different career aspirations by taking a wide range of subjects, sometimes mixing disciplines from vastly different fields. This often leads to confusion and a wayward academic path throughout college. To help students make more informed decisions, this application will bridge the gap between students and professionals by offering a roadmap of sorts.

Professionals will have the opportunity to share their experiences, detailing the skills, interests, and decisions that shaped their career choices. This roadmap will provide users with a clear understanding of different career verticals—whether in marketing, sales, public affairs, or technology—and offer finer insights into the specific roles within each field. For instance, in technology, students can explore paths like product management, UI design, research, quality assurance, programming, and data engineering. By navigating these options, students can better align their academic choices with their career aspirations.

The app will **map** users' choices to career outcomes. For example, selecting a field like technology should reveal related roles, skills, and career paths, showing the direct impact of their choices. The use of career-related icons and labels that **afford visibility** to the user how to explore different fields and professional profiles. Users will be shown their progress and available actions clearly, such as through a personalized dashboard or progress bars allowing **appropriation** for users. This helps users see where they are in their career exploration journey and what steps to take next. If a user completes a step or explores a career path, they will have a **visible outcome** on how this contributes to their overall career exploration and development.

Target Users - In the initial release content for career roadmaps can be predefined via publicly available sources for students to explore. As the product evolves, professionals in different fields can be contacted via LinkedIn, on campus or even UIC alumni to provide their own content regarding their professional journey. This would add value to the students to get career guidance from people approachable to them.

While research based on such a system is not widely published, a study of existing apps was beneficial to understand what Career Trails can provide differently. Apps like LinkedIn Learning or Coursera, which focus on skill development or formal education, Career Trails will combine real-world professional insights with gamification elements and personalized dashboards. It integrates skills and interests with career paths, providing a holistic and customizable experience. This approach contrasts with the more static or assessment-focused nature of other platforms, making the app uniquely engaging and tailored to helping students navigate their career choices effectively.

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