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MCDA 5530 - UI/UX DESIGN QUALITY AND ENGINEERING

PROJECT TITLE: TRAVEL BUDDY

A07: FINAL PROJECT REPORT

TEAM MEMBERS (TEAM 2)

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GROUP MEMBERS AND THEIR RESPECTIVE CONTRIBUTIONS

Task	Francis	Arpan	Rashad	Kamaljeet
A01	Wrote about **Clear Definitions of Problems to be Addressed** Section **Document Compilation**	Wrote **Problem Statement, Motivation and Assumptions** Sections	Wrote about **Survey of Existing Problems** Section	Wrote about **Survey of Existing Solutions** Section
A02	**Created the ppt** for the presentation Explained the **Survey of Existing Solutions** from ppt	Explained the **Survey of Existing Problems** from ppt	Explained about the **Challenges faced by tourist** from ppt	Explained about the **Problem Statement, Motivation and End User** from ppt
A04a	**Created Questions** for Questionnaire Wrote **Observation and Inference** for few questions **Document Compilation**	**Created Questions** for Questionnaire Wrote **Observation and Inference** for few questions	**Created Questions** for Questionnaire Wrote **Observation and Inference** for few questions	**Created Questions** for Questionnaire Wrote **Observation and Inference** for few questions
A04b	Gathered **Functional Requirements** Made **Initial Sketches** Compiled **all sketches into one** and **document creation**	Gathered **Non-Functional Requirements** Made **Initial Sketches**	Gathered **Data Requirements** Made **Initial Sketches**	Gathered **Environment Requirements** Made **Initial Sketches**
A05	Performed **Heuristic Evaluation** for **Team 1** **Refined** Initial Sketches **Document Compilation**	Performed **Heuristic Evaluation** for **Team 1** **Refined** Initial Sketches	Performed **Heuristic Evaluation** for **Team 1** **Refined** Initial Sketches	Performed **Heuristic Evaluation** for **Team 1** **Refined** Initial Sketches

A06	Wrote **Test Cases** **Document Compilation**	Wrote **Test Cases**	Wrote **Test Cases**	Wrote **Test Cases**
A07	Contributed in making **prototype pages** Created **Video for Prototype Demo** Created **Conclusion and Future Work** Slide and explained about the same Final **Document Compilation**	Contributed in making **prototype pages** Created **A01: Project Proposal Slide** and **Explained** the same along with **Problem Statement, Scope, and Motivation**	Contributed in making **prototype pages** **Created A04: Questionnaire Slide and Explained** the same along with **Design thinking workshop activities**	Contributed in making **prototype pages** Created **A05 & A06: Heuristic Evaluation and QA Testing Slide** and explained about the same

END USER (NORTH STAR)

Tourists who have a limited amount of time to explore nature attractions in a new town.

SCOPE/OBJECTIVE

Developing technological solutions that allow humans to (re-)connect with nature.

PROBLEM STATEMENT

We aim to provide a technological solution which provides tourists with enhanced nature experiences within a limited timeframe, thereby making their trips more enjoyable.

MOTIVATION OF THE PROJECT

Covid-19 has been undoubtedly the biggest pandemic the world has ever witnessed. One of the major transformations to occur during covid, has been digital transformation. From the most essential utilities, education, work and socialization, technological solutions have got it covered. While nations are slowly switching to new-normal, the biggest desire every individual has, is to explore the world and interact with nature as sedentary lifestyle has inhibited interactions with nature.

Our vision is to foster a relationship between people and nature. We aim at providing a technological solution which provides tourists with enhanced nature experiences within a limited timeframe, thereby making their trips more enjoyable. We focus on guiding users to charter their vacation with vivid nature attractions and engaging nature activities based on personalized choices.

CLEAR DEFINITION OF PROBLEMS TO BE ADDRESSED

There are multiple challenges experienced by tourists who would like to visit nature attractions of the town they are visiting. Following below addresses few issues.

Table 1: Challenges

SNO	CHALLENGE	DESCRIPTION
1	*Time Management*	Since tourists have less timeframe, hence utilizing the time effectively to maximize nature visits (e.g.: forest, lakes, mountains, caves and much more) and engaging in various activities such as (kayaking, ice skating, skiing, bike trailing etc) is a difficult challenge. Hence charting an optimized personal plan of visiting maximum places within the given timeframe is inevitable.
2	*Range of Options*	It's a difficult task for tourists to decide, which nature attractive spots to visit, and activities to undertake from plethora of options available. This

		issue occurs mainly to users who enjoy all nature attractions and not inclined towards any nature attractions and activities.
3	*Communication*	Tourists may not understand the vernacular language of the city, hence communication becomes difficult. Tourists who are exploring new town with family/friends' group must cater the interest of all individuals in the group. Hence extreme clarity is required to cover maximum nature spots and activities. Since internet is flooded with information about each nature spots. Hence tourists may find information gathering cumbersome.
4	*Safety*	Tourists undertaking various activities in nature (e.g.: trailing, kayaking, Ice Skating and much more) may not be familiar with the safety protocols or the resources required and possibly unaware of the risk associated with the activity.
5	*Emergency Situations*	While undertaking any sought of activities in nature, there are possibilities of losing track of pathway, injuries, metabolic imbalances and much more, resulting in losing control of situations, and entering panic mode. For e.g.: Drowning in water, getting stuck inside the forest, slips etc.
6	*Weather*	Weather can play spoilsport in travel plans, prohibiting doing activities and restricting visiting places.
7	*Transportation*	Tourists must figure out the best way to reach the destination (Rent a Car, taxi service etc), as public transports may not be available to certain nature spots.
8	*Rules & Regulations*	There are possibilities where governing officials of the country or of nature spots can impose restrictions, ones which might oppose the decisions of tourists. Hence tourists need to be updated regularly.

ASSUMPTIONS

Following are few assumptions made, while defining the problems experienced by target users.

Table 2: Assumption Made

SNO	ASSUMPTION	DESCRIPTION
1	*Accompany*	Tourists can be a solo traveller or ones who come with family/friends or via tours and travel agency.
2	*Age*	Tourists can be of any age group.
3	*Transportation*	a) Travelling on their own car b) Dependent on public transport.

SURVEY OF EXISTING/RELATED PROBLEMS OR SOLUTIONS

Our next task is to conduct a survey of existing problems or solutions. Firstly, we focus on the problems associated with tourist while interacting with platforms which helps to plan their trips to visit nature attractions, furthermore we provide listings of few platforms along with their pros and cons. Information mentioned below is based on the survey conducted from the internet.

[1] Cluttered Information's: article mentions about how cluttered information can affect the ease with which tourist can plan his/her nature trip.

Some websites overload their user with too much information resulting in a heavy cognitive load. Keeping it simple lets the user focus on the task at hand.

[2] Lack of Personalization: Each tourist will be having discrete preferences about which place to visit. Hence personalization is a big factor in attracting users to interact with nature more profoundly.

When new visitors land on your page, recommendations and popular destinations are ideal for creating inspiration if they are not set on where to go.

On the other hand, returning visitors should be greeted with recently viewed or recently searched offers that give them a more personalised experience. Returning users are 2x more likely to purchase during a session, hence the importance of personalising the page.

[3] An Interactive Offline Map: biggest tool while travelling is undoubtedly maps. Maps provide guidance when we lose pathway, making it an essential utility. Most platforms provide maps which works online, but scope of offline maps hasn't been explored much.

An interactive map gives users a dynamic method of searching. Maps that refresh the search parameters based on geography or destination-based pricing can also be a source of inspiration for travellers.

[4] Mentioning Reviews: Providing previous experiences is an essential factor in decision making of users.

Social proof is an important driver to attract more users.

[5] Attention to Detail: Presenting the vibe of nature can ignite the motivation of users to interact with nature. Effective nature-oriented designs can play a major factor gaining the trust of users.

However, the differentiating factor for getting your users to interact with nature rests on the platform's ability to inspire wanderlust.

Up next, we explore few platforms which aide tourist to visit nature attractive places and mention about the pros and cons which we have observed.

Table 3: Survey About Platforms

SNO	APP/PLATFORM	PROS	CONS
1	*Nature Tourism*	• App **exclusively** created to promote **Nature Tourism.** • Includes 10 **different categories** of nature associated task to help users pick their favourite task. • Includes **Map facilities** to guide users in their trip.	• App is designed to promote **nature tourism** in Latvia. App contains details of nature spots and activities in **Latvia**. • App does not provide latest **real-time updates regarding any restrictions** to go to that place or early closures. • Lack of **individual and group personalization's** where destinations are **filtered** based on the interest of multiple members of the group.
2	*TripAdvisor*	• **Suggest various famous** and must visit places to users to choose from. • Provides **various modes of transportation** to reaching the destination. • Provides **feedback of users** who have previously visited the place.	• TripAdvisor is **not a website exclusively focussing on nature** attractions. Hence users might **get distracted** and may deviate from visiting nature attractions, unless having strong motivation. • Services provided by TripAdvisor are **paid**. Users

			might turn down that options as it might **not be cost effective.** • TripAdvisor does not provide latest **real-time updates regarding any restrictions** to go to that place or early closures. • Lack of **individual and group personalization's** where destinations are **filtered** based on the interest of multiple members of the group. • Does not include information **educating beginners** who are undertaking a new nature related activity.
3	*Wanderlog*	• Aide users to **chart down** their entire vacations interactively. • Provides **feedback of users** who have previously visited the place. • Lists down the **famous places** of that city. • Provides **budget calculator to** keep track of the **expenses.**	• Wanderlog is **not a website exclusively focussing on nature** attractions. Hence users might **get distracted** and may deviate from visiting nature attractions, unless having strong motivation. • Lack of **individual and group personalization's** where destinations are **filtered** based on the interest of multiple members of the group. • To access **best services, paid subscriptions** is required. • Wanderlog does not provide latest **real-time updates regarding any restrictions** to go to that place or early closures. • Does not include information **educating beginners** who are

			undertaking a new nature related activity.
4	*Tripit*	• It gives **weather information** for the selected city in a trip. • It provides nearby **search option** in google map. • User can add trip details and create plan itinerary.	• There is **no specific location search option** for natural places. • It more **focus on whole trip** instead of travel locations. • Not provide **facility to arrange** and plan for **visiting multiple** travel place within time limit.
5	*Roadtrippers*	• Option to **search** hotel, restaurants, petrol pump and all throughout the trip. • Added special option to search for activities for **road trip**. • Option to see **trip guide**.	• No specific option to view **locations in or near by the city**. • Not focusing on **natural place** • Not focusing on traveller's **timetable** or **preferences** to visit place.
6	*YouTube Videos*	• Some users upload **vlogs** which helps attain more **realistic feedbacks.** • YouTube is a great platform for **beginners** to **visually perceive** how the activity is performed and obtain great **learning** and **safety tips**.	• As video are being uploaded by various people, hence **reliability** of the information provided **is doubtful**. • Since multiple videos related to same topic is provided, users can get bewildered, as to which **option to choose**.

QUESTIONNAIRE

UI/UX QUESTIONNAIRE

We would greatly appreciate your valuable feedback for helping us create sophisticated technological solution that can enhance the interaction between humans and nature.

Intro Information

Which of the following natural places would you prefer to visit ? *

- [ ] Wildlife Reserves
- [ ] Hill Stations
- [ ] Waterfalls

- [ ] Botanical Gardens
- [ ] Hiking Trails
- [ ] Ocean
- [ ] Mountain Ranges
- [ ] Parks
- [ ] Caves
- [ ] Archaeological sites
- [ ] Forest
- [ ] Other: _____

Q1

Which all activities would you prefer to do ? *

- [ ] Scuba Diving
- [ ] Para Gliding
- [ ] Bungee Jumping

- [ ] Bungee Jumping
- [ ] Ice Skating
- [ ] Kayaking
- [ ] Bike and Cycling Trailing
- [ ] Hiking
- [ ] Star Gazing
- [ ] Fly-Fishing
- [ ] Rock Climbing
- [ ] Camping
- [ ] Stand-up Paddle boarding
- [ ] Other: _____

Q2

Have you had trouble choosing between multiple nature spots or activities ? *

	1	2	3	4	5	
Never	○	○	○	○	○	Always

Q3

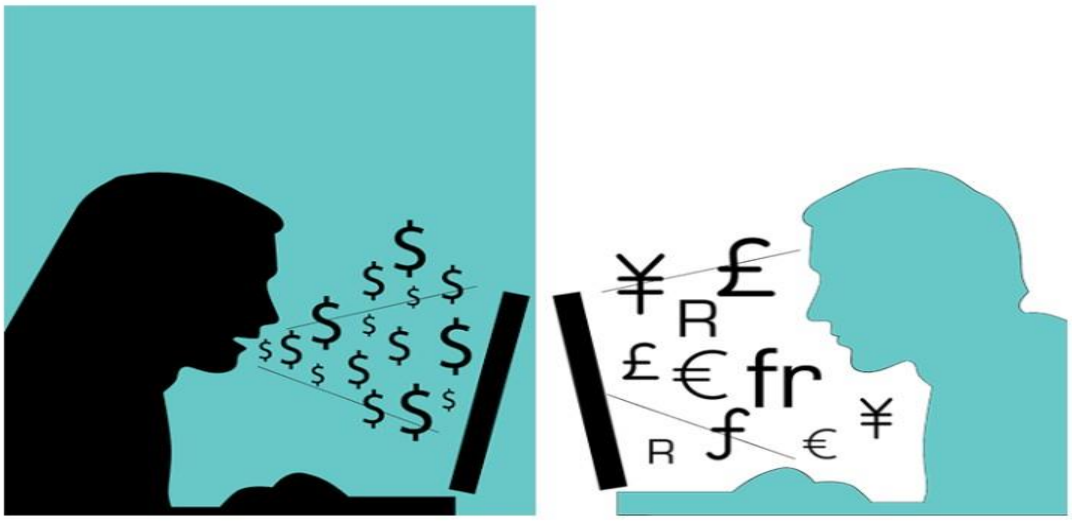
In how many instances has your trip been affected by lack of weather information ? *

- ◯ Many Times (6 and above)
- ◯ Few Times (1 to 5)
- ◯ None

Q4

While traveling, have you faced miscommunication issues due to communication barriers ? *

(Note) Communication Barriers Includes: Language Barrier, No Mobile Data, Misinformation from Website/local People etc.



