

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

Tackling the Challenge of Social Connection through Dining-Focused Platforms - Technical
Framework, Logic, and Implementation from Requirements to Execution

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Abstract

When adapting to new environments, newcomers often struggle to expand their social circles and integrate into local life, lacking effective platform support. This thesis revolves around the development and implementation of Nibble, an innovative social dining application that integrates trusted dining recommendations, flexible dining organization, personalized user profiles and posting content. Nibble, based on the Bubble No-Code platform, simplifies technical implementation and ensures rapid response to user requirements. Nibble blends dining with social activities, offering newcomers opportunities to integrate into urban life and fostering cultural integration.

Keywords: Social Dining Experience, Community Building, No-Code Development, Platform Implementation, Technical Framework

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1 Introduction & Initial Research

1.1 Project Background

When people arrive in a new city, dining often serves as their first introduction to local culture and a way to make new friends. Sharing meals helps break the ice and foster connections, but newcomers often struggle to find an application that meets their dining and social needs. With countless restaurant options and anonymous reviews, the process can be overwhelming, this makes people miss out on the best local dining and social opportunities.

Studies show that 89% of consumers believe recommendations from friends and family over strangers (Statista 2022), social medias like Instagram allow sharing restaurants, but they are not well organized. Moreover, security concerns discourage users from socializing. This creates the need for applications that combine credible dining recommendations with a secure environment and efficient methods of connecting, thereby allowing newcomers to find credible restaurants, connect with like-minded people and feel welcome in a new city.

1.2 Problem Statement

Newcomers often have a hard time adjusting to the environment and socializing opportunities in a new city (Godwin 2023). While online applications offers many restaurant reviews, these reviews are from strangers and therefore difficult to trust for reliability (Shukla Goh 2024). While social media is a popular way of recommending dining locations, it is usually not well-organized, so recommended restaurants get saved but rarely revisited because they are forgotten. Safety is another concern, since it may feel unsafe to meet new people through social media connection. That alone discourages many from forming their social relationships with dining. Without an application that combines trustworthy dining

recommendations and safe, substantial social interactions, newcomers miss out on an opportunity to acclimatize smoothly in a new environment and to build lasting relations.

1.3 Research Objectives

Based on the challenges and requirements of newcomers, we decided to build a social dining application called Nibble. You can scan the QR-Code below to access Nibble. We have 10 test users in total, for testing use user1 (user1@gmail.com), and the password is user1pw.



Figure 1: Nibble QR-Code

Nibble plans to create recommendations from trusted sources such as friends and family, as well as integrate restaurant recommendations from social media applications such as Instagram and TikTok into the map to help users make confident dining choices and create personalized and community-driven dining experiences. Users can save favourite restaurants, write reviews, upload photos, and receive AI-generated recommendations based on their interests. Nibble also makes it easy for users to organize activities, whether it's inviting friends or meeting new people, users can connect by posting dining activities. Each user has a personal profile that shows their dining experiences, the activities and recommendations they have posted, making it easier to connect with like-minded people. Users can also interact with other users' posts, increasing interaction between users.

Using the No-Code platform, we can rapidly iterate upon functionality and adjust it based on user feedback to ensure a great user experience. We want to create a trusted and interactive community where users can discover local food, make meaningful connections.

2 Market Landscape & Strategic Positioning

2.1 Market Trends Analysis

The global foodservice market is growing steadily and is valued at 2.9 billion dollars in 2023 and is expected to reach 3.12 billion dollars by 2024 and 3.9 trillion dollars by 2028 (Business Research Company 2024). This growth in the industry is supported by increasing consumer spending on dining out, urbanization, and increased numbers of fast food and quick-service restaurants, which also evidences the ability of the industry to adapt itself according to changing lifestyles. According to a 2023 survey, Generation Z, a significant demographic group, shows a strong preference for eating out, with 85.9% saying they eat out often or occasionally (Statista 2024b). Despite the rising cost of living, dining out is still favoured by Gen Z for strengthening social connection reasons (Statista 2024a). This is more indicative of the growing trend of valuing “social connection”.

These trends are in perfect harmony with the purpose Nibble was created for: an application combining trusted dining recommendations with social interaction. Nibble has been answering the exact needs of today's market by responding to the growing demand for meaningful connections and curated dining experiences.

2.2 Competitor Overview and Market Positioning

Meetup is a worldwide application for organizing activities based on common interests. Its strength lies in creating community-oriented experiences and fostering meaningful connections (Ricken, Barkhuus, Jones 2017). Although Meetup covers a wide range of activities, its lack of focus on the dining niche fails to meet the specific needs of certain users, creating opportunities for competitors to enter this market.

Corner applies AI to find user history and social media usage to provide tailored recommendations and unlock friends' reviews. Corner is introduced as a technology-driven, personalized application that distinguishes itself from the others using general or anonymous reviews. Corner's broad scope does not leave much focus on the dining niche. It also fails to allow users to create activities for others to join but instead see recommendations.

TimeLeft matches users for spontaneous group dinners at preset restaurants through its real-time algorithm. While highly engaged users value its spontaneity, the retention rate of users who prefer structured experiences may be impacted. The absence of posts and detailed profile functions also limits users' ability to know more about other participants.

Google Maps, as a secondary competitor, dominates restaurant discovery with location-based recommendations, user-generated reviews and ratings. Its global reach and accessibility make itself become a commonly used tool for quick and reliable information (Das 2023). However, its lack of social interaction and personalized functions, unlike Meetup, limits it to a transactional role. While it offers recommendations based on user history, it falls short of AI-driven applications like Corner, which prioritize customization and social context.

2.3 Competitor Analysis

To understand the competitive landscape, we used Porter's five forces analysis, this model assesses five key forces, it can systematically reveal industry dynamics, help identify strategic advantages and risks (Dälken 2014). Applying this model helps us to better understand the challenges and opportunities in social dining markets.

Competitors (High)

The industry has fierce competition from players like Meetup, Corner, TimeLeft and

Google Maps. Each has its own strengths, as mentioned above. To stand out, Nibble must integrate competitors' strengths, personalization, community-building, and spontaneity, while adding unique functions like map and social media importing. This hybrid model can meet diverse user needs and establish a distinct value proposition.

Threat of new entrants (medium)

Low-Code and No-Code platforms make application development easier, allowing quicker launches. But building up the loyalty of users and gaining their trust in the recommended content is difficult for new entrants. Even so, innovative functions or targeting niche communities can help smaller entrants get a foothold. To counter this threat, Nibble will focus on personalized recommendations and enhanced user experience, like adding map functions, attracting users and building trust through innovative social functions and unique design, improving retention and forming a differentiated advantage over competitors.

Bargaining Power of Suppliers (Low to Medium)

Restaurants and local businesses are eager to work with applications that bring new customers, this keeps the bargaining power of suppliers relatively low. Nibble, at its MVP phase without partnerships, we can lower the suppliers' bargaining power early on by concentrating on delivering the value that users truly desire. Nibble focuses on personalized recommendations and community social experiences. It links users to local dining, bringing potential customers to restaurants. This meets user requirements and gives restaurants a new way to increase exposure and engagement. In the MVP stage, we aim to increase initial user traffic through great experiences to show Nibble's appeal and market potential.

As the user group grows, we can partner with small and medium restaurants with data

and user participation, giving them a precise target group. This makes it easier for restaurants to see our value, reducing bargaining power and setting the stage for long-term cooperation.

Bargaining Power of Buyers (High)

In a market full of choices like Meetup and other niche applications, users have a lot of influences. Switching among applications is easy, so loyalty depends on consistent value. Users also look for recommendations they can trust. Personalized or socially validated content, like recommendations from familiar people are more appealing than anonymous reviews.

Nibble concentrates on providing value through personalized dining recommendations and a community-driven method. By promoting genuine social connections and presenting an engaging user experience, it becomes more than a discovery tool. It creates a trusted place that encourages long-term user engagement and lessens the temptation to switch applications.

Threat of Substitutes (High)

Users have multiple alternative options for discovering restaurants or organizing social activities. The substitutes include Google Maps, Meetup, and informal recommendations from influencers on Instagram and TikTok. Besides, users can organize activities through general social networks. To mitigate this threat, Nibble will emphasize personalized presentation, community building and dining-related socialization, rather than just a simple restaurant discovery. Functions such as personalized profiles, organizing social activities, friend-based recommendations, and locate the restaurants addresses on the map will distinguish Nibble with the other applications, make it become an important application for user's normal life.

By addressing the five forces, we can establish clear strategies to address the competition, reduce risk, and achieve a unique market position for long-term growth.

2.4 Persona

The following persona represents the ideal target user for Nibble: Jamie is 25 years old, moved to a new major city for an internship. For her, dining is a way of experiencing local culture and meet new people. With a tight budget, she hopes to uncover memorable yet affordable dining spots, guided by trusted recommendations from familiar people.

How Nibble Helps Jamie:

With trusted recommendations from friends or family members, multiple dining activities, affordable options, different user's posts and personalized profile pages, Jamie can make confident exploration of the city's dining scene, connect to like-minded people, make new friends, have meaningful social connections while staying within her budget.

2.5 Value Proposition

Nibble transforms dining into an exploratory journey of discovery and connection, helping newcomers adapt to new environments while building meaningful social connections.

