CS 320 Ethic HW 2 – Team 9

Task 1

Mention the name of your project. Mention your group number. List all of your group members, including your manager.

- **Name of our project:** Travel Planner
- **Group Number:** 9
- **Group Members:**
    - Anne-Colombe Sinkpon
    - Haiyi Cai
    - Hung Minh Ngo
- **Manager:** Mahika Arora

Task 2

During the first ethics assignment, you mentioned potential ethical considerations you might need to be aware of during the development of your project. Now, reflect back on those same considerations, and discuss how you handled them during this semester.

- *for those moments when you did handle them, mention how your work was affected by the consideration, what decisions you made, and why.*
- *for those moments when you DID NOT handle them, explain why, and discuss how you might do things differently if you were to do things over. No judgement here! This is a moment to reflect on our work and learn.*

1. **Accessibility Consideration:**

In our initial ethics assignment, we emphasized the importance of accommodating users with disabilities while acknowledging potential technical limitations. We prioritized adhering to the following principles:

- Principle 1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.
- 1.2 Avoid harm,
- Principle 1.3 Be honest and trustworthy,

- Principle 1.4 Be fair and take action not to discriminate.
- Principle 2.3, Maintain high standards of professional competence, conduct, and ethical practice. (respect existing professional guidelines throughout the design and development process, incorporating basic accessibility functions to serve a broader range of users.)

What we handled:

- **Allowing text resizing** to accommodate visually impaired users. Despite the limited size of phone screens, key components like calendar events offer flexible views, such as day and week views, with adjustable box dimensions for height and width to enhance usability.
- **Using simple language** for instructions, labels, and common icons to ensure clarity for users with cognitive challenges. Icons are integrated into nearly all text-related components, including activity cards, calendar events, and community posts. Our feed page design takes inspiration from popular social media platforms, following widely recognized styles to ensure an intuitive user experience.
- **Adding alternative text** for images to assist users relying on screen readers.
- **Allowing users to customize the color palette** to ensure a more inclusive user experience for individuals with diverse visual preferences or needs. This customization is available in areas like the calendar, avatar, and background color of certain pages. However, to maintain consistency and avoid distractions, we limit color customization to more personal sections, such as the calendar and profile pages, and exclude elements like the search bar and navigation bar. Additionally, we use two main pastel colors as the primary palette to create a light, yet professional tone throughout the app.
- **Personalized feedback and notifications** such as a large welcoming banner provides feedback during user authentication, confirming successful login. An attractive notification banner also appears when users add activities to their list or create new posts.

Impact on the work:

These features were straightforward to implement and required minimal additional effort, meaning our workflow was mostly unaffected.

What we didn’t handle:

As mentioned in our first homework, we didn't prioritize implementing all the necessary accessibility features due to time constraints and limited technical expertise. It was challenging to figure out how to provide comprehensive solutions for all types of disabilities. If we were to approach this differently, we would start searching for ways to incorporate accessibility features much earlier in the process. For instance, we don't currently have full click-to-speech functionality, and some of the images we pull from Google search don't always have meaningful attribute tags. For example, a hotel image might be correctly identified as a hotel visually, but the click-to-speech feature on some devices may incorrectly describe it as a restaurant.

2. **Security consideration:**

We mentioned implementing the "1.2 avoid harm" principle by ensuring user safety, particularly by safeguarding minors from inappropriate environments and avoiding directing users to unsafe areas.

What we handled:

- We ensure events include as much information as possible (when available via the API). Since web scraping can occasionally be inaccurate, we manually proofread the data before it enters the database. Additionally, the source is publicly accessible, and we clearly state the data scraped from Google search. This allows users to visit the sources directly and verify the information, even though we've already checked it.
- We do not request or use our users' live location. Instead, we ask them to enter their desired location manually. This decision was made to prioritize user safety and privacy. By not collecting or storing user location data, we reduce the risk of exposure to external threats, as we do not hold or retain location information in our database or any other medium.
- To provide accurate geocoding information, which is crucial for our app—helping users know the exact location of activities or hotels—we use a separate official geocoding API, GeoApify, rather than relying on web scraping data. This ensures precise and reliable location details.
- We limit calendar sharing to the user's friends list, ensuring that itineraries are visible only to selected friends. The calendar is otherwise private, protecting user privacy and preventing any potential leakage of itinerary details. No outsider can view a user's past activities unless the user chooses to share their calendar on the community page for public reference. Invitations can only be sent to trusted accounts that the user has

connected with and sent friend requests to. As a result, only invited friends can view the current calendar and contribute their own ideas.

Impact on the work:

These considerations did not require too much effort to implement so it did not really impact our workflow. It was easier to implement this than it would have been with live location.