	1	2	3	4	5	
Never	◯	◯	◯	◯	◯	Always

Q5

Has lack of planning ever affected your overall trip experience ?

	1	2	3	4	5	
Never	○	○	○	○	○	Always

Q6

What mode of transport would you prefer while visiting nature spots ? *

- [ ] Public Transport
- [ ] Private Transport (Own Vehicle, or Friends, Relatives and Neighbors Vehicle)
- [ ] Rental
- [ ] Other: _____

Q7

How do you rate your expertise in using mobile phones ? *

	1	2	3	4	5	
Beginner	○	○	○	○	○	Expert User

Q8

How likely would you prefer a personal guide, while visiting nature spots and undertaking nature activities ? *

	1	2	3	4	5	
Never	○	○	○	○	○	Always

Q9

Would you prefer to visit nature spots with a group ? *

	1	2	3	4	5	
Never	○	○	○	○	○	Always

Q10

How often do you go through the safety protocols before travelling to nature spot ? *

	1	2	3	4	5	
Rarely	○	○	○	○	○	Always

Q11

How essential is to have prior knowledge about the location you are visiting ? *

	1	2	3	4	5	
Not Essential	○	○	○	○	○	Very Essential

Q12

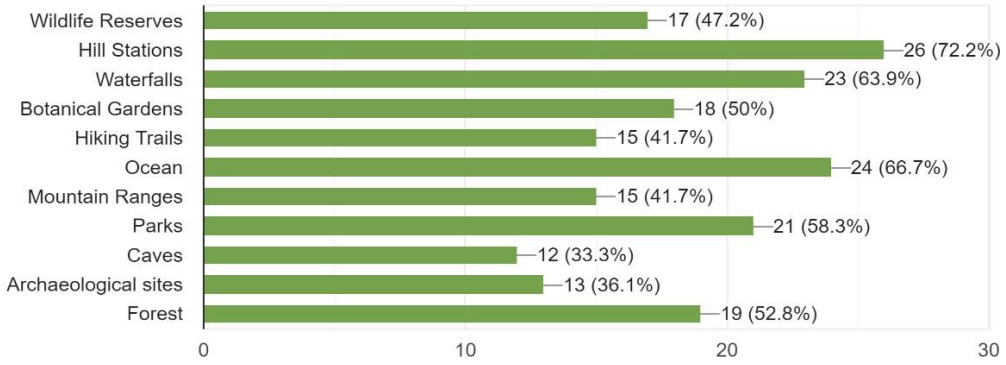
ANALYSIS & VISUALIZATION OF THE REVIEWS

We obtained **36 responses** for our forms (Forms filled out by Classmates, Friends, and Family). Analysis and visualization of each response's reviews are provided below.

QUESTION 1

Which of the following natural places would you prefer to visit ?

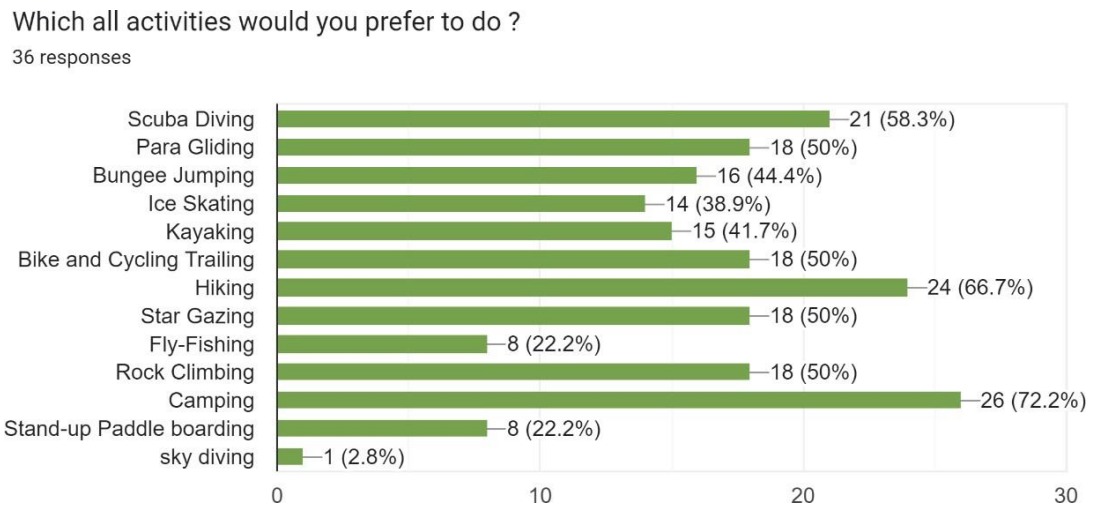
36 responses



Analysis: We provided options that include **11 different nature spots** along with **other** option for users to enter nature spots that are not included in the list. Users could **choose multiple nature spots** from the list. Based on the responses we can infer that majority of users prefer to visit multiple nature spots. **Hill stations** are the **most preferred** nature spot **(72.2%)** followed by **Ocean (66.7%)** and **Waterfalls (63.9%)**. The **least preferred** spot based on observation is **Archaeological Sites (36.1%).**

Inference: Responses have provided us with **strong insights** on **providing all 11 different categories in our nature app**. Based on **personalization**, users can choose the preferred location of each category of nature spots.

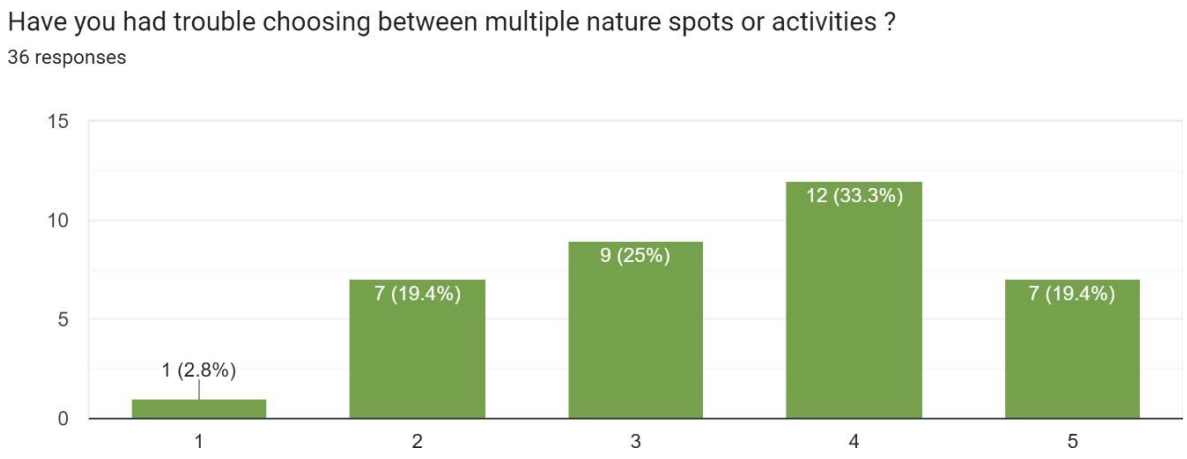
QUESTION 2



Analysis: We provided options that include **12 different nature activities** along with **other** option for users to enter nature activities that they prefer that are not included in the list. Users could **choose multiple nature** activities from the list. Based on the responses we can infer that majority of users prefer to engage in multiple nature activities. **Camping** is the **most preferred** nature activity **(72.2%)** followed by **Hiking (66.7%)** and **Scuba Diving (58.3%)**. The **least preferred nature activity** based on observation is **sky diving (2.8%)** (Note: this response was provided by the user in other section).

Inference: Responses have provided us with **strong insights** on **including all 12 different nature activities along with the sky diving option in our nature app**. Based on **personalization**, users can choose the preferred nature activities to engage in.

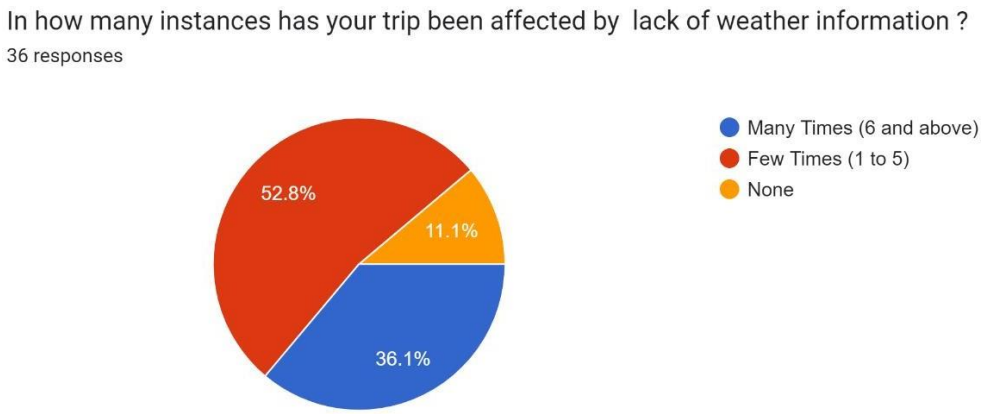
QUESTION 3



Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** have faced trouble **many times (33.3%), along with 25%** of users facing trouble **sometimes** in choosing between multiple nature spots. Furthermore, **19.4%** of users have faced this difficulty **every time** they wanted to travel. Lastly, almost **21%** of users **haven't had any difficulty** in choosing between multiple nature spots and activities.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users has faced trouble in choosing between multiple nature spots and activities **at least sometimes (77.7% in total).** Hence, we would **incorporate personalization** into our nature app platform to **aid users in their decision-making process.**

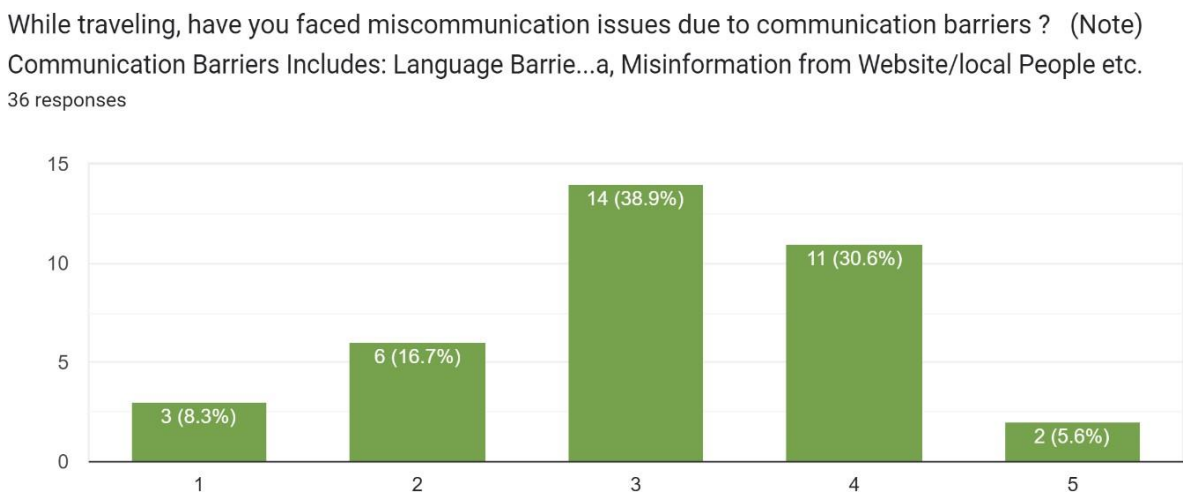
QUESTION 4



Analysis: We provided users with **three different options to choose from**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** trip has been spoiled a **few times (52.8%), along with 36.1%** of users facing trouble **many times** due to a lack of weather information. **11.1%** are **always updated** with weather information.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users has had their trips affected due to lack of weather information **at least a few times (88.9% in total).** Hence, we would **incorporate real-time weather updates along with, any closure updates of nature spots or nature activities,** based on the weather updates, into our nature app platform to **ensure users are always updated and have a wonderful experience.**

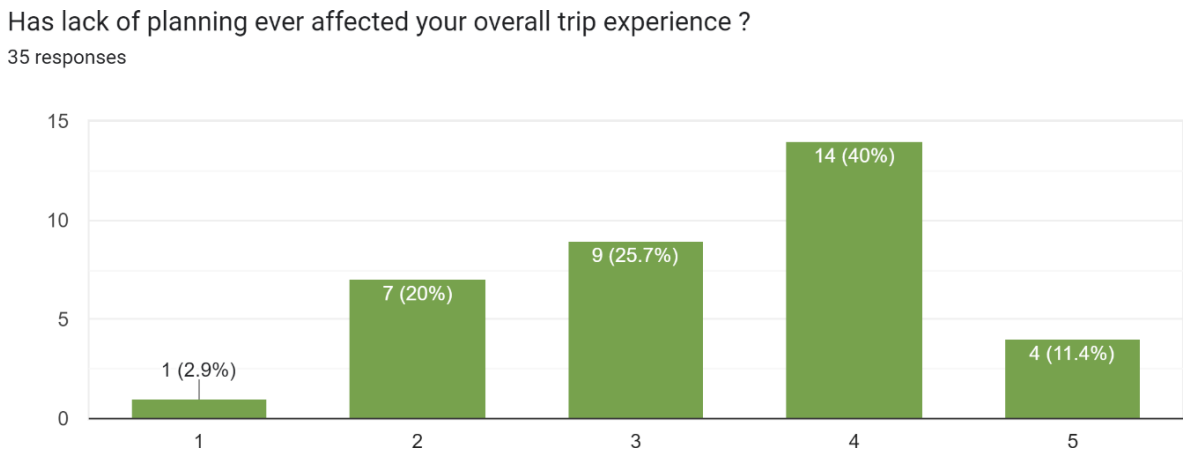
QUESTION 5



Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** have faced trouble communication issues **sometimes (38.9%), along with 30.6% of** users facing trouble **many times**. Furthermore, **5.6%** of users have faced this difficulty **every time** they travelled. Lastly, almost **25%** of users **haven't faced** any communication issues while traveling.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users has faced communication barriers **at least sometimes (75% in total).** Hence, we would **like to incorporate language translation capability** to counter language barriers along with **the inclusion of offline maps** to overcome barriers associated with the lack of data and the lack of guidance.