By offering the personalized and trusted recommendations from friends, family, and social media, it empowers users to confidently discover dining spots in a new city. Nibble also support users to participate in or organize dining activities, promote social relationship building, and quickly integrate into social networks. Furthermore, Nibble combines restaurant suggestions and activities into intuitive maps that make it easier for users to plan and manage dining. Additionally, users can post their dining and activity experiences, this can connect users with their like-minded people and enhance social interactions.

Nibble seamlessly integrates dining exploration with social interaction and is an ideal application for the newcomer to adapt and fit into their new life.

3 Survey Analysis

3.1 Survey Findings & Implications

The survey examined how people discover restaurants, share recommendations, and save dining ideas from social media, supporting Nibble's mission to connect newcomers with trusted dining experiences (*Appendix 1*). The survey reached 76 respondents, 70% from major cities and 30% from suburban or rural areas, offering diverse insights. We find that:

1. **Friend-Based Recommendations:** Approximately 75% of participants prefer friend-based recommendations over anonymous reviews. Therefore, reinforces findings that 89% of consumers trust recommendations from people they know (Statista 2022).

2. **Social Dining Events Interest:** 60% of the respondents were keen on social dining events organized by the applications, particularly the younger group aged 18-34 years. Only 5% did not show interest, indicating vast potential for community activities.

3. **Saving Dining Recommendations from Social Media:** Though 68% save social media dinner recommendations on a regular basis, 45% of them don't have an systematic way of doing it, indicating a definite need for useful solutions in organizing dinner recommendations.

4. **Interest in Saving Recipes:** More than half (52%) of the survey respondents were interested in saving recipes from social media like Instagram, 40% indicated a need for recipe organization, which could be a secondary use case for Nibble to attract food enthusiasts.

The survey's focus on digital channels likely skewed results toward younger, tech-savvy users. Safety concerns were not discussed as Nibble is an MVP, but these, along with the opinions of older and rural demographics, are two key areas for future research to appeal to a wider range of users and foster trust in Nibble.

4 Platform Requirements Analysis

4.1 User Requirements

Literature research has shown that user involvement becomes important in defining the requirements and enhance project success (Maguire Bevan 2002). It will improve both quality and satisfaction, potentially reducing iterations of a product by making it closer to actual requirements during development (Kujala u. a. 2005). This strongly highlights the importance of user analytics in Nibble's design process.

From the start, we focused on user requirements through surveys to ensure Nibble aligns with user requirements. Research identified five main user requirements: restaurant discovery, information management, social interaction, security, and personalization. Users more trust recommendations from friends or family than anonymous reviews, value maps that show activity locations, details of restaurants, and saved places from social media for easy access.

Social interaction is another priority, with users seeking functions to organize activity, expand social circles, and share dining experiences. Users will also expect activity posting and participation, along with recommendations based on interests and behaviours. At the same time, AI will be expected to power recommendations in a personalized manner.

4.2 Functional Requirements

Nibble's functional requirements focus on personalized profiles, dynamic posting, activity management, and restaurant recommendations to address the requirements of users in dining and activity planning, and even social interaction. Key functions involve believable restaurant recommendations, activity posting and joining, personalized profile and posts, and view locations on maps. As data grows, Nibble can add AI function to enhance personalized

recommendations by analysing user interests and behaviours.

The information management function helps users organize and view their content efficiently. Nibble integrates user recommendations and activities into interactive maps and displays posts, activities, and recommendations on the profile page. This not only aids in managing content but also allows other users to quickly understand a user's interests.

For social interaction, Nibble enables users to host and join activities, details like restaurant name, time, and participant limits can be added, while users can also sign up for activities created by others. The activity module includes a map function that marks activity locations, helping users quickly find venues, reducing search time, and enhancing experience.

4.3 Technical Requirements

No-Code development allows developers without programming experience to quickly build application using visual interfaces and pre-built components, lowers development costs, is ideal for creating MVP (Yan 2021). Research shows that No-Code platforms can provide fast iterations, are flexible in making adjustments, and facilitate the rapid deployment of innovative projects. However, they may prove limited while developing complex applications or deep customisations often in need of plugins or technical support to unlock more capabilities (Guthardt, Kosiol, and Hohlfeld 2024).

With the limited programming experience of our team, using a No-Code platform is the best choice to have a working MVP in the shortest time possible. It will let us focus on the design and user experience without delving under the surface into programming or complex backend systems. Its modular structure and plugging capabilities also help in applying advanced functions with little technical barrier. This decision suits our resources, enables

quick responsiveness to user feedback, and assures project success. We choose Bubble as our No-Code tool, the reasons will be explained in the next chapter.

5 Platform Selection & Technical Architecture

5.1 Low-Code & No-Code Analysis

At Nibble's initial design stage, we researched Low-Code and No-Code technologies and decided to go with No-Code as our development tool. To understand this choice requires looking at the social trends driving this technology rise and significance.

The global software developers' shortage has become a major challenge for digital transformation. Despite software development jobs are expected 22% growth over the next decade, with approximately 31,000 new positions added annually, the demand far exceeds supply, causing project delays, increased costs, and limited innovation (Braux and Moritz 2021). At the same time, the need for rapid application delivery exposes the inefficiencies of traditional development models constrained by resources, complexity, and long timelines (K. Shumarov G. Garvanov 2024). In this context, Low-Code and No-Code technologies have emerged, simplifying application development and enabling non-technical users to participate (Orok u. a. 2024). Both technologies simplify development, enabling non-technical users to participate. No-Code uses visual interfaces and modular tools to quickly build MVP or moderately complex applications without coding (Smith u. a. 2020). While Low-Code retains some coding capabilities, allowing deeper customisation for complex logic or system integration (Rokis and Kirikova 2022).

Following group discussions, literature review, and advisor guidance, we had picked No-Code as the best fit considering our team background and requirements in our project.

This allows the fast development of MVP, as mentioned in 4.3. The modular design and ecosystem of plugins will provide more supports for upgrading the functionality in the future.

5.2 Introduction to Bubble

Different No-Code platforms focus on different areas, for example, Webflow focuses on front-end design for responsive websites, Adalo is for mobile application development and quick creation of lightweight tools. These platforms lower the technical barrier, making it easy for non-tech users to develop applications and providing diverse solutions (Sońta and Przegalinska 2024). Due to the page limitation, we will not talk too much. After analysing multiple No-Code platforms, we chose Bubble as our development tool. This decision was based on the comprehensive consideration of our project requirements and team background, while the functional characteristics of Bubble highly match our goals:

1. **Powerful and Flexible:** Bubble comes with tools which allow to customize a wide variety of projects and add fitting workflows. This diverse range of modules allows a smooth interaction between Nibble's functions creating and an enhanced user's experience.

2. **Comprehensive Data Management:** Bubble's built-in database tools manage Nibble's different data types efficiently, allowing the integration to be seamless and the update dynamic (Bas 2024). On this strong base of data management, Nibble works efficiently.

3. **Rich Plugin Ecosystem:** Bubble's extensive plugin ecosystem supports functionality expansion. The google maps plugin enables map annotations on pages, helping users locate activities and restaurants. Moreover, with Bubble's API and plugin support, external AI models can be integrated in the future for personalized recommendations (Novik 2024).

4. **Responsive Design Support:** Responsive design in Bubble dynamically adjusts layouts

for all sizes of screens, which enables smooth operation on all kinds of devices (Mohorovičić 2013). Being a cross-device social application, Nibble needs it for consistent user experience and saving development time.

5. Powerful Extensibility: Bubble supports API integrations and JavaScript customisation, increase the flexibility to expand Nibble in the future. It also enables adding more functionality through external services to meet user requirements for better interactivities.

5.3 Technical Architecture Design

5.3.1 Overview of the Architecture

The flowchart below clearly illustrates Nibble's architecture and the interaction logic between modules, providing the operational relationship between core pages and functional modules.

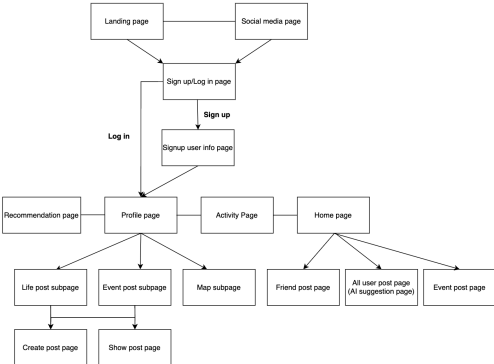


Figure 2: Nibble’s Function Flowchart

Common architecture designs include monolithic, modular monolithic, microservices architectures. Nibble chose modular monolithic architecture, which combines simplicity with flexibility, reduces module coupling, improves maintainability and scalability (Su and Li 2024). This suits Nibble’s resource constraint, supporting rapid development and expansion.

Bubble maximizes the advantages of modular monolithic architecture. Nibble's architecture is built around the core requirements of a restaurant social application that

seamlessly integrates the front-end interface, backend logic, and data storage layers, making dynamic posting, activity management, restaurant recommendations, and personalized user profiles work together easily, hence improving efficiency and flexibility. The innovation and uniqueness of Nibble's modular monolithic architecture are highlighted in the following aspects:

1. **Modular Design:** Nibble divides its functions into multiple modules: home page, activity page, recommendation page and profile page. Each module caters to specific user requirement, forms a complete user experience chain.