What we didn't handle:

- We did not filter events based on age restrictions or safety conditions because of how hard it would have been to determine. The API we used did not explicitly provide information about age restriction or degree of safety. It was also hard to create a mechanism to determine that ourselves since our project relied on a web scraping API, which often provided inconsistent data.
- Given the constraints of our current API, we would likely not change our approach unless a more reliable and robust API became available that could offer explicit details about age restrictions and safety conditions. If such an API were available, we could consider integrating these filters into the user experience, allowing for safer and more personalized event recommendations. Another potential improvement would be to incorporate user-generated reviews or safety ratings, which could provide more context and help fill in the gaps left by the current data sources.
- The suggested calendars on our community pages are not currently regulated based on the context or content of the activities within those calendars. As a result, they may contain insensitive or inappropriate information that could be unsuitable for some users. Additionally, there is a risk that malicious users could flood the community page by creating harmful or inappropriate calendars, potentially compromising the user experience and safety of the platform.

3. **Confidentiality Consideration:**

We emphasized protecting user data and maintaining confidentiality throughout the project by following:

- Principle 1.6 Respect privacy,
- Principle 1.7 Honor confidentiality,
- Principle 2.9 Design and implement systems that are robustly and usably secure.

What we handled:

- We do not ask nor use our user's live location, instead we ask them to enter the desired location themselves. We decided not to ask for our user's location to ensure their safety and privacy.
- We only allow a user to share their calendar with a user they are friends with. This allows the user to plan events with other people while making sure their itinerary is only available to people they trust.
- The activity suggestions on our search page are not influenced by any external sources or specific APIs. For example, if we were using an API like Yelp or another popular event API, there could be a risk of sponsored locations or hotel restaurants being prioritized in the suggestions, as they may be favored in the API's database. However, our API relies on web scraping from Google Search, which is not subject to such biases, as Google follows strict policies that ensure no preferential treatment for partnerships when delivering information through its search bar. Additionally, the suggestions are based on the user's past activities, rather than external sources, ensuring a more personalized and unbiased experience.

Impact on the work:

These considerations did not require too much effort to implement so it did not really impact our workflow. It was actually easier to implement this than it would have been with live location.

What we didn't handle:

We handled the user's confidentiality the way we wanted to. We do not collect personal information from our users and thus do not use it for anything in or outside the app. We do not track our users in any way, which contributes to a secure user experience.

We have not yet tested our system's robustness against external attacks such as DDoS or potential database hacks. Currently, our database is running locally, which provides some level of isolation. However, if a hacker were to gain access to the backend and obtain sensitive information like the database key or IP address, they could potentially compromise the system. This highlights the need for further security measures, such as encryption, firewalls, and secure authentication protocols, to safeguard our database from unauthorized access.

For *Principle 2: Client and Employer*, found at
https://ethics.acm.org/code-of-ethics/software-engineering-code/

We discussed maintaining confidentiality, by adhering to the following principles:

- 2.01. Provide service in their areas of competence, being honest and forthright about any limitations of their experience and education.
- 2.03. Use the property of a client or employer only in ways properly authorized, and with the client's or employer's knowledge and consent.
- 2.04. Ensure that any document upon which they rely has been approved, when required, by someone authorized to approve it.
- 2.05. Keep private any confidential information gained in their professional work, where such confidentiality is consistent with the public interest and consistent with the law.

What we handled:

- We took great care to keep our clients informed at every stage of the process. We ensured transparency by openly discussing any challenges we faced, proposing possible solutions, and incorporating the suggestions they provided, if any. This approach helped maintain a strong relationship with our clients and allowed for collaboration and input throughout the development cycle.
- We also made sure to maintain the confidentiality of our clients, especially regarding sensitive aspects like their ideas, project scope, plans, and specific features they wanted us to develop. This commitment to confidentiality extended to any data or intellectual property provided by the client. We refrained from using any sensitive information in our projects that could compromise the client's privacy or expose their proprietary ideas.
- In terms of project management, we adhered to the principle of only proceeding with design implementation after receiving formal approval from the client. This ensured that our work was aligned with their expectations and met the necessary standards.
- We also ensured that no business-related information regarding the app's development was shared, as there were no sensitive business discussions or agreements involved that would require such confidentiality.

Impact on the work:

Regular check-ins with our clients sometimes took more time, causing delays in receiving feedback. To keep things moving forward, we decided to proceed with certain solutions while keeping our clients updated. This approach helped us stay on track and meet deadlines, while

still respecting the client's input and approval. Although these decisions weren't always easy, they were necessary to finish features on time. Overall, maintaining our client's confidentiality didn't affect the quality of our work, as it was something we prioritized throughout the project.

What we didn't handle:

- While we made every effort to maintain confidentiality in terms of client ideas and sensitive information, there were certain aspects we could not fully protect. Specifically, we did not keep UI design details private before deployment. The design elements, including wireframes and user interface components, were stored in our group's public GitHub repository. Given that this was a class project with the need for collaborative work and submission, it made sense for the team to have access to all code and design elements. Since this project was intended for educational purposes, and the goal was to work together and showcase our progress, hiding the code or design files would have been counterproductive.

  Given these circumstances, we do not believe there is anything we would change about our approach.