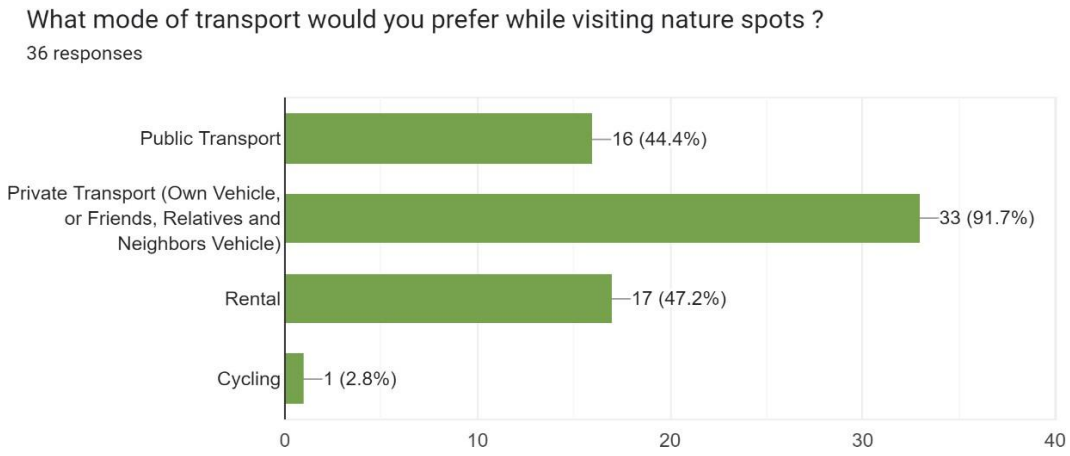
QUESTION 6



Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** have faced trouble with negative trip experiences due to **lack of planning many times (40%), along with 25.7% of users facing trouble sometimes**. Furthermore, **11.4%** of users have faced this difficulty **every time** they travel. Lastly, almost **23%** of users **haven't faced** any trouble due to a lack of planning while traveling.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users has had negative experiences due to lack of planning **at least sometimes (77% in total).** Hence, we would **like to incorporate trip planning capability** to ensure that the entire vacation of users is **well planned and well organized**.

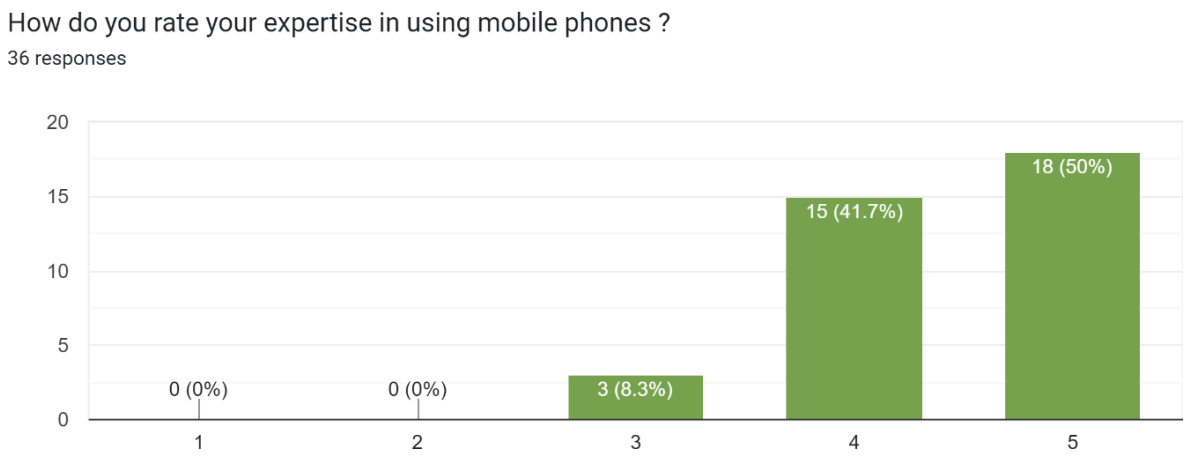
QUESTION 7



Analysis: We have provided four different options which include Public Transportation, Private Transportation, Rental Services, and Other. Users can choose multiple options from the list. **91.7%** of users prefer **Private transportation** which includes their own vehicle, a friend's or relative's, and a neighbour's vehicle. Furthermore, **47.2%** of users prefer **rental services**, and **44.4%** of users prefer **public transport**. One user has also mentioned cycling as a method of transportation.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users prefers private transportation. Hence, we would focus on providing details on **the estimated time and the shortest route** they should utilize for each transportation facility to reach the nature spot **faster** and utilize their **time more effectively**.

QUESTION 8



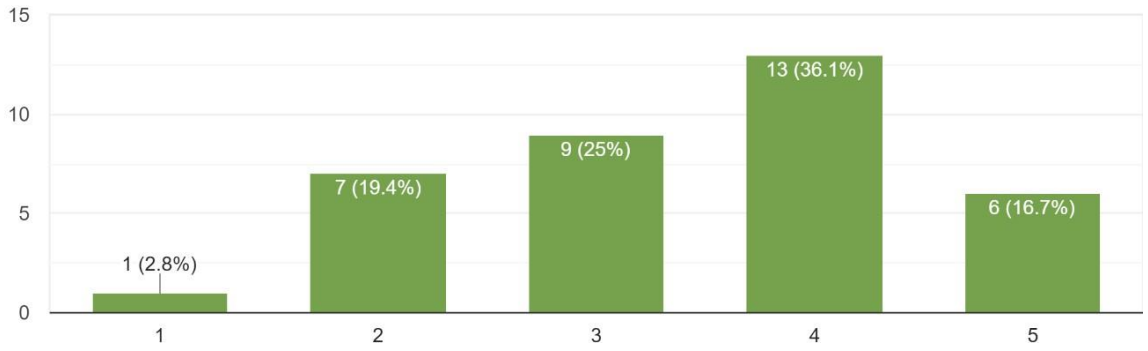
Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** are **experts (50%), along with 41.7% of very proficient**. Furthermore, the **remaining 8.3%** have an intermediate level of mobile usage expertise.

Inference: Based on the responses obtained, it is clearly identified that most of the users are familiar with using mobile phones and their associated features. Hence, **they would not require any training** in utilizing our mobile app.

QUESTION 9

How likely would you prefer a personal guide, while visiting nature spots and undertaking nature activities ?

36 responses



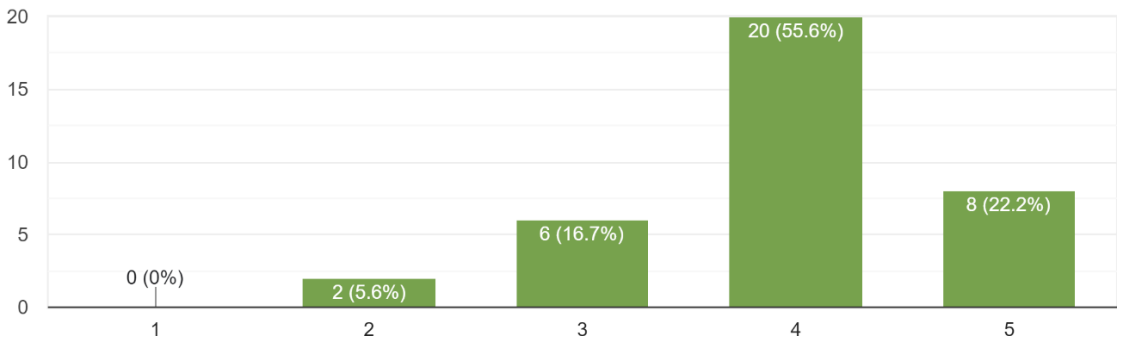
Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** prefer to have a personal guide, **many times (36.1%), along with 25% of users prefer to have one sometimes**. Furthermore, **16.7%** of users prefer to have **it every time** they travel. Lastly, almost **22%** of users **do not prefer** to have one.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users prefers to have a personal guide **at least sometimes (78% in total).** Hence, we would **like to incorporate a feature providing options for a personal guide to users** to ensure that they enjoy their trip without any hassle.

QUESTION 10

Would you prefer to visit nature spots with a group ?

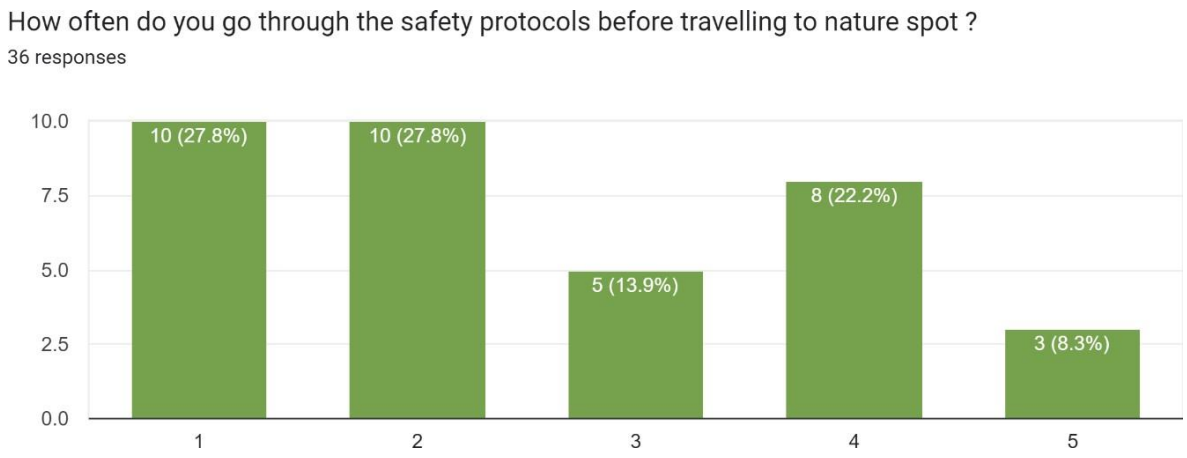
36 responses



Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** prefer to visit nature spots with groups, **most times (55.6%), along with 16.7% of users prefer to visit with groups sometimes**. Furthermore, **22.2%** of users prefer to visit with groups **every time** they travel. Lastly, only **5.6%** of users **do not prefer** to have one.

Inference: Based on the responses obtained, it is clearly understood that the major proportion of users prefers to visit nature spots and perform nature activities with groups **at least sometimes (94% in total).** Hence, we would **like to incorporate a community trip feature providing options for users** to enjoy their trip with a group of like-minded people.

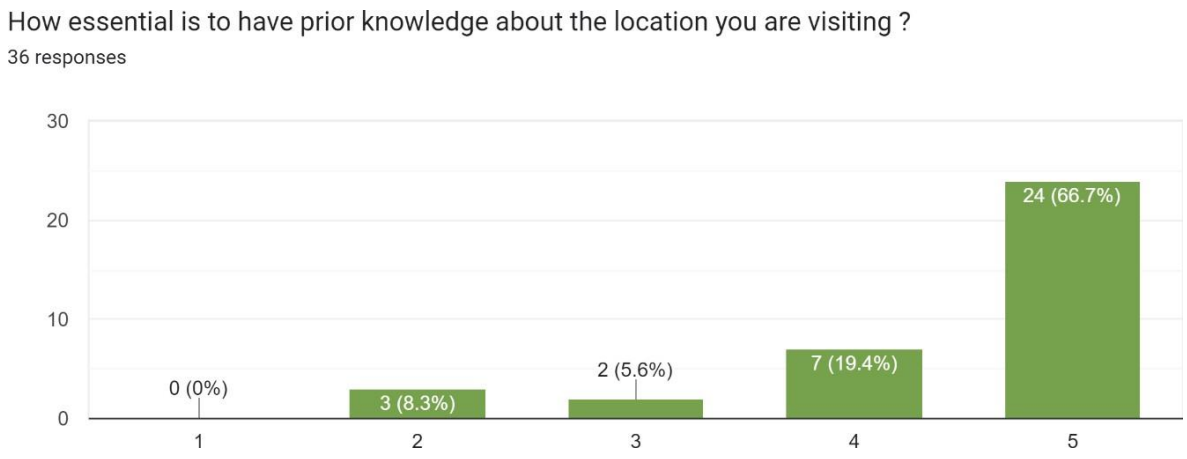
QUESTION 11



Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that **most users** do not read through the **safety protocols either rarely (27.8) or never (27.8%)**, Furthermore, **13.9%** of users go through the safety protocols on a few occasions. Lastly, only **30%** of users **go through the protocols** diligently.