2. **Data Storage and Interaction:** Nibble uses Bubble's built-in database for centralized data storage, supporting data sharing and real-time interaction across modules. Dynamic posts are instantly synchronized across friends and all users post feeds, while creator default data setting ensure automatic categorization of user-generated content.

3. **Cloud Hosting:** Nibble is built on top of Bubble's cloud architecture, there is no server configuration and infrastructure maintenance. It manages user requests and backend processing in the cloud, which provides stability during peak traffic while offering high availability and scalability.

5.3.2 Detailed Page Functions and Interactions

Sign Up / Log In Page & Sign Up User Info Page

The sign up / log in page can create account and log in. The sign up page collects user details like email and password, while the log in page verifies credentials for quick access to Nibble. The user info page continues the registration process by collecting details like name, age, and interests. After submission, users are redirected to the profile page.

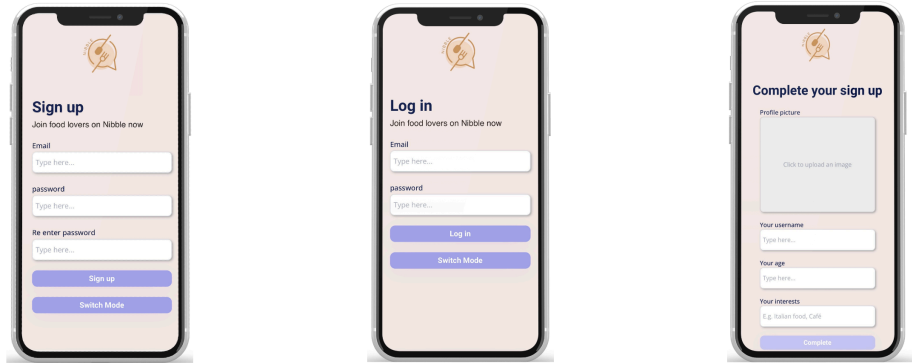


Figure 3: Sign Up / Log In Page & Sign Up User Info Page Screens

Home Page

Nibble's homepage integrates friend posts, all user posts, and event posts. Users can like, comment, follow, or unfollow, with actions updating in real-time for a seamless experience.

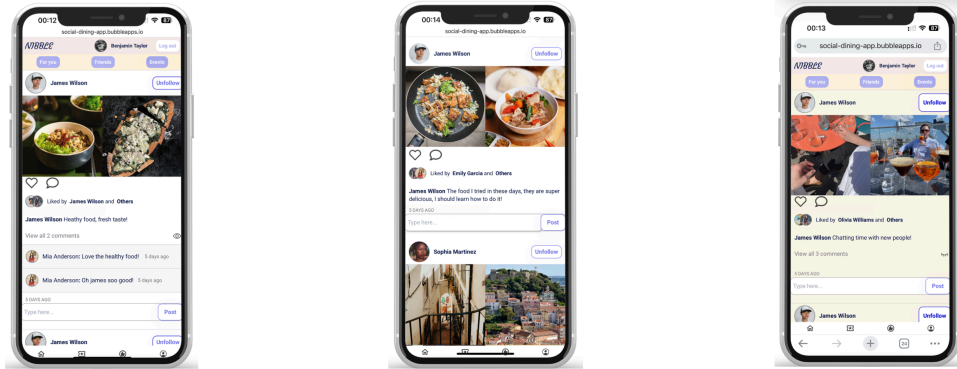


Figure 4: Home Page Screens

Show Page & Post Page

In the profile page, the posts can be clicked to show the details with the delete option, while new posts can be added through the posts and events buttons.

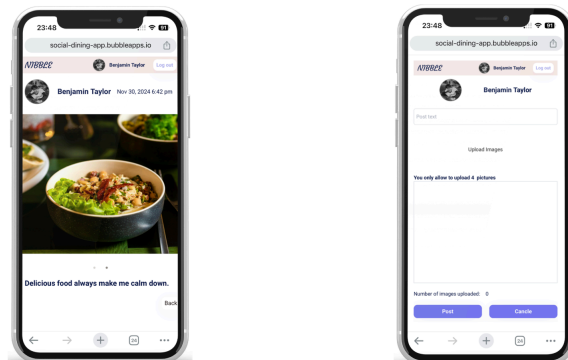


Figure 5: Show Page & Post Page Screens

Profile Page

The personal profile page shows user social data (followers, followings, post numbers), all posts, activity records and restaurant recommendations which displayed as map markers. Users can click markers or records to view details and manage posts by adding or deleting.

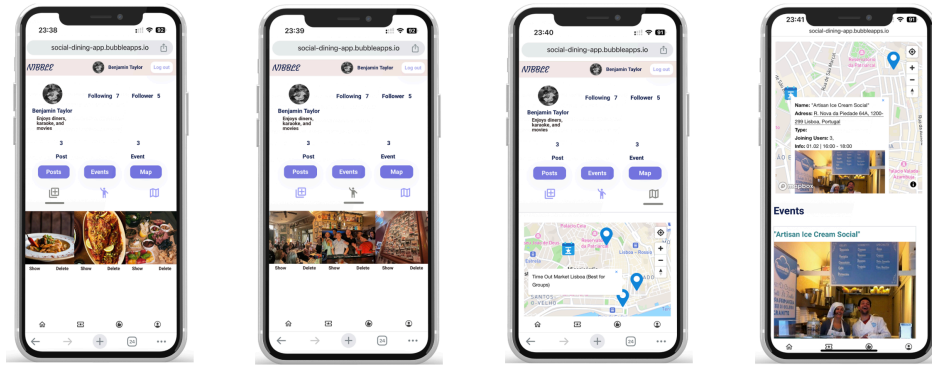


Figure 6: Profile Page Screens

Activity Page

The activity page lets users create and join activities, recording details like time, location, participants, and start time. Clicking activity details jumps to the map's marked location, while clicking map markers shows the restaurant name for quick access to information. Future AI integration will offer personalized activity suggestions based on user interests.

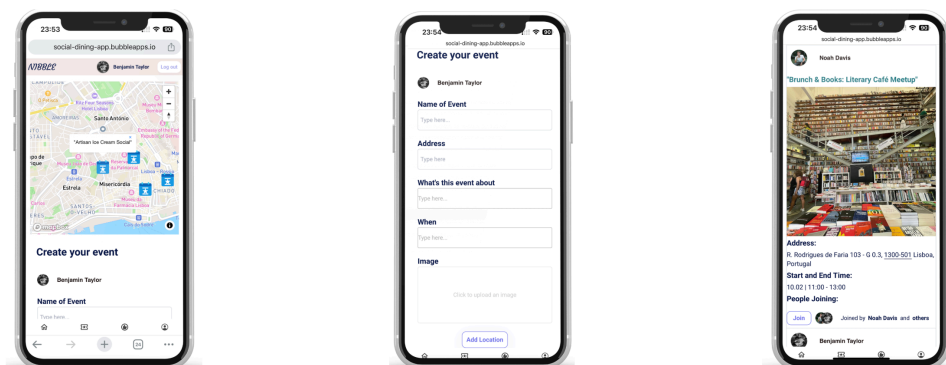


Figure 7: Activity Page Screens

Recommendation Page

The recommendation page shows user-posted restaurant suggestions, including cuisine, ratings, reviews and so on. Map function similar like activity page. Future AI integration will

provide personalized restaurant suggestions to enhance user choices.

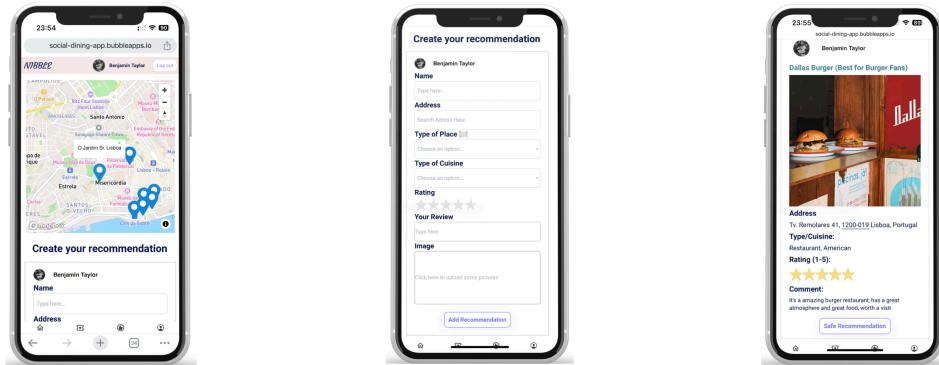


Figure 8: Recommendation Page Screens

Landing Page & Social Media Page

The landing page gives a brief overview of the goals, functions, and mission of Nibble.

In the social media page, a vision is outlined for the future where restaurant information saved on other social platforms is integrated into Nibble to ease locating saved restaurants.



Figure 9: Landing Page & Social Media Page Screens

6 Technical Implementation

6.1 Datatype & Attribute Analysis

Before, we explored Nibble's adoption of No-Code technology and its page functionality design. Now, we will analyse the database structure supporting these functions and the relationships between these data types. Nibble's database consists of multiple data types, each as a separate entity with distinct attributes, and different attributes also have different types,

such as a profile photo stored as an image type for user display.