Inference: Based on the responses obtained, it is clearly understood that the major proportion does not go through the safety protocols before traveling **(60% in total).** Hence, we would like to provide safety protocols in a **much more interactive and innovative** way, to ensure that users are **well-educated** about the **risks associated.**

QUESTION 12



Analysis: We provided users with a **Likert scale ranging from 0 (Never) to 5 (Always)**. Users can only choose one of the options from the list. Based on the responses, it is observed that users agree that it is **very essential** to have **prior information** about the nature spots and activities **(92%).**

Inference: Based on the responses obtained, it is clearly understood that the major proportion believes it is essential to have prior knowledge of nature spots and activity before traveling **(92% in total).** Hence, we would like to provide essential information about nature spots and activities in a **much more interactive and innovative** way, to ensure that users are **well-educated about the trip.**

Based on the questionnaire answers, we got many ideas, which can help to overcome the pain points of the users.

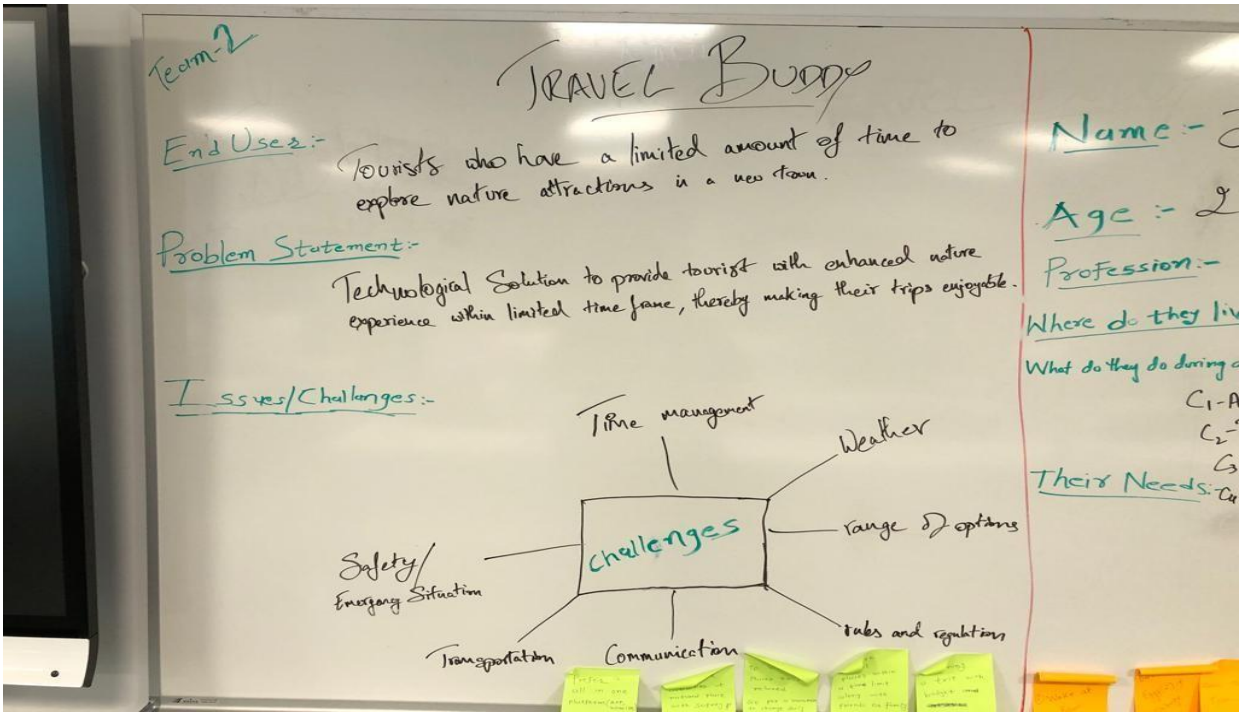
Furthermore, based on the design thinking workshop, we were able to think outside the box and come up with a new set of ideas that can be utilized to address the pain points of users.