Nibble's complex database structure cannot be fully captured by traditional entity diagrams. To address this, we have created a simplified entity relationship diagram (as shown below) to highlight the framework and interactions between data types.

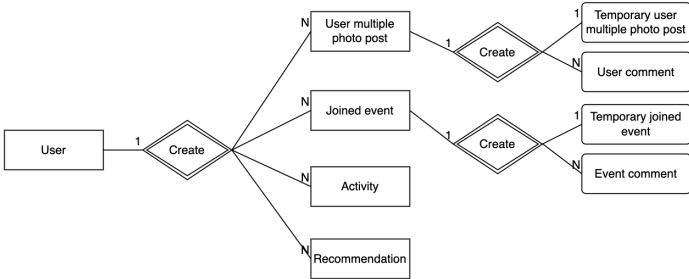


Figure 10: Datatype's Entity Relationship Diagram

Nibble's database includes nine data types: user, activity, recommendation, user multiple photo post, joined event, temporary user multiple photo post, temporary joined event, user comment, and event comment. Users can create, join, and save multiple activities, recommendations, and posts. To address carousel plugin limitations on the show page, temporary data types were introduced to store currently viewed content, improving display efficiency and reducing database load. User comment and event comment store comments and their creators, ensuring precise association with posts. Now, Let's examine the attributes of these nine data types in detail to understand Nibble's database design and functionality. A detailed entity diagram is available in Appendix 2.

The user data type includes 13 attributes, age, name, email, and interests, all stored as text, supporting user sign up, log in, user info input, and profile functionalities. For social features, followers and following are stored as list of users, allowing direct access to their information. Additionally, attributes like list of recom, list of event comments, and list of user comments are similar. All information about the associated data types is stored in the form of

a list, enabling efficient access to all attributes without querying individual fields. This list-based storage simplifies logic and enhances efficiency.

Both the activity and recommendation data types have a similar structure as they both support the Nibble map functionality. The address attribute, which is stored as a geographic address, directly integrates with mapping while latitude and longitude are stored as number, providing the initial view on maps. List of joined user, stored as list of users, tracks participants' complete information, and attributes like type of cuisine and type of restaurant, which attribute type is list of text, enable category-based displays. Additionally, there is a creator attribute in default, stored as a user, is very important for Nibble. This makes it easy to categorize the behaviour of individual users for future invocations.

The user multiple photo post and joined event data types also share a similar structure, supporting dynamic post content and interaction. Attributes like content and joined event post text's data types are text, they store text descriptions. While multiple photos, stored as list of images, allow users to upload multiple images in once. The comment function is implemented through the list of comments attribute, with its data type being list of user/event comments, used to store all comments associated with each post. The like function is implemented through the list of likers attribute, with its data type being list of users, recording all users who liked this post, enabling quickly access complete information about the users who liked it.

Temporary user multiple photo post and temporary joined event are duplicates of user multiple photo post and joined event, storing the same data to support show page's carousel functionality. When users view specific post, it will copy these data to the temporary database, then call these data from temporary database to show to users, enabling faster loading and

display while reducing queries to the original database, improving system responsiveness.

User comment and event comment are simple data types with core attributes: comment content attribute stores the comment text, and creator records the publisher of the comment, ensuring clear associations between comments and their users.

6.2 Workflow Design and Integration Analysis

Just now we discussed Nibble's data types and their attributes in detail. Now, we will analyse the workflow design supporting the functionality of Nibble's each page and how these workflows integrate with different data types. Due to page limitations, detailed workflow diagrams for each page will be shown in the appendix.

Sign Up / Log In & Sign Up User Info Page (Appendix 3):

These pages allow user sign up and input of information. The sign up button, upon clicking, triggers the workflow sign the user up that saves the input to the current user database for the next time log in. After signing up, the user moves to the sign up user info page to input details such as age and interests. The complete button, upon clicking, triggers the workflow make changes to current user to save the information. The navigate workflow then sends the user to the profile page. If user already have an account, user just need to click switch mode button to change to log in function, then enter into the profile page.

Profile Page (Appendix 4):

The profile page is a core function, integrating functions from multiple pages. It displays user data like username, profile photo, followers, and following, along with life posts, event posts, activities, and recommendations, organized into three repeating groups. Each repeating group is linked to an icon. Clicking an icon triggers a workflow to display its content while

hiding the others. Posts are shown in order of publication time, with the first item displayed. Clicking the show button or a post image navigates user to the show page for details.

The map function is activated by the last icon, showing the locations of the activities and recommendations that posted by the users. When the mapboxmap_new map is loaded, triggers add list of markers to mapboxmap_new workflow, which retrieves the latitude, longitude, and restaurant names from the database and displays them as markers on the map. Clicking a marker displays the restaurant name in a pop-up, enhancing user interaction.

Below the map, detailed information of activities and recommendations is shown in repeating groups. Clicking a cell, triggers fly to location mapboxmap_new workflow, positioning the map on the corresponding marker. Using arbitrary text, detailed activity or recommendation information is linked to the marker pop-up, also enhancing user interaction.

Activity Page & Recommendation Page (Appendix 5):

These two pages share similar data types and workflows, separating creation and display functions while maintaining integration through data sharing. Clicking creates activity or recommendation links input data, like restaurant name and rating, to the database, with real-time updates displayed in the display group.

The map function, like the profile page, uses add list of markers to mapboxmap A and fly to location mapboxmap A workflows to display activities and recommendations on the map, with markers showing details like coordinates and restaurant names. Interactions are further enhanced by workflows. For example, the join button allows the adding or removing of participants, while the save/unsave recommendation button controls the recommendation saving status, at the same time changing the relevant data in databases.

Home Page (Appendix 6):

The home page includes user homepage, user following homepage, and user events homepage, with similar data types and workflows. User homepage displays all the contents, while the user following homepage only displays followed users' contents. Future AI recommendations will filter posts by user interests instead of showing all contents.

Core functionality uses repeating groups for consistent layout. Three buttons at the top use navigate workflow to switch between different homepages. Each post includes a follow/unfollow button that triggers the make changes to current user workflow, updating the following and follower lists for the relevant user. Users can like posts, triggering workflows to update the list of likers. Similarly, upon clicking the post button, a new comment is created through the create a new user comment workflow and stored in the related database, which is then shown in the repeating group view. Clicking on the profile photo can navigate to this user's profile page.

Down Title Reusable Element (Appendix 7):

The reusable element in Bubble helps to keep the styling and content consistent across pages. In Nibble, this serves as the navigation bar that links four main pages together. When the button is clicked, it triggers the navigate workflow. By placing down title reusable element inside the floating group, the bar will stay at the bottom to be easily accessed while scrolling.

6.3 Challenges and Limitations

In the development of Nibble, there were some issues that we faced and would need future enhancements. First was the problem with the google maps plugin. Our initial plan was to enable users to click on activity or recommendation's relevant map markers to show

corresponding details. After a month of unsuccessful attempts, we ask the plugin developer for help. He explained that the complexity of our database made the issue hard to identify and pointed out that the plugin requires data to be preset before implementation. Since we added data afterward, this might cause functionality issues. Due to time constraints, we decided to display only restaurant names instead of changing plugin.

Besides, while clicking on cells correctly navigated to corresponding map markers on desktop, mobile users needed to manually scroll to view them. Despite reviewing responsive layouts and workflows, we couldn't resolve the issue. We asked some experienced people for help, they thought it might be due to browser compatibility or the mobile layout blocking certain interactive elements, and until now we didn't figure out the solution for this issue.

Since Nibble is only an MVP, we have not considered any security-related functions. However, as Nibble continues to improve in the future, we plan to set up ID detection for each user and detect the security of each activity place to meet users' security requirements.

Lastly, with limited programming experience, we spent nearly a month on map functionality, leaving little time for AI recommendations or importing saved restaurant data from other social media platform. Also, as an MVP, Nibble's database doesn't have enough data for AI functions. After discussions, we decide to present these functions in theories on the social media page for future development.

These challenges highlight our technical and resource limitations but also provide clear directions for further improvements. By seeking advice from experts, we gained valuable insights that will guide us in refining the project.

7 User Testing & Evaluation

The usability survey involving 11 participants tested Nibble's MVP, revealing that 80% found it intuitive and easy to navigate (*Appendix 8*). However, key improvements were suggested, such as enhancing the recommendation map with functions like improved icons and linking saved markers to specific recommendations for better accessibility and improving posting functions by adding reminder notifications to help users avoid losing track of saved entries. Users also proposed adding direct messaging functions for better communication.

Because time constraints limited the implementation of these suggestions, the focus remained on delivering core functions. These improvements are planned for future iterations.

8 Conclusion and Future Outlook

Nibble's current development focuses on technological innovation, using No-Code technology for rapid iteration and modular design to address newcomers' social connection challenges. While this thesis emphasizes technical implementation, future should put more efforts on developing comprehensive business plans.

Future development will focus on three key areas: first, enhancing premium functions, such as AI-driven personalized recommendations and access to exclusive events; second, collaborating with restaurants by offering valuable insights via Nibble's data analytics; third, integrating sustainability concepts, such as promoting eco-friendly dining options to enhance brand image. Additionally, Nibble plans to transition from a No-Code framework to a hybrid architecture to support more advanced functionalities. Through technological upgrades, market and business expansion, and continuous user feedback, Nibble is well-positioned to achieve a balance between technological advancements and business growth.

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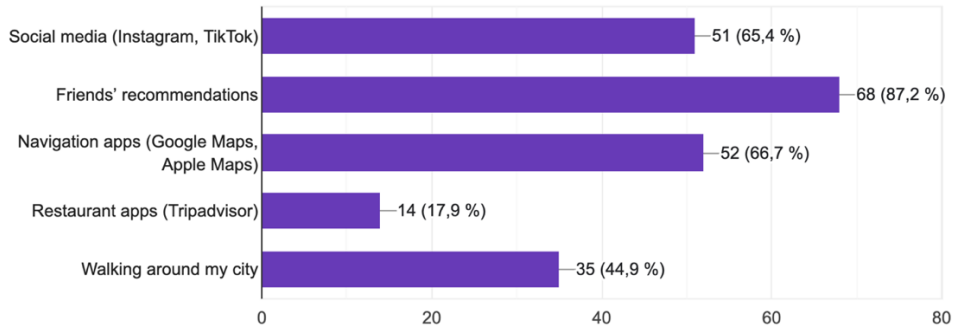
<https://doi.org/10.48550/arXiv.2112.14073>.

Appendix

Appendix 1: Market Research Survey

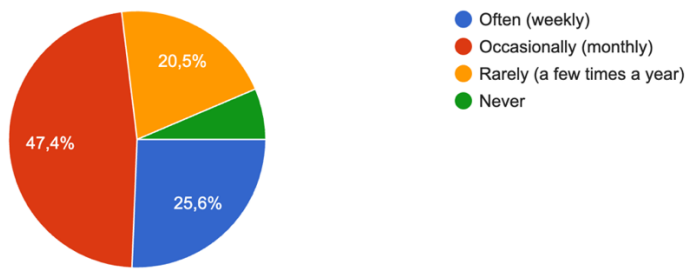
How do you typically discover new restaurants?

78 Antworten



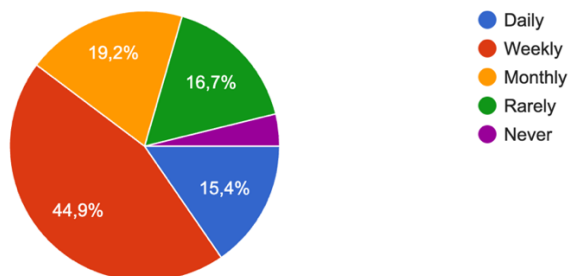
How often would you use a feature that allows you to recommend restaurants directly to friends?

78 Antworten



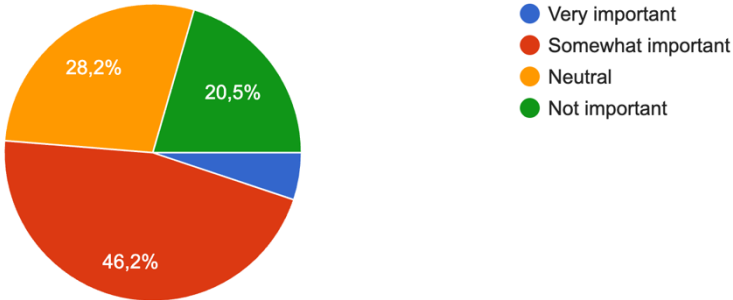
How often do you save recipes or dining recommendations from social media (e.g., TikTok, Instagram)?

78 Antworten



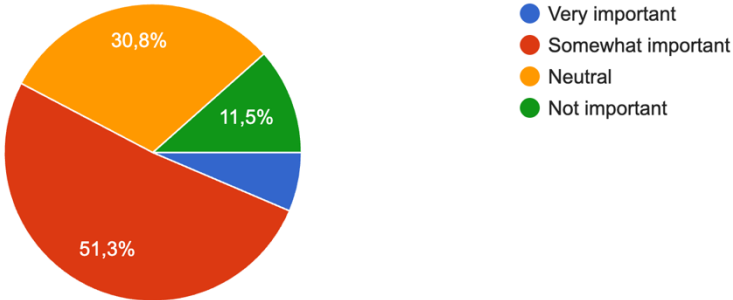
How important is it to see your friends' restaurant recommendations on their social profiles?

78 Antworten



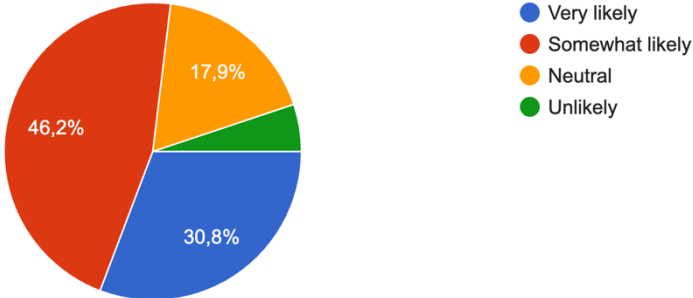
How important is it to see what restaurants your friends have saved and recommended on their social profiles?

78 Antworten



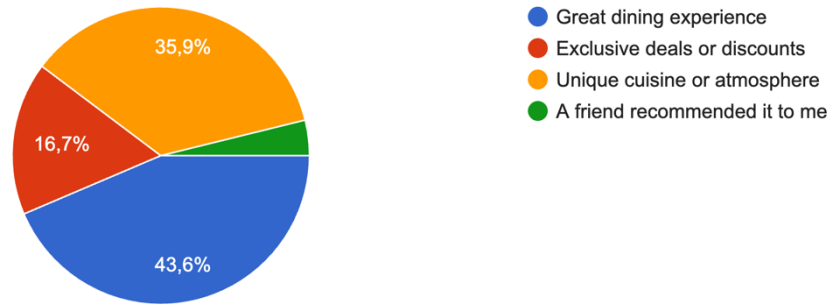
How likely are you to recommend a restaurant to your friends through the app if you had a great experience?

78 Antworten



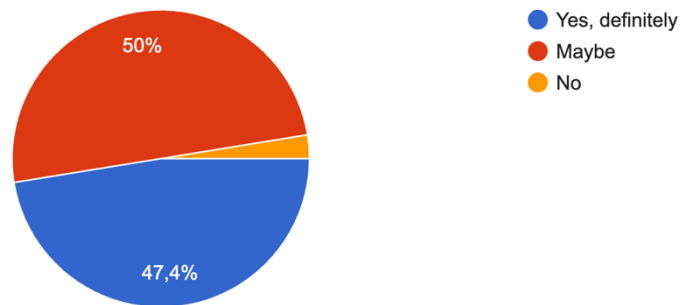
Which of the following would motivate you the most to recommend a restaurant to friends?

78 Antworten



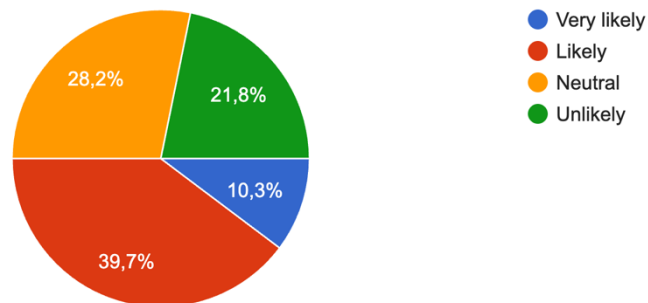
Would you find it useful to see your friends' favorite cuisines and saved restaurants on their profile?

78 Antworten



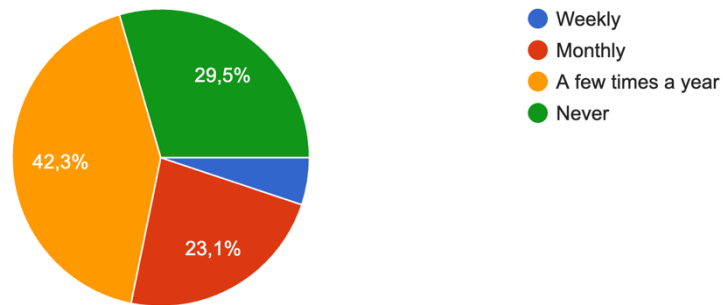
How likely are you to attend a social dining event organized through an app when everything is safe (Profil Check, Same interests) (e.g., going to a restaurant/bar/café with new people)?

78 Antworten



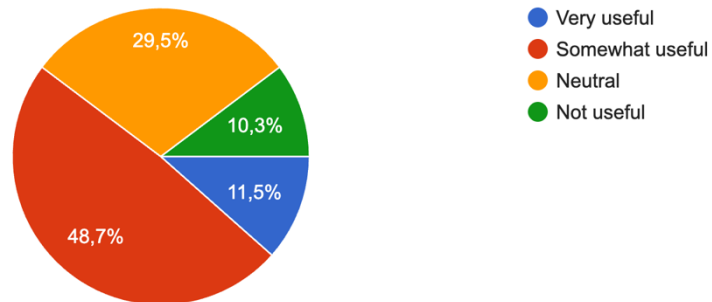
How often would you use an app to organize group dining events with new people?