GOOGLE FORMS LINK

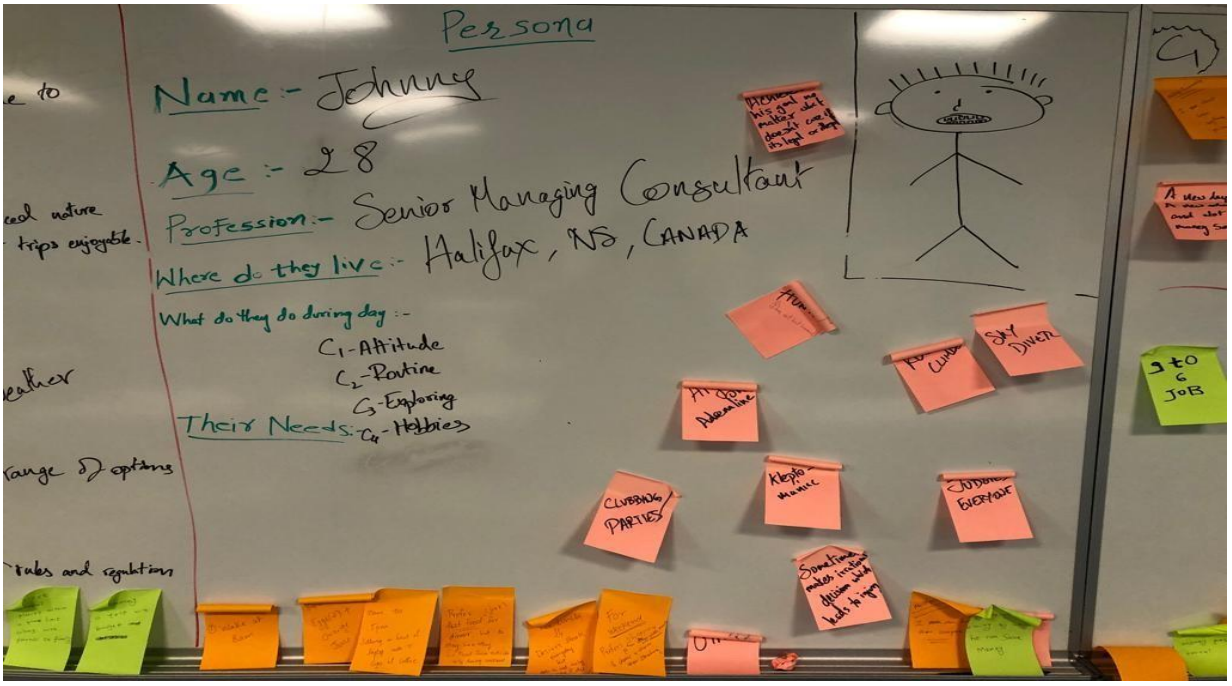
https://forms.gle/geZtXNqdLbKPaDro7

DESIGN THINKING WORKSHOP

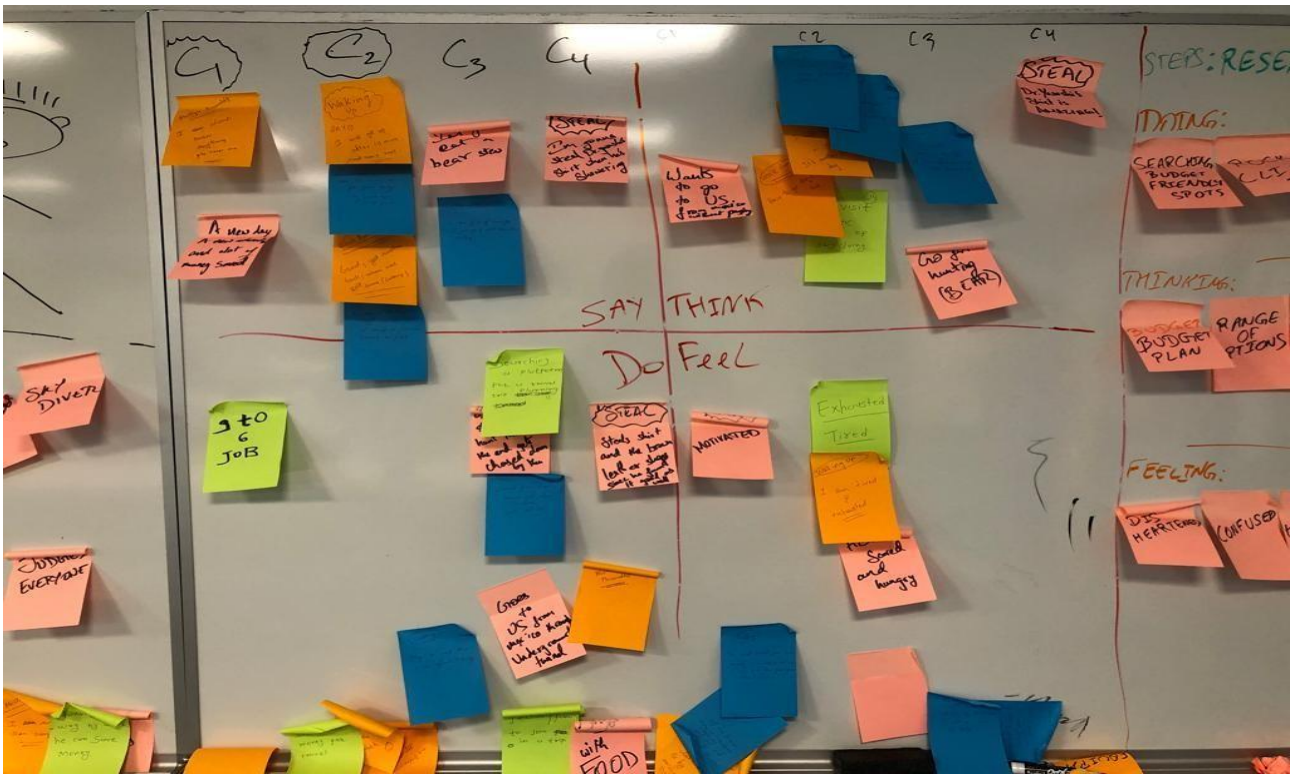
TASK 1: WRITING PROBLEM STATEMENT



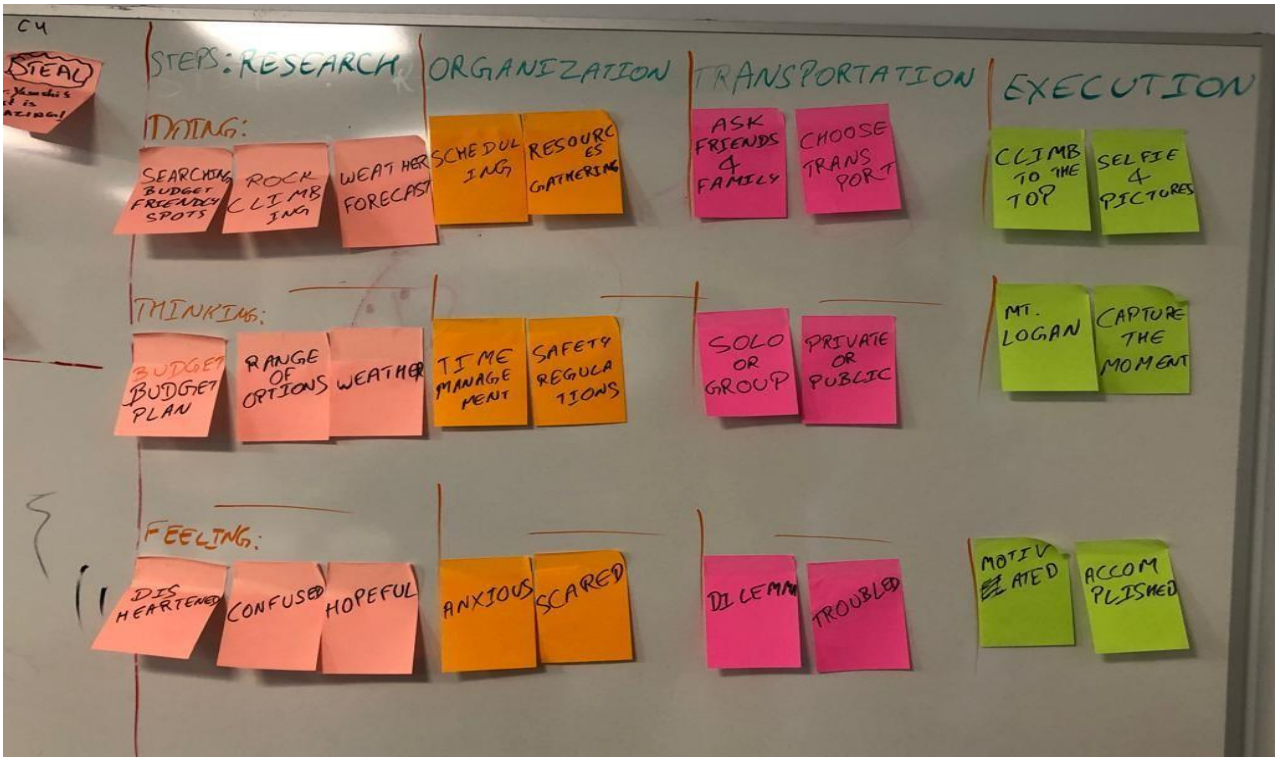
TASK 2: PERSONA BUILDING



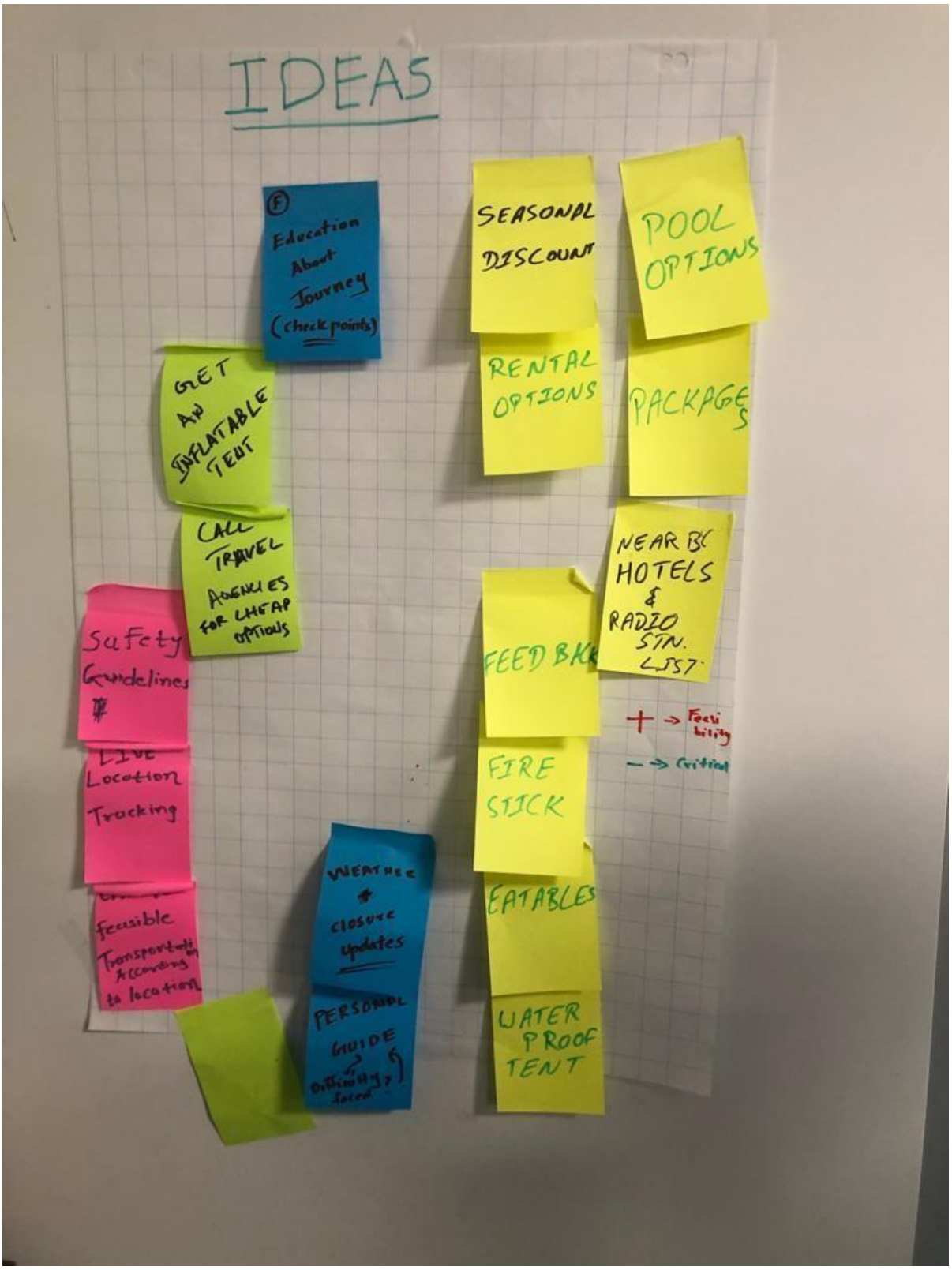
TASK 3: EMPATHY MAP



TASK 4: AS-IS SCENARIO



TASK 5: IDEATION PHASE



TASK 6: PRIORITIZATION GRID

TASK 7: LOADS OF FUN

THANK YOU, DR. YASUSHI AND MOE FOR THIS WONDERFUL AND FUN-FILLED WORKSHOP

REQUIREMENTS GATHERED

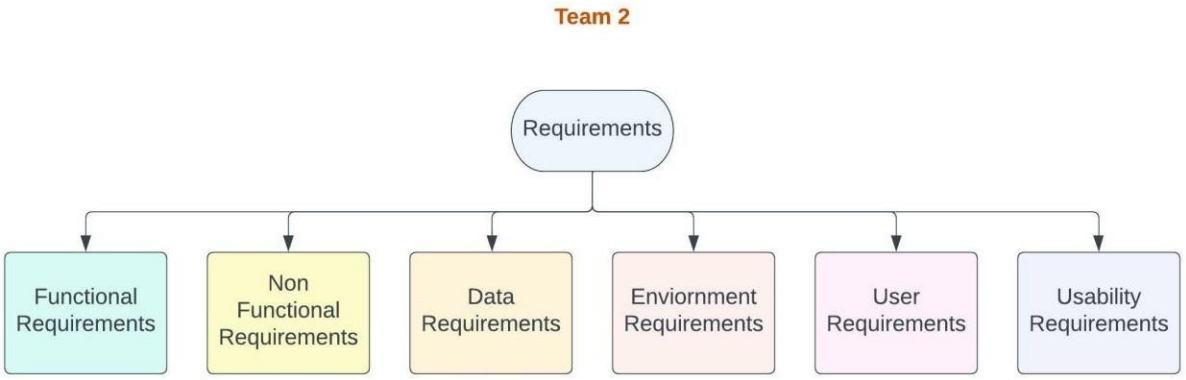


Fig 1: Requirements

FUNCTIONAL REQUIREMENTS

Sno	Functional Requirements	Description
1	*Sign up*	❖ The user needs to sign up for the Travel Buddy app, in case the user **does not** have an **existing account**. ❖ Account creation is **essential** to keep **track** of the **TB coins** (gaming credits) and to **view previous nature spots** visited and nature activities performed. ❖ User **must provide** their name, email id, and password for **successful** account creation.
2	*Login*	❖ Once, the user has an account, the user can login by entering the **email id and password** provided while signing up. ❖ In case the user forgets the password, then password **recovery options** are **available**.
3	*Personalization*	❖ Personalization involves **filtering out** nature spots and activity categories from a pool of options **based on** the **user's interest**. ❖ User gets to choose the preference for nature spots and activities **separately** (nature spot selection followed by nature activities) from a list of categories. ❖ User will also be provided the option to **edit personalization** anytime. ❖ When **new** activities, and nature spot categories are **added**, the **user will be notified**, to allow users to view and **make decisions**. ❖ By using personalization, user can **effectively utilize** their **available time** effectively and **enjoy** their **nature experience**.

4	*Nature Spots/ Activities Selector*	❖ Plethora of Nature spots and activities **options** available based on the user's personalization will be **displayed.** ❖ There is also a **filter option** available. While clicking that option, the user gets the following sub-options. ❖ Users can **alter the price range**, according to their budget plans ❖ Users can also choose if they want to view **recommendations** of places based on **seasons** (e.g. Christmas, Diwali, New Year, etc). ❖ **Distance proximity**: Users can decide on spots based on the distance from their starting location. ❖ From the list of options, the user can get **essential information** about all nature spots and activities. Users **can choose** which options they prefer.
5	*Preview of Experience*	❖ Preview functionality is to provide users with the **visual experience** of the nature spot/activity. Based on the **experience**, if users are **interested,** then they can **add activity** to the travel plan.
6	*Personal Guide*	❖ If a user **wishes** to have **expert guidance** while visiting a particular nature sport or undertaking any specific activity, then they can **avail** personal guide option.
7	*Weather Forecast*	❖ Real-time weather updates and forecasts are provided, to **avoid possible halts** in the trip.
8	*Navigation*	❖ Users can utilize the **offline maps** feature for **navigation** throughout the entire trip. ❖ Offline maps ensure that **internet data** is not required by users while traveling. ❖ Also, users are provided with the important T**ravel Buddy help** doc in **downloadable format**. Users can take the **printout** of the same and use it in case any **emergency** occurs. The following features are provided in the travel buddy doc. ❖ The entire map along with a **detailed description of each spot** in the natural spot. ❖ Detailed **information** about the **nearby safety spots** along with the **directions** towards the locations. ❖ Travel buddy help is useful in **scenarios** where **technological gadgets** are **not working.**
9	*Gamification (Reward-Based Scheme)*	❖ We have introduced **in-app** usage credits called **Travel Buddy (TB) coins**. ❖ The main purpose of these credits is to provide users with an **option** to **utilize** their **travel buddy coins** to **avail discounts** for those nature spots and activities which are **paid**. ❖ When a user registers for the **first time**, the user gets **2000 TB** coins to start off with. ❖ App provides multiple **ways** for users to **increase** their **TB coins**:

		❖ Based on the **number of steps** walked. This scheme is introduced to **promote** users to do **healthy exercise**, and as a possible way to **increase human-nature interaction**. ❖ Based on the **feedback** provided for their trip experience, users will be **rewarded** with **TB coins**. ❖ When a user visits nature spots and activities, then they will be rewarded with TB coins. More visits, more coins, more rewards. ❖ By using this reward-based scheme, we **intend** to **increase** user **motivation** to interact **with nature**.
10	*Payment*	❖ Once the user has decided on proceeding with the activity, the user needs to **make payment** (in case there is an entry fee to the nature spot or activity). ❖ User can use the TB coins to avail discounts to the payment. ❖ Once payment (if necessary) is **successful**, then the **activity** will be **confirmed**. ❖ User **must** provide credit/debit **card information** for making the payment (card holder name, card id, cvv, expiry date).
11	*Travel Plans*	❖ User can view his/her travel plans/schedule based on **date**. ❖ Notification of activities will be **sent** to the user to **remind** the user about the trip. ❖ Also, user can **track** the **previous** nature spots visited and nature activities performed.
12	*Feedback*	❖ Users are provided with feedback functionality to provide **suggestions** about how we can **improve** the **service** and **usability.**

NON-FUNCTIONAL REQUIREMENTS

Sno	Non-Functional Requirements	Description
1	*Availability*	❖ The Travel Buddy app must be **available** for users **24/7** providing users with the privilege to use the app in their comfort **anytime**.
2	*Security*	❖ Security is one of the most **pivotal aspects** to be focussed upon. User account data, payment information along with database information must be **protected** from any form of **breach**.
3	*Portability*	❖ Travel buddy app needs to be hosted on the **google play store** and **app store** to provide service to all smartphone users.
4	*Distributed Storage*	❖ To **avoid** any **disruption** of **service**, it's important to have distributed storage. Distributed storage helps ensure **faster response** and **data backup**.

5	*Response Time*	❖ To increase **user satisfaction**, the time taken for **loading a page** should be **very less** and the **response** to the **user action** should be very **quick.**
6	*Personal Guide*	❖ If a user **wishes** to have **expert guidance** while visiting a particular nature sport or undertaking any specific activity, then they can **avail** personal guide option.
7	*Modifications*	❖ **Continuous and rigorous testing** and **modifications** are required to **progressively** add more features and **stay up to date** with the latest technological advancements.

DATA REQUIREMENTS

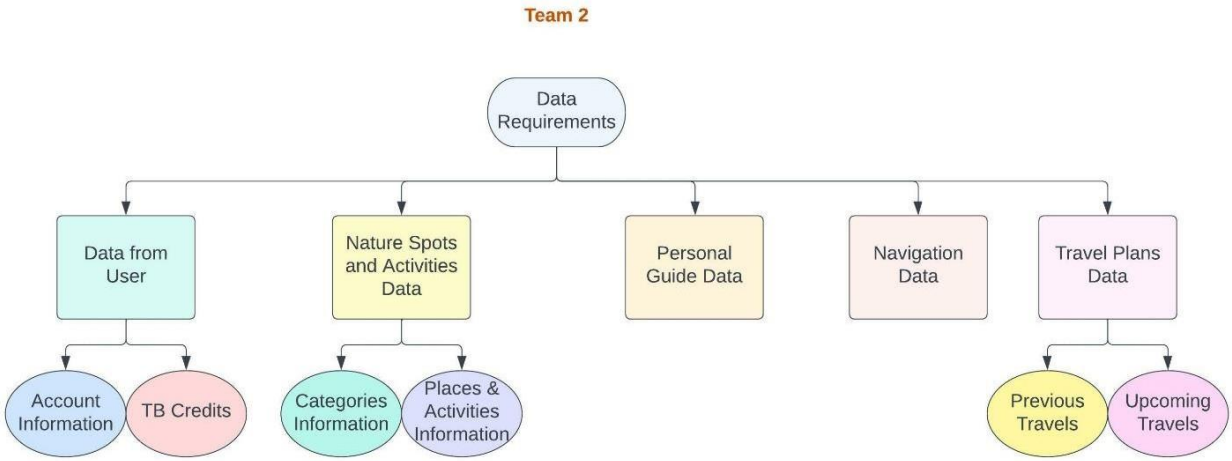


Fig 2: Data Requirements

Sno	Data Requirements	Description
1	*Data from User*	❖ Data from user includes **user account information (used for login, their upcoming travels, travel buddy coins information**) etc.
2	*Nature Spots and Activities Data*	❖ Data about the different nature spots and activities, followed by **information about the activities, such as activity name, place, distance, emergency closures, price etc**.
3	*Personal Guide Data*	❖ Information about the **employee** which will be accompanying the users as personal guide.
4	*Navigation Data*	❖ Offline maps to assist users to **navigate throughout** the activity with at most ease.
5	*Travel Plans Data*	❖ This data **includes the previous history of bookings** of the users, followed by the upcoming activities.

Environment Requirements

Sno	Environment Requirements	Description
1	*Mobile Service Platforms*	❖ **App Store & Google Play store**
2	*Internet Connectivity*	❖ **Certain features (eg: payment) needs internet connectivity.**
3	*No Internet*	❖ Travel Buddy Application must ensure **certain features which are most essential (such as offline maps), emergency contact number must be available without internet connectivity**.
4	*Backup Option*	❖ **Hardcopy backup** of most vital information necessary, which might be useful when the technological devices charge goes off.