78 Antworten



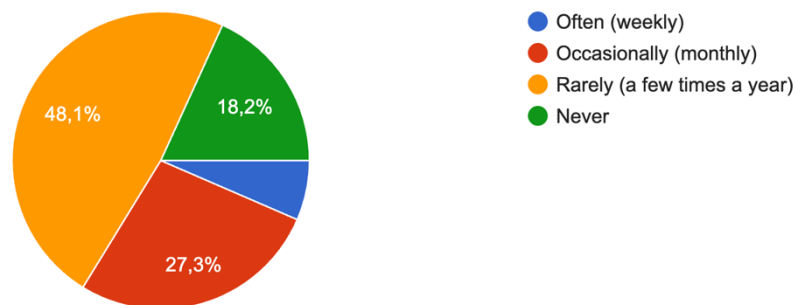
How useful would it be to organize breakfast, lunch, or dinner with people based on a restaurant you saw on social media?

78 Antworten



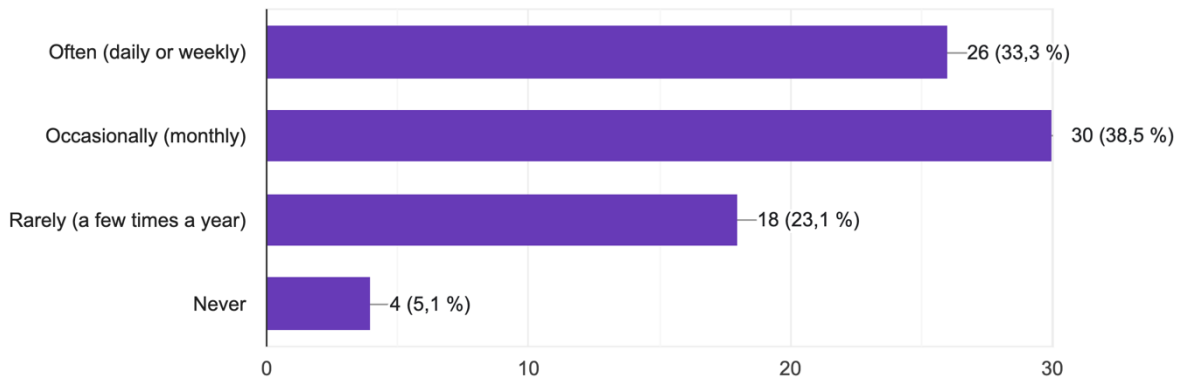
How often would you plan to meet up with new people for social dining (e.g., breakfast, lunch, or dinner)?

77 Antworten



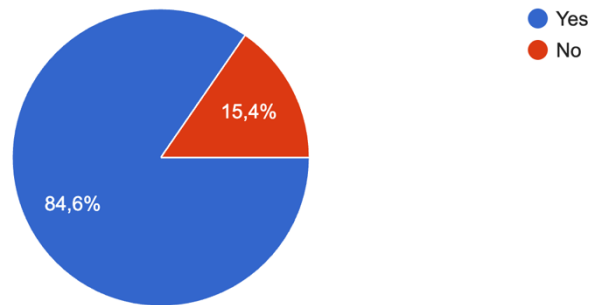
How often do you discover restaurants through Instagram or TikTok that you would like to visit?

78 Antworten



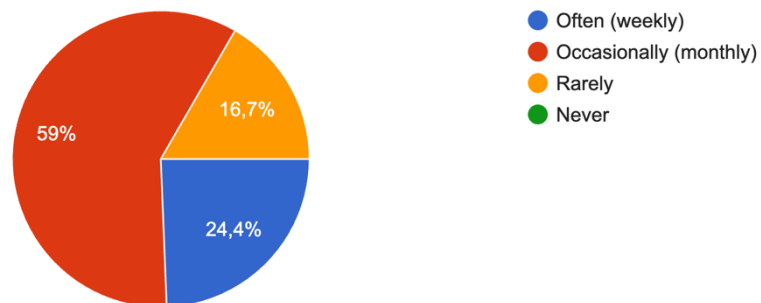
Would you prefer an app that allows you to save restaurants from social media in an organized manner (e.g., by location or cuisine)?

78 Antworten



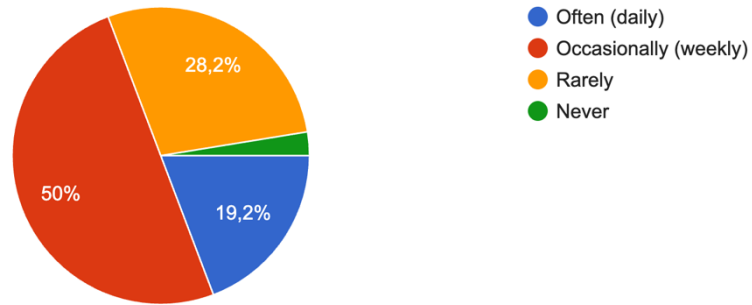
How often do you recommend restaurants to friends based on your own experiences?

78 Antworten



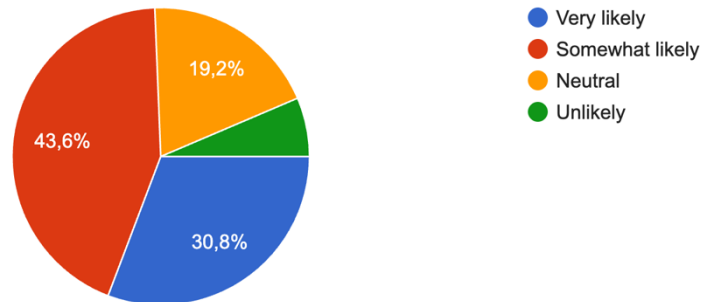
How often do you use social media to save restaurant recommendations

78 Antworten



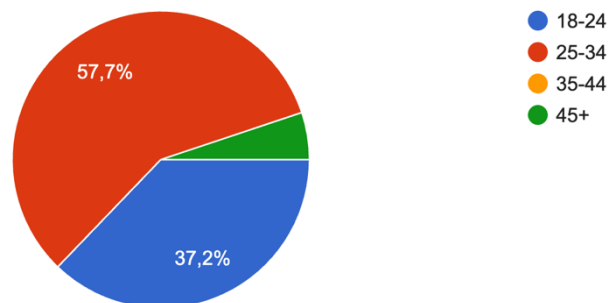
How likely are you to use a feature that allows you to save restaurants from TikTok or Instagram directly to the app?

78 Antworten



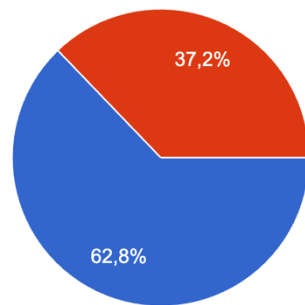
What is your age group?

78 Antworten



What is your gender?

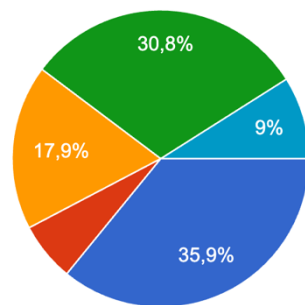
78 Antworten



- Female
- Male
- Other

What is your current employment status?

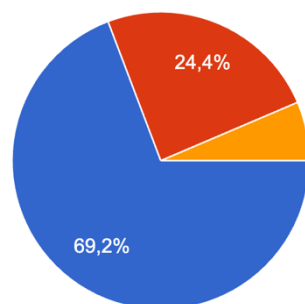
78 Antworten



- Employed full-time
- Employed part-time
- Working student
- Student (not employed)
- Unemployed
- Self-employed

Where do you currently live?

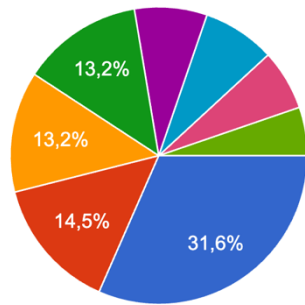
78 Antworten



- Major city (e.g., New York, London)
- Suburban area
- Rural area

What is your approximate annual income (in euros)?

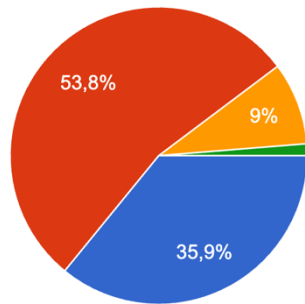
76 Antworten



- Less than €10,000
- €10,000 - €19,999
- €20,000 - €29,999
- €30,000 - €39,999
- €40,000 - €49,999
- €50,000 - €59,999
- €60,000 - €69,999
- Over €70,000

How often do you dine out per week?

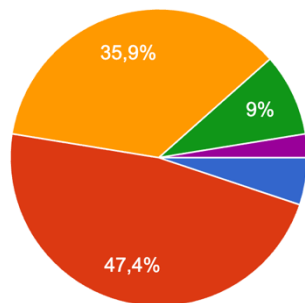
78 Antworten



- Less than once
- 1-2 times
- 3-4 times
- 5 or more times

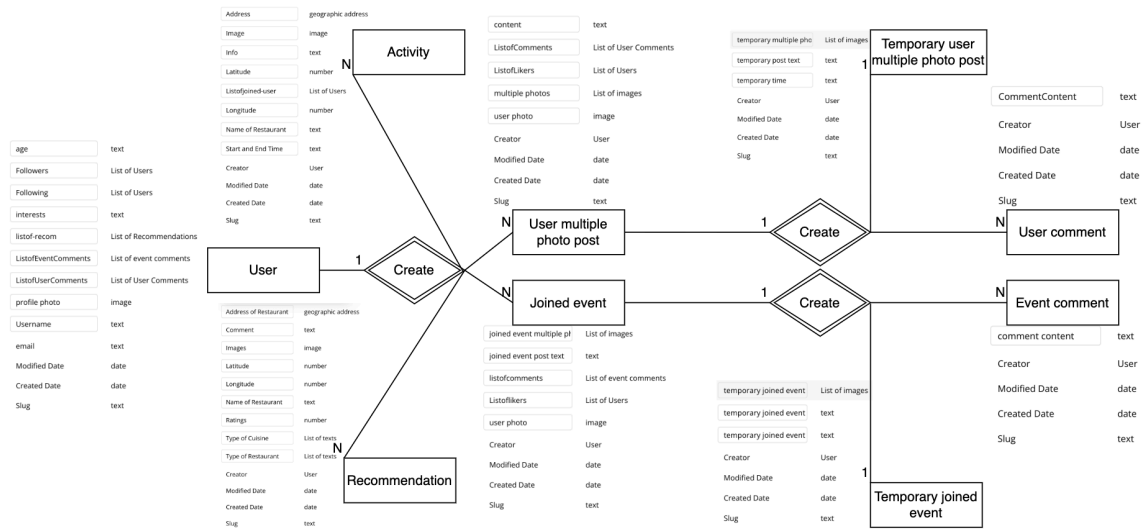
How much do you typically spend on dining out per meal (in euros)?

78 Antworten

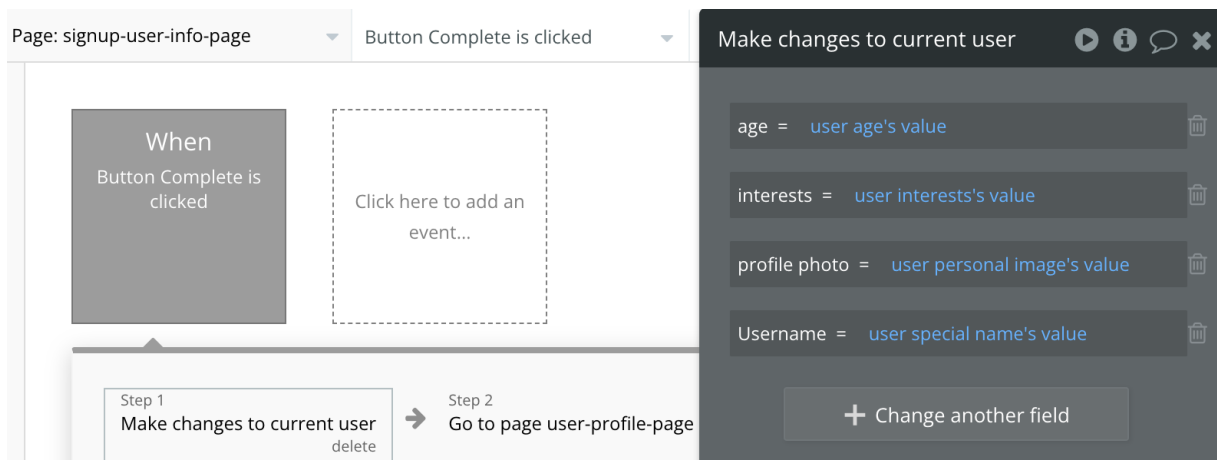
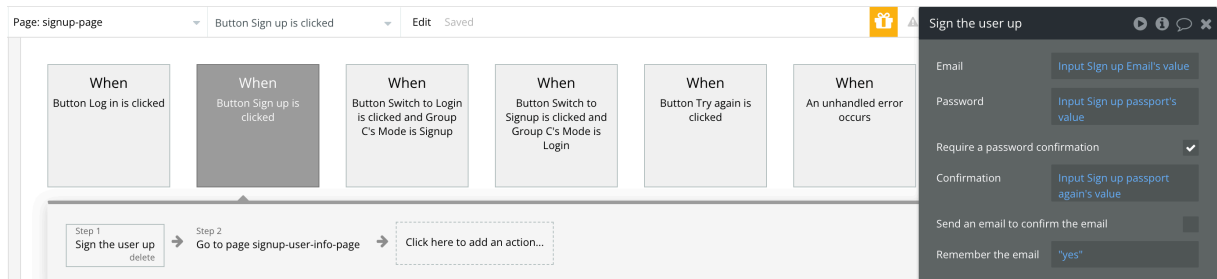


- Less than €10
- €10 - €19
- €20 - €29
- €30 - €39
- €40 - €49
- €50 or more

Appendix 2: Datatype's Entity Relationship Diagram with Attributes



Appendix 3: Sign Up/Log In Page & Sign Up User Info Page Workflows



Appendix 4: Profile Page Workflows

Page: user-profile-page Button joinedevent Show is click... Edit Saved 0 Issues View - Arrange Main Preview

When Button Cancele is clicked

When Button Delete is clicked

When Button Delete popup is clicked

When button events is clicked

When Button joinedevent Delete is clicked

When Button joinedevent Show is clicked

When button map is clicked

When Button post is clicked

When Button Show is clicked

When Group - Location-v2 is clicked

When Group - Location-v2 is clicked

When Icon material outlined ad is clicked

When Icon material outlined em is clicked

When Icon material outlined ma is clicked

When Image A is clicked

When popup Button Joined Event Cancele is clicked

When popup Button Joined Event Delete is clicked

When MapboxMap_New Map is Loaded

Click here to add an event...

Step 1: Delete a list of Temporary Joined Events... → Step 2: Create a new Temporary Joined Event... delete → Step 3: Go to page user-joinevent-post-checkpage → Click here to add an action...

Create a new Temporary user m

Type: Temporary user multiple photo

temporary multiple photos add list = Parent group's user multiple photo post's multiple photos

temporary post text = Parent group's user multiple photo post's content

temporary time = Parent group's user multiple photo post's Creation Date

+ Set another field

Only when: Click

Add a breakpoint in debug mode

Delete a list of Temporary user r

Type of things: Temporary user multiple photo

List to delete: Search for Temporary user multiple photo posts

Only when: Click

Add a breakpoint in debug mode

Fly to Location MapboxMap_Ne

Element: MapboxMap_New

Longitude: Current cell's Recommendation's Longitude

Latitude: Current cell's Recommendation's Latitude

Show Popup: "yes"

Popup Content: Arbitrary text

Zoom: 15

Speed: 4

Only when: Click

Add a breakpoint in debug mode

Add List Of Markers To Mapboxl

Element: MapboxMap_New

Longitudes: Search for Recommendations:each item's Longitude

Latitudes: Search for Recommendations:each item's Latitude

Popup Content: Search for Recommendations:each item's Name of Restaurant

Draggable: no

CUSTOM ICON INPUTS

You can use custom images/icons for your markers using the below two fields. If you add an icon to the 'Icon Image (Single)' field, that icon will be used for all of the markers. If you add a list of icons to the 'Icon Image (Multiple)' field, each marker will use the icon associated with it's data point.

Appendix 5: Activity Page & Recommendation Page Workflows

Page: map-activity-page Add Location is clicked Edit Saved

When Page is loaded

When Add Location is clicked

When Button Join is clicked and Parent group's Activity's Listofjoined-user contains Current User



When Button Join is clicked and Parent group's Activity's Listofjoined-user doesn't contain Current User

When Group - Location-v2 is clicked

Step 1 Create a new Activity... delete

Step 2 Reset relevant inputs

Click here to add an action...

Page: map-recommendation-page Add Recommendation is clicked Edit Saved   0 i

When Page is loaded

When Add Recommendation is clicked

When Button Safe Recommendation is clicked

When Button Unsave Recommendation is clicked

When Group - Location-v2 is clicked

Step 1 Create a new Recommendation...

Step 2 Reset relevant inputs

Click here to add an action...

Create a new Activity...

Type: Activity

Address = SearchBox - Address's value

Info = Input - info's value

Start and End Time = Input - Time's value

Longitude = SearchBox - Address's value's longitude

Latitude = SearchBox - Address's value's latitude

Image = PictureUploader A's value

Name of Restaurant = Input - Name of Restaurant's value

Create a new Recommendation.