USER REQUIREMENTS

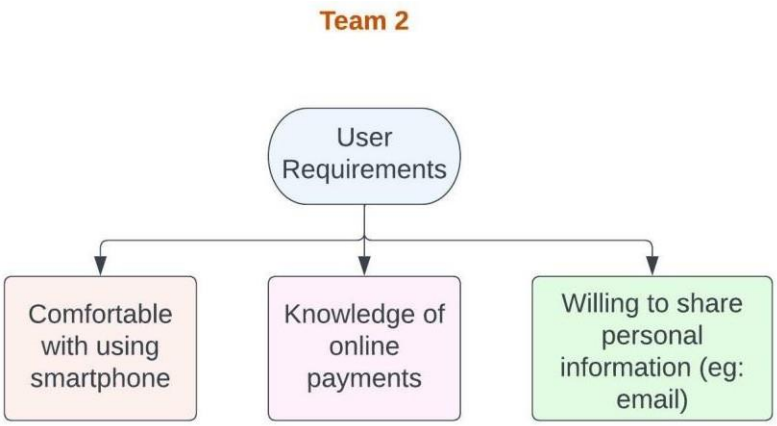


Fig 3: User Requirements

Sno	Environment Requirements	Description
1	*Comfortable with Smartphone*	❖ User must have **basic knowledge** on how to use mobile phone, to ensure at most ease while using Travel Buddy application.
2	*Knowledge of online payments*	❖ It would be **easier for performing online payment** in case user is familiar with doing the task before.
3	*Willing to Share Information*	❖ User **must be ready to share** their email id, name, place for account creation, validation and communication purposes.

USABILITY REQUIREMENTS

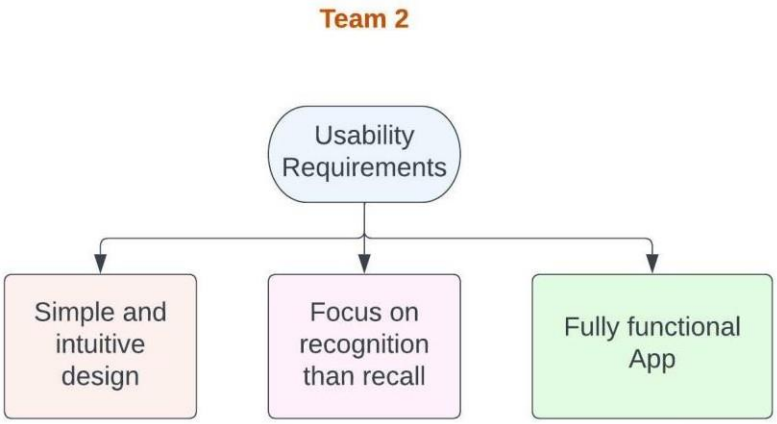


Fig 4: Usability Requirements

Note: Usability Requirements include Nielson's Ten Heuristic Principles which is explained in later sections

REFINED IDEAS

We haven't made any refinement to our ideas. We are proceeding with the same ideas obtained from the prioritization grid. Following is a pictorial representation of ideas we will be moving forward with.

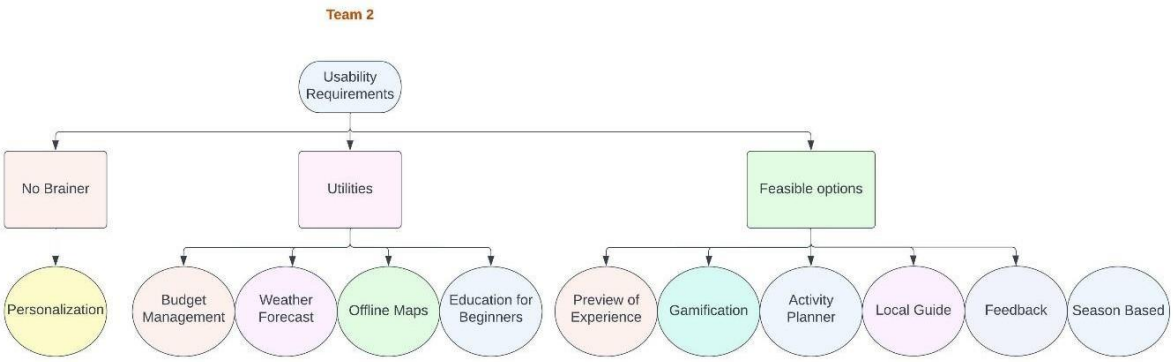


Fig 6: Refined Ideas

INITIAL DESIGN AND SKETCHES

1. *Travel Buddy Welcome Page*

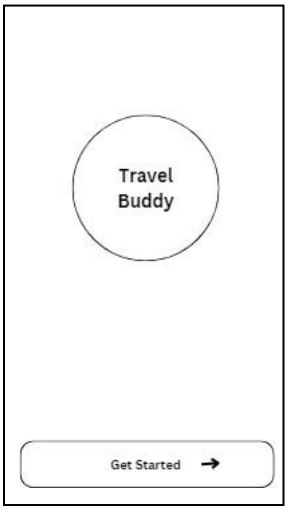


Fig 6: Welcome Page

This is the page displayed when the user opens the app, user can click get started to proceed.

2. *Login, Signup and Contact Us Pages*

Fig 7: Login Page

Fig 8: Signup Page

Fig 9: Contact Us Page

Login, signup, and contact us involve the user entering details such as name, email, password, and message.

- For signup, after the user enters all details and clicks the signup button the user is directed to the personalization page. If they already have an account, then they can click the Sign in link.
- For login, after the user enters the details, if the details are correct then the user is directed to the home page. If the user forgets the password, then user can click on forgot password.

- For the contact us page, users can either make a phone call or enter their grievances as a message and click submit button, and the user will be directed back to the homepage.

3. *Personalization Categories Pages*

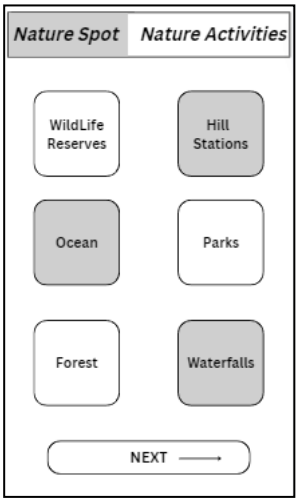


Fig 10: Nature Spots

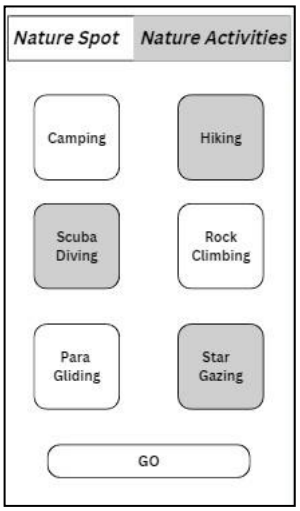


Fig 11: Nature Activities

Users can choose whichever nature spots and activities they prefer by clicking on the buttons (eg: Hill Stations, Ocean, and Waterfalls are my preferred spots to visit) and then clicking on the next and go buttons.

4. *Personalized Result of Nature Spots and Categories*

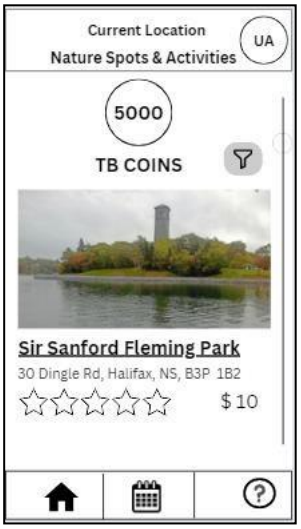


Fig 12: Home Page

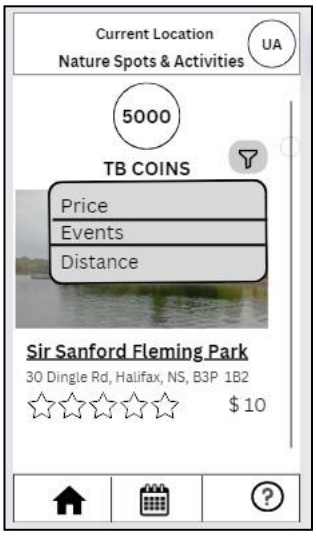


Fig 13: Filter options

Fig 14: User Account

This page is the home/main page of our app. After the user chooses which all activities and nature spots they would like to explore, the users are redirected to home pg. Home pg consists of the following features.

- Current Location will be displayed by default, the user can change the location manually by clicking it.

- UA denoted User Account, it provides users with the view and edit user account details (eg: password), edit their personalization, and logout from the application.
- Activities/Nature Spots information
- Horizontal nav bar consisting of home pg, travel plan and contact us options.

5. *Activity Information Page followed by Payment Page*

Fig 15: Activity Info

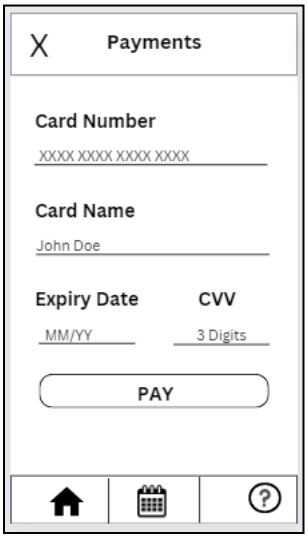


Fig 16: Payment Page

The activity Information page provides all the necessary information essential for the trip. Users can decide on whether to proceed or not based on the information provided. This page consists of the following aspects:

- Preview of experience: Video snippet of the places
- Basic Activity Information (rules, regulations, important equipment etc)
- Weather Forecast and Closure Updates
- Personal Guide Option
- Navigation Features (which include information about the transports available and nearest utilities available throughout the pathway from source to destination).

Once the user wishes to proceed with the nature spot/activity, if there is payment involved, then the user will be directed to the payment page, where the user enters credit/debit information and make payment. Once payment is successful, the even will be added to travel plans

6. *Travel Planner & Feedback Pages*

Fig 17: Travel Plans

Fig 18: Feedback Pg

User can view their travel plans and check the status of the visit. Users will be notified when there are a few days left before the scheduled event.

Once users have finished the activity, users will be provided with option to provide their valuable feedback and earn rewards for the same.

7. *FAQ's Page*

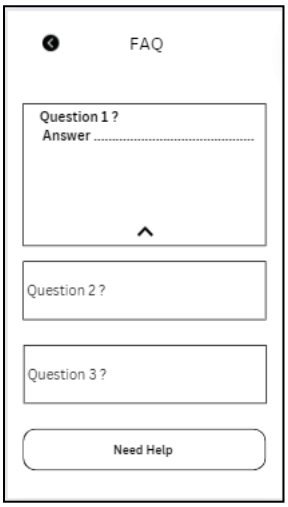


Fig 19: FAQ Pg

Users can view frequently asked questions and gain information. If users do have any queries, then they can click need help, and the user will be directed to contact us page. Else, user can click back button and directed to homepage.

SCENARIO

JAKE

Jake is using Travel Buddy App for the first time, so his interactions are shown step by step.

1. Jake opens the Travel Buddy app, and gets started, he sees Sign in option, but realizing that he doesn't have a Travel Buddy account, he clicks the signup option.
2. Then Jake enters all details and then clicks signup. Then Jake is directed to the personalization page.
3. Jake goes through all the categories and chooses hill stations, waterfalls, and the ocean from nature spots and hiking, scuba diving, and star gazing from the nature activities category.
4. Jake is then directed toward, the home page, where he can see the travel buddy coins available, the different places based on his personalization, filter option to alter his preference based on budget, events, and distance. Jake randomly clicks on the place he prefers.
5. Then activity information is displayed. Jake likes the place, but he does not want a personal guide, so he gives no to that option, and proceeds to pay. He enters the details and then completes the payment.
6. Jake clicks the calendar icon and then views his travel plans and reads through the resources available.
7. Few days before the travel, Jake is notified about the trip along with the essential information required for the trip.
8. Jake goes for the trip and has an amazing experience.
9. Jake is then notified to share feedback about his trip, and he shares his amazing experience with us.