Type: Recommendation

Address of Restaurant = SearchBox - Address - Recommendation's value

Name of Restaurant = Input - Name of Restaurant's value

Type of Restaurant add: Dropdown A's value

Type of Cuisine add: Dropdown - Cuisine's value

Ratings = StarRating A's value

Comment = Input - Your Review's value

Images = Multi-FileUploader A's value

Longitude = SearchBox - Address - Recommendation's value's longitude

Latitude = SearchBox - Address - Recommendation's value's latitude

Add List Of Markers To MapboxI

Element: MapboxMap A

Longitudes: Search for Recommendations:each item's Longitude

Latitudes: Search for Recommendations:each item's Latitude

Popup Content: Search for Recommendations:each item's Name of Restaurant

Draggable: no

Fly to Location MapboxMap A

Element: MapboxMap A

Longitude: Current cell's Recommendation's Longitude

Latitude: Current cell's Recommendation's Latitude

Show Popup: "yes"

Popup Content: Arbitrary text

Zoom: 15

Speed: 4

Appendix 6: Home Page Workflows

Page: user-homepage Button Post is clicked Edit Saved 0 Issues Main Preview

When Button Follow is clicked

When Button Post is clicked

When Button Unfollow is clicked

When Icon feather heart is clicked and Parent group's user multiple photo post's ListofLikers contains Current User

When Icon feather heart is clicked and Parent group's user multiple photo post's ListofLikers doesn't contain Current User

When Icon fontawesome-6 regula is clicked

When Icon phosphor closed eye is clicked

When Icon phosphor opened eye is clicked

Step 1 Create a new User Comment... → Step 2 Reset relevant inputs → Step 3 Make changes to user multiple photo post... → Step 4 Make changes to current user → Click here to add an action...

When Image profile photo is clicked

Click here to add an event...

Make changes to current user

Following remove Parent group's user multiple photo post's Creator

+ Change another field

Add all fields

Only when Parent group's user multiple photo post's Creator is not Current User

Add a breakpoint in debug mode

Make changes to current user

Following add Parent group's user multiple photo post's Creator

+ Change another field

Add all fields

Only when Parent group's user multiple photo post's Creator is not Current User

Add a breakpoint in debug mode

Go to page user-profile-page

Destination user-profile-page

Data to send Parent group's user multiple photo post's Creator

Open in a new tab

Send current page parameters

Send more parameters to the page

Only when Click

Add a breakpoint in debug mode

Appendix 7: Down Title Reusable Element Workflows

Reusable: done title | Icon ionic outlined perso is clicked | Edit | Saved

When
Icon ionic outlined perso is clicked

When
Icon material outlined lo is clicked

When
Icon material outlined re is clicked

When
Icon material regular hom is clicked

Step 1
Go to page user-profile-page delete

→ Click here to add an action...

Go to page user-profile-page

Destination: user-profile-page

Data to send: Current User

Open in a new tab:

Send current page parameters:

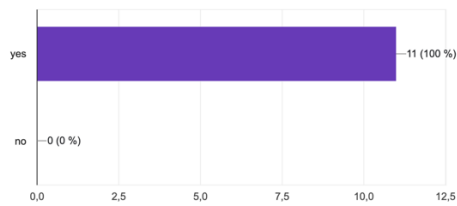
Send more parameters to the page:

Only when: Click

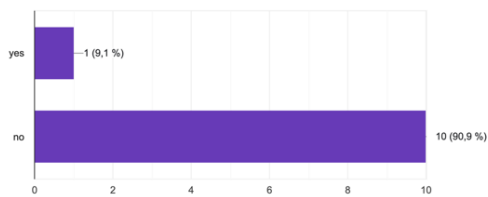
Add a breakpoint in debug mode:

Appendix 8: Survey 2: Nibble User Testing

Was the app easy to understand and navigate?
11 Antworten



Did you experience any difficulties while using the app?
11 Antworten



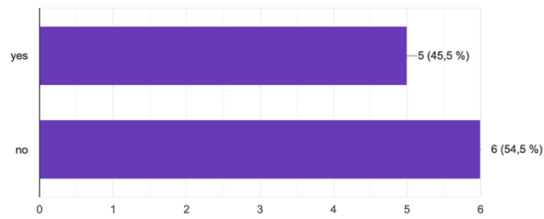
If yes, please describe the issue.

1 Antwort

Jumping to the Recommendation

Map Function: Were you able to view your saved recommendations on the map?

11 Antworten



Map Function:

What improvements, if any, would you suggest for the map feature?

11 Antworten

- If I can See what I save of recommendation, that will be good
- No, I think it's good.
- I want to See the saved recommendations in map.
- If I click the recommendation, it can jump to the map to show, that will be great.
- I only can See what I Post on map, but Not what I saved.
- More Icons
- I want to See more detail Info when I click the Marker, now it only Show the Name of the Restaurant.
- I think for a MVP, it's more than enough now, but If I can Check what I have that will be good.
- No, it is good now.

Posting Recommendations:

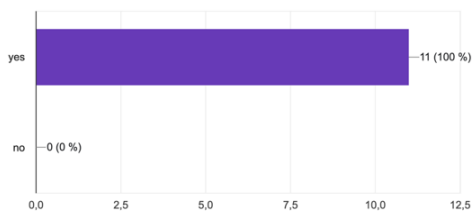
What improvements, if any, would you suggest for the map feature?

11 Antworten

- No, I think it is good.
- If I click the Marker in the map can also Show detailed information.
- When I use my Computer to click each recommendations, it jumps to the map, but on the Phone it doesn't Work. This can be improved in the Future.
- I didn't receive a reminder after I click Post, so I am a little bit lost at that time.
- I think this is good.
- None
- I want to have the recommendations Base on my interested, avoid the other recommendations away.
- No, it is good
- When I click the Marker on the map, I Hope it can See more Detail instead of only a Name.

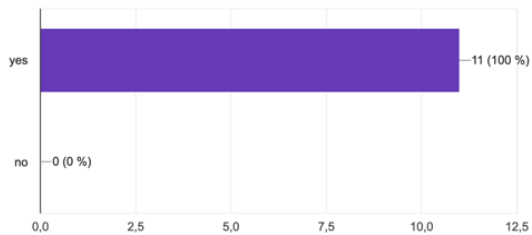
Posting Recommendation: Did the process feel intuitive?

11 Antworten



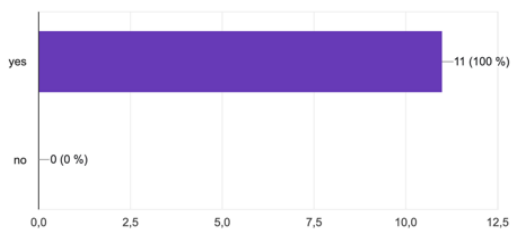
User Profiles and Social Features: Were you able to view posts and comments from other users?

11 Antworten



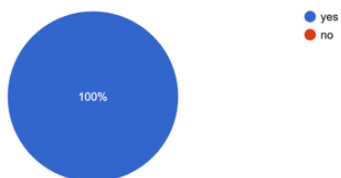
User Profiles and Social Features: Did you find the posts/comments section engaging?

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User Profiles and Social Features: Was adding a comment to a post easy and intuitive?

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User Profiles and Social Features:

What improvements would you suggest for the profiles or social features?

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It is good now

No, it is good now.

Maybe Text to the other Person can also be include in Nibble.

No, I think it is good, I Like the color and the pattern Nibble has.

I want to text the other person through Nibble.

I think it is already really good.

More spacing in-between

Profile is good, I Like it.

No, I Like now.

Section 3: Overall Experience

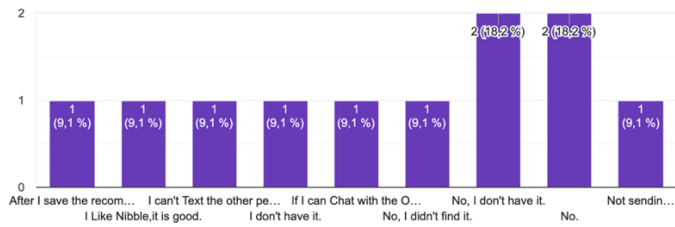
What did you like most about the app?

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- The Profile Page is good, it make me understand the other User immediately.
- I Like the Homepage, it divide the content really clearly, so I can only Check the Page which I am interested in
- I think Overall it's good, I Like each Part, really New App.
- I Like the map function, It is really convenient for me to know the Restaurant and Activity Location
- I think the map is great, make me know the restaurant location immediately
- I Like the Activity Part, It really give me a way to meet New people and friends, really useful.
- The recommendation function to safe
- I Like the Profile, really clearly divide the content, and the Design also Looks good.
- I like the Homenaee. so I can Check the Friends Posts immediately. without other Stranoeer Posts.

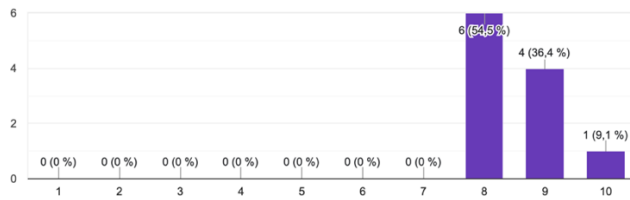
What did you find most frustrating or least useful?

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On a scale of 1-10, how likely are you to recommend this app to a friend when the app is fully functioning

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Do you have any other comments, suggestions, or ideas you'd like to share?

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- No, it is good for an MVP
- If the suggestion can base on my interested and behaviour that will be good.
- No, it's good.
- If we have personalized suggestions for Activity and recommendation will be good.
- After I post, I want a reminder message.
- No, perfect MVP!
- Continue
- No
- No, it is good.