STORYBOARDING

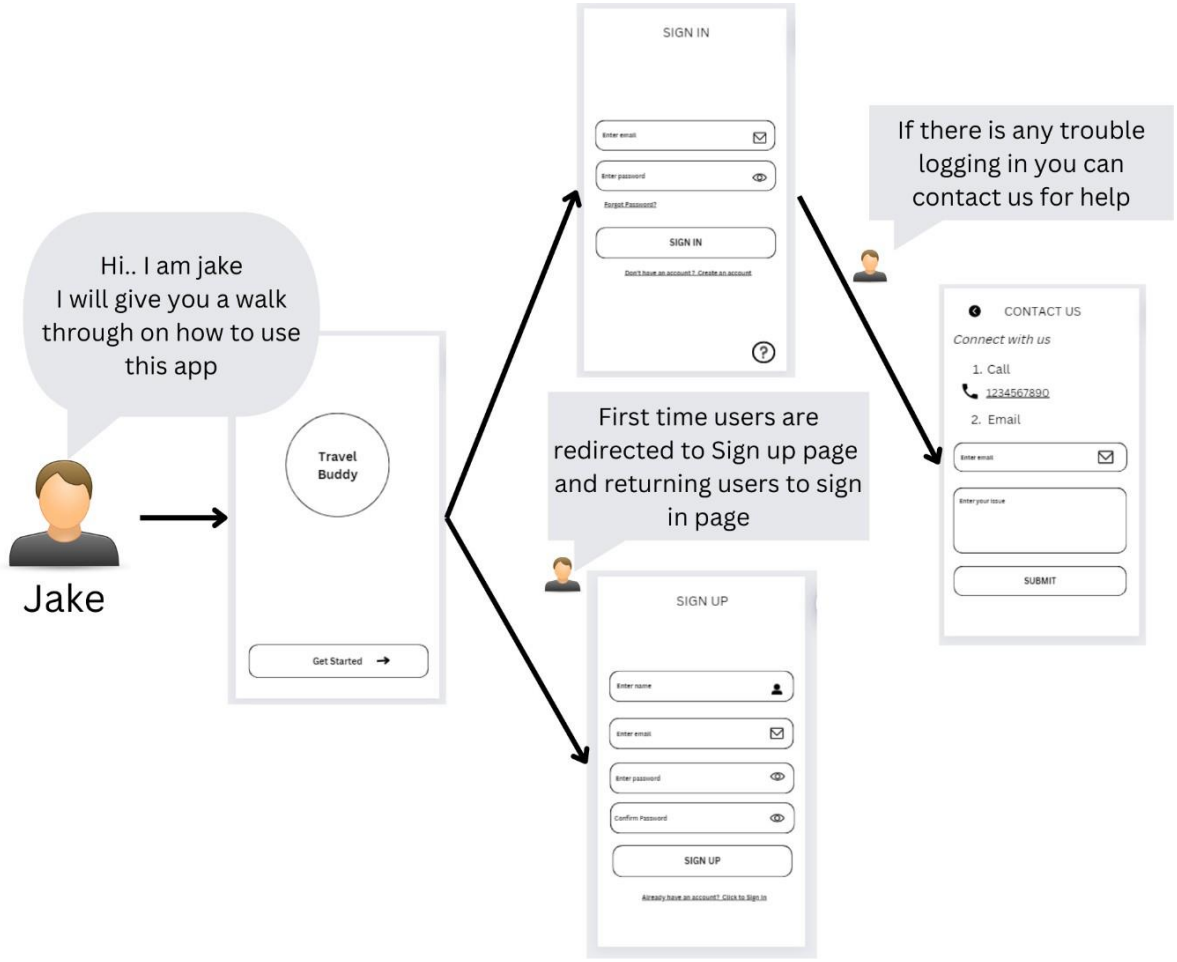


Fig 20: Part 1

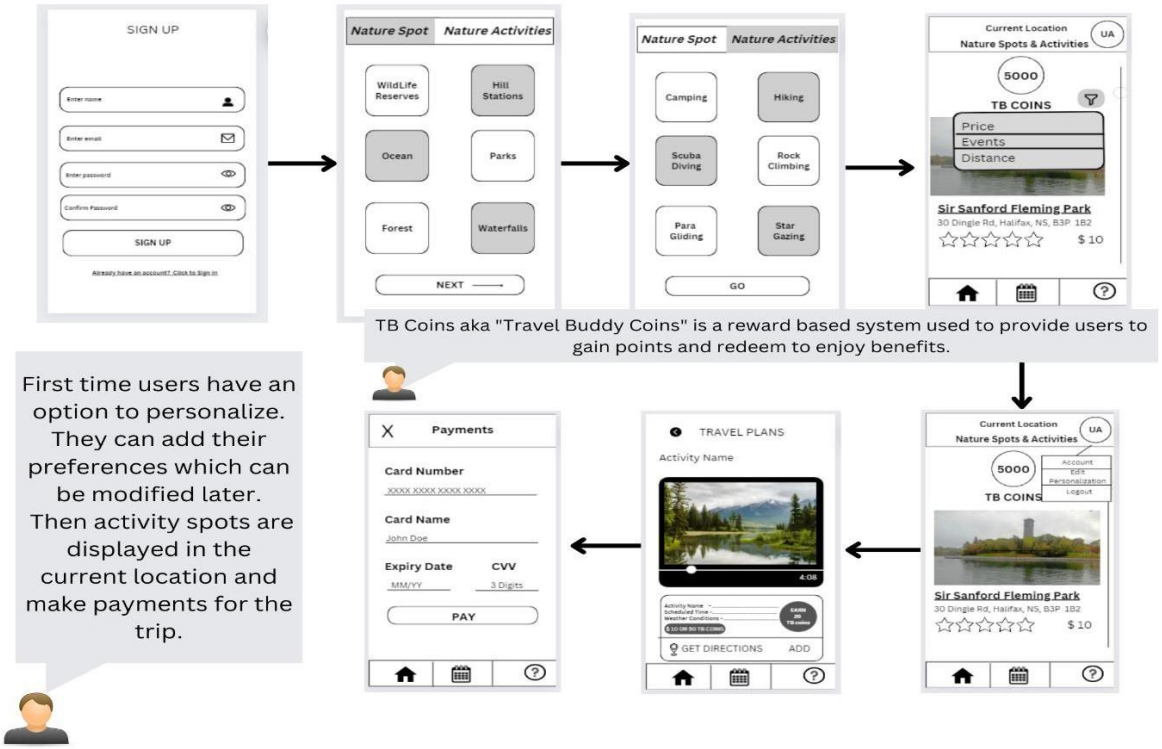


Fig 21: Part 2

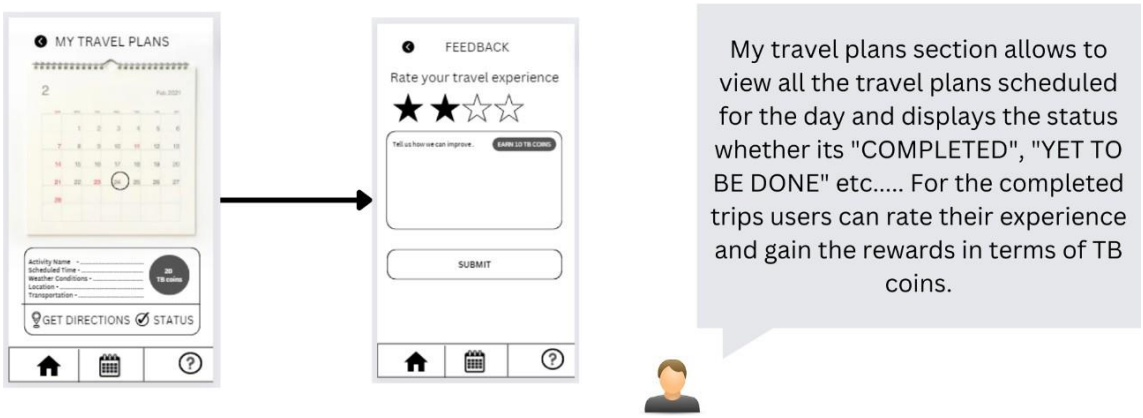


Fig 22: Part 3

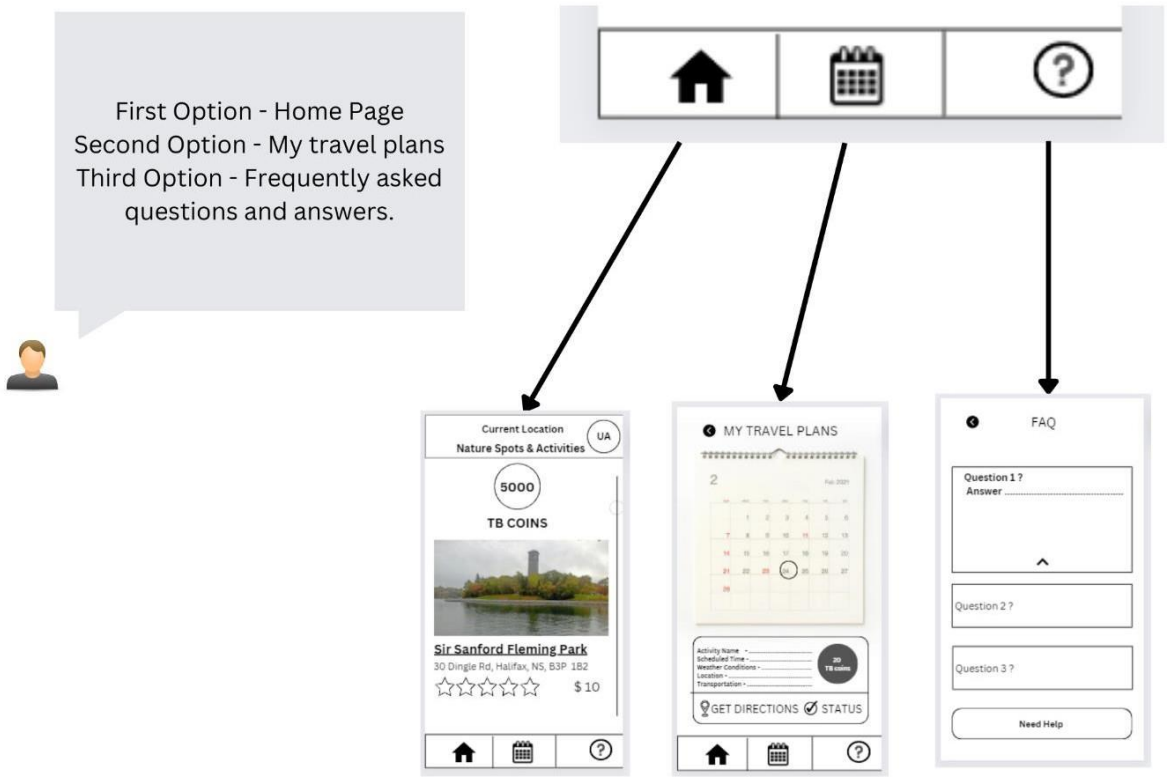


Fig 23: Part 4

JACOB NIELSON'S HEURISTIC EVALUATION

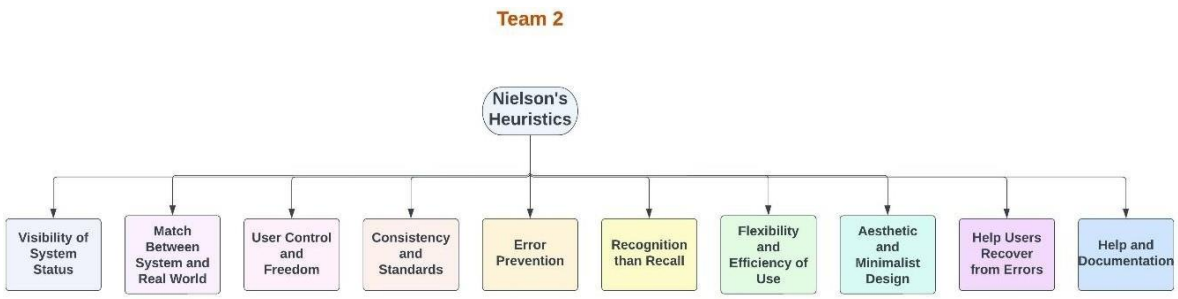


Fig 1: Nielson's Ten Heuristics

1. Visibility of system status

The system should always keep **users informed** about what is going on, through **appropriate feedback** within a **reasonable time**.

2. Match between system and the real world

The system should **speak the users' language**, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow **real-world conventions**, making information appear in a natural and logical order.

3. User control and freedom

Users often choose system functions by mistake and will need a clearly marked" emergency exit" to leave the unwanted state without having to go through an extended dialogue. **Support undo and redo**.

4. Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. **Follow platform conventions**.

5. Error prevention

Even better than good error messages is a **careful design** which **prevents** a problem from occurring in the first place. Either **eliminate error-prone conditions** or check for them and present users with a confirmation option before they commit to the action.

6. Recognition rather than recall

Minimize the **user's memory** load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

7. Flexibility and efficiency of use

Accelerators – unseen by the novice user – may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor **frequent actions**.

8. Aesthetic and minimalist design

Dialogues should **not contain** information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

9. Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and **constructively suggest a solution**.

10. Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and **not be too large**.

HEURISTIC EVALUATION OF TRAVEL BUDDY DESIGN

We would like to express our **heartfelt gratitude** towards **Team 1 (Vishnu, Abhilash, Sujay, and Shreerag)** for spending their valuable time and effort in evaluating our sketches. Their feedback has helped us to refine our design sketches.

Thank you**, Dr. Yasushi**, for this **wonderful exercise**.

Heuristics Evaluation of [Team 2]
(i.e., the design by the other group)

By Team 1 (Vishnu, Abilash, Shreerag and Sujay) **Date** 19/11/2022

Brief explanation of a scenario (filled by the group who designed UI)

Scenarios are described below.

- *User Scenario 1: Personalization*

  1. User can make personalization of nature spots and activities by getting started, creating an account followed by deciding on the preferred nature spots followed by nature activities.
  2. User can also edit personalization from homepage (Nature spots & Activities), after user login

- *User Scenario 2: Choosing the Nature Spot or Activity from Personalized Results*

  1. Once the user lands into homepage. Users can scroll through and select the preferred nature spot or activity from the list of options filtered based on personalization. Users can click on the title or picture to know more about it.
  2. Users can also make filtrations based on Price, Events (Seasons) and Distance. Options shown will change according to the filtrations.
  3. In case the user wants to make changes in personalization, then user can click on user account followed by edit personalization. Once users confirm personalization, the user will be directed to homepage.

- *User Scenario 3: Seeking Assistance*

  1. If the user has queries, while account creation, user can click on the help icon.
  2. Once the user has logged in, if the user has any queries, then user can click on question mark icon to view the frequently asked questions. If the user still has queries uncleared, then user will be directed to contact us page.

- *User Scenario 4: Travel Calendar*

  1. From the homepage, users can click on calendar icon to view all previous and upcoming travel details.
  2. After selecting nature spot or activity and completion of payment, user will be directed towards the travel calendar with updated itinerary.

1. Visibility of system status

- Always keep users informed about what is going on.
- Provide appropriate feedback within reasonable time.

Evaluation

[Enter your observation and evaluation of the degree to which this Heuristic has been satisfied. Use as much space as you see fit.]

Feedback provided by Vishnu

- The user interface for travel buddy almost maintains the visibility of the system status in every scenario, except in the Personalization screen and screen for choosing a nature spot.

- It is also necessary to display response to actions to indicate failure/success or a process.

- Also, when displaying the list of nature spots and activities, although the system state is stated because of the size of each element it gives a false perception of viewing a single item rather than a list. If there could be more differentiation between the list of nature spots page and information of nature spot page it would feel more natural and easier to use.

Feedback provided by Abhilash

- Scenario 1,2,3 and 4 are very clear and the user is well informed of what is happening in the interface via appropriate feedback.

Feedback provided by Sujay

- Well maintained flow through out the screens.
- I like the fact that users can view all the necessary information in every screen.

Feedback provided by Shreerag

- Does the system provide feedback about the spots in case of any danger? I cannot see any such feature which can give appropriate feedback to the user in case of emergency.

---

2. Match between system and the real world

- Speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms.
- Follow real-world conventions, making information appear in a natural and logical order.

Evaluation

Feedback provided by Vishnu

- The UI design is built on simple and concise languages that are more connected to the user and would be easy to use and interpret.

Feedback provided by Abhilash

- Scenario 1:

On the "Nature Spot and Activities" page, the color coding (greyscale) of the few options might confuse first-time users as it seems that highlighted options are already pre-selected.

Also, does the user has the ability to choose multiple Nature Spot and Nature Activities at the same time?
For eg. One can also look for forests with Waterfalls or One can look for Wild Reserves with Parks. Similarly in the case of Nature Activities, one can choose to do 'Scuba Diving' and 'Para Gliding' at the same time.

- Scenario 3:

"If the user has queries, while account creation, user can click on the help icon."

In the “Sign Up” page “Help Icon” is not present. It is on ‘Sign In’ page instead.

Feedback provided by Sujay

- Everything looks great except that in the Feedback page there are only 4 stars instead of 5 or 10 as we use in the real world.
- Also, I see Play/Pause and Volume icons are missing in the video that is in the Travel Plans screen.

Feedback provided by Shreerag

- Haven’t provided any feedback under this section

3. User control and freedom

- Users often choose system functions by mistake.
- Provide a clearly marked "out" to leave an unwanted state without having to go through an extended dialogue.
- Support undo and redo.

Evaluation

Feedback provided by Vishnu

- Easy juggling between system states via a common bottom menu allows users to correct their actions. Logical and inherent nesting of action flows such as personalization settings in account menu feels intuitive.

Feedback provided by Abhilash

- Scenario 4:

Does the user has the option to cancel or reschedule the trip? If not, it will be a really good feature to add as sometimes due to some other reason user might not be able to attend the trip and he/she should be given the ability to reschedule the trip with minimal additional charges.

Feedback provided by Sujay

- Very well designed. In all the screens users can go back and undo their existing task.

Feedback provided by Shreerag

- Since the system handles payment. I didn’t see any feature which lets user to cancel or revert from an activity once he/she makes the payment. So eventually he/she may need to contact customer support to cancel any transactions which could be tedious.

---

4. Consistency and standards

- Users should not have to wonder whether different words, situations, or actions mean the same thing.
- Follow platform conventions.

Evaluation

Feedback provided by Vishnu

- While there is some consistency in terms of language, a stricter layout for all screens would make the UI feel more reliable. Some UI elements need to be standardized and a hierarchy amongst the elements in a page needs to be more prominent.

Feedback provided by Abhilash

- Scenario 1:

The 'Next' Button in the "Nature Sport" screen seems redundant as you can easily do the same navigation via the top two buttons ("Nature Spot" and "Nature Activities") to go back and forth between the 2 screens.

- Scenario 2:

The user might feel a little confused with the 'Add' option in the 'Travel Plan' screen. Does it mean you are sending out an invite to the interested participants via some platform or this option is used for creating a travel plan for group travel? It would be great if you introduce some tooltips on the option so that users are clear about what this option does.

Feedback provided by Sujay

- In the Travel Plans screen, "Add" looks to be bit vague. Try to add something like "Add to My List"
- Apart from that everything is consistent.

Feedback provided by Shreerag

- Haven't provided any feedback under this section

---

5. Error prevention

- Even better than good error messages is a careful design which prevents a problem from occurring in the first place.

Evaluation

Feedback provided by Vishnu

- While most actions are reversible some actions such as payment/booking could use additional confirmations before proceeding with the action.
- While there is a screen to signup with email and name, and an option to view/edit account information, an actual page to edit account information is missing and it is important to have a screen to edit user information

Feedback provided by Abhilash

- The UI is well designed to avoid errors as the options are pretty much straightforward and easy to understand by a first-time user.

Feedback provided by Sujay

- I liked the way how the error prevention has been implemented in the Login and Sign up screens.

Feedback provided by Shreerag

- Haven't provided any feedback under this section

6. Recognition rather than recall

- Make objects, actions, and options visible.
- User should not have to remember information from one part of the dialogue to another.
- Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Evaluation

Feedback provided by Vishnu

❖ Travel buddy does a very good job of maintaining access to key options throughout the entire interface.

Feedback provided by Abhilash

❖ Scenario 1:

Is there a way to show selected options on the "Nature Spot" and "Nature Activities" separately? For eg If someone chooses 'Nature Spot' as 'Park', they would be able to see the selected option as 'Park' on the Nature Activities page and vice versa. This reduces the overhead for the user to navigate between the two tabs just to see what option they have selected in the first place.

Feedback provided by Sujay

❖ In the "Contact Us" screen, Since the Call has a phone number under it, but Email does not have any Email-ID underneath it. Some users might be a bit confused. It is good to have an email-ID under the Email or changing the text to something like "Please enter the details we will get back to you."

Feedback provided by Shreerag

❖ Haven't provided any feedback under this section

7. Flexibility and efficiency of use

- Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user so that the system can cater to both inexperienced and experienced users.
- Allow users to tailor frequent actions.

Evaluation

Feedback provided by Vishnu

❖ Having a very minimalistic design Travel Buddy usually does not have accelerators incorporated in the design. However, some creative thinking can be applied to add new functionality which would support accelerators.

Feedback provided by Abhilash

❖ Scenario 2:

In "Nature Spot and Activities" you can add functionality to sort/filter the destination by ratings. For eg. You can sort/filter the destinations that only show the destination where the ratings are greater than 3 stars.

❖ Scenario 3:

The dedicated FAQ page and help support provide the required support to a novice user to provide them seamless experience while using the application.

- Scenario 4:

The Travel Calendar is really good feature where a user can keep track of all his travel plans.

Feedback provided by Sujay

- Navigation is perfect. Even an In-experienced user can use without any issues.

Feedback provided by Shreerag

- A chat box where the user can immediately start 1:1 chat could make this system more efficient.

---

8. Aesthetic and minimalist design

- Dialogues should not contain information which is irrelevant or rarely needed.
- Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Evaluation

Feedback provided by Vishnu

- Travel Buddy has a clean and neat minimalistic design and does not carry around the excess weight of irrelevant dialogue. All information streams are crisp and the design is very aesthetic.

Feedback provided by Abhilash

- Scenario 1,2,3 and 4:

The UI is well designed with minimalist design and is easy to use and understand for a first-time user.

Feedback provided by Sujay

- Everything looks clean. Nothing is cluttered or unclear.

Feedback provided by Shreerag

- I don’t feel the need for a separate calendar in app. User won’t login all the time to check the app’s calendar. If it’s just for reminder then that calendar can be replaced by anything.

9. Help users recognize, diagnose, and recover from errors

- Expressed in plain language (no codes)
- Precisely indicate the problem
- Constructively suggest a solution.

Evaluation

Feedback provided by Vishnu

- Current design does not have an implementation for error recognition and correction. There is a strong need to identify possible errors in functionality and usage e.g. What happens when booking conflicting events?

Feedback provided by Abhilash

- Scenario 1,2,3 and 4:

The UI is well-designed keeping the perspective of a novice user in mind. The User support, the ease of customization, and minimal UI ensure a user an error-free experience. Even if the user faces some issue, the Help and FAQ feature fully supports the user to resolve the issue without scratching their head for the solution.

Feedback provided by Sujay

- This is well implemented in Login and Signup screens. It would be helpful if there is a "?" icon at the CVV in the Payment page

Feedback provided by Shreerag

- Haven't provided any feedback under this section

---

10. Help and documentation

- Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation.
- Help information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Evaluation

Feedback provided by Vishnu

- Help and documentation has been strongly provided in an FAQ section and it is assumed that all usage related queries would be answered in it. It would be much better if there was some help/assistance at each stage of the application and also for each function/operation in current design, at least as a beginners tutorial for first time users that can be accessed from menu by everyone.

Feedback provided by Abhilash

- Help support is provided via the FAQ screen where all the probable queries that a user has faced to date have been listed. Also if there is something that is not covered there, the user has the option to contact them via phone or mail for additional support.

Feedback provided by Sujay

- As per Scenario-3, it was mentioned that "If the user has queries, while account creation, user can click on the help icon." But I don't see the Help Button in the Sign-up page.

Feedback provided by Shreerag

- Haven't provided any feedback under this section

KEY TAKEAWAYS FROM THE HEURISTIC EVALUATION

Provided below is **a brief summarization** of aspects, where we can **improve** our application.

1. Login page had ⓘ icon, but the signup page was **not provided** with the **same icon**.
2. In the nature spots and activities personalization selection page, there is **confusion** in the minds of users, on the options selected.
3. Users need to be provided with an **edit account**, for making changes to their account.
4. Rating provided in feedback, had only four stars instead of the **conventional** five or ten stars.
5. While filtering places, one more parameter called **rating** (sorting places based on rating) can be added, to increase the efficiency.
6. The ADD option on the activity information page has **created confusion** among users, on whether it's adding the place to the wishlist or is it proceeding to the payment page.
7. In the payment page, a **confirmation message** will help enhance error prevention. Moreover, An help icon next to CVV will help all users understand what a CVV is and where to obtain it from.
8. An option to prevent users from choosing a particular date and time, where **already an activity** is chartered in the travel plan, can be an effective feature.
9. Usage of **accelerators** can reduce effort and error simultaneously increasing the efficiency of the app.
10. **Activity cancellation**, would be a good feature to add-on.
11. Overall, Team 1 was **positive** about their interaction experience with Travel Buddy app.

REFINED SKETCHES

Based on the valuable feedback obtained, we have made **refinements to our sketches**. We have modified existing designs while adding a few extra sketches as well.

To view the updated sketches:

https://www.canva.com/design/DAFSboS5btc/5vGIj6P_UG3PLJl2PLHh4A/view?utm_content=DAFSboS5btc&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink

1. *<u>Travel Buddy Welcome Page</u>*

- *Description*: This is the page displayed when the user opens the app, user can click **get started to proceed**.

- *Any Modifications Made*: No

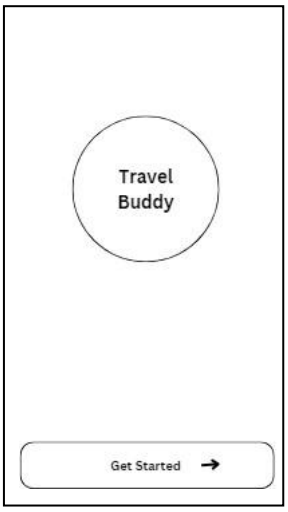


Fig 2: Welcome Page

2. *<u>Login Page</u>*

- *Brief Description*: For login, after the user enters the details, if the details are correct then the user is **directed to the home page**. If the user forgets the password, then the user can click on **forgot password**.

- *Any Modifications Made*: Yes

- *Changes Made:* The following changes were made:
    - **Added "remember me" option** - Users are provided with remember me option, hence users have the option to save their login details, thereby avoiding entering the details the next time they want to log in. It helps avoid any typing errors and increases the ease of use. Users just need to press the SIGN IN button.
    - **Connect via Social Media Platforms** – Users can login via google, facebook and twitter accounts as well.
    - **Biometric Validation option –** Users can perform login operations via their biometrics, rather than entering the details. This **acclerator** can help in **reduced human efforts, enhanced security and faster execution**.

- *Nielson's Heuristics Addressed:* **Error Prevention, Recognition than Recall, User Control and Freedom**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before *After*

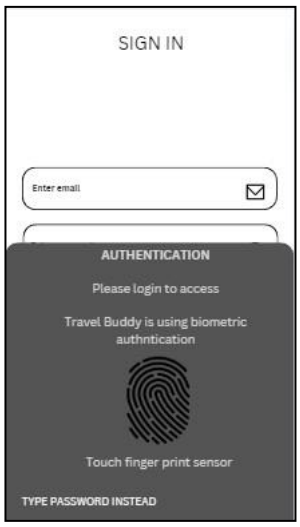


Fig 3: Login Page Before **Fig 4: Remember Option** **Fig 5: Biometric Login**

3. *Signup Page*

- *Brief Description*: For signup, after the user enters all details and clicks the signup button the **user is directed to the personalization page**. If they already have an account, then they can click the Sign in link.

- *Any Modifications Made*: No

Fig 6: Signup Page

4. *Edit Account Page*

- *Brief Description*: Edit account page is an option that allows users to **update their Account details** and passwords.

- *Any Modifications Made*: No, But this page is **newly designed**. Not available in initial sketch.

Fig 7: Edit Account Page

5. *Contact Us Page*

- *Brief Description*: For the contact us page, users can either make a phone call or enter **their grievances** as a message and click submit button, and the user will be directed back to the homepage.

- *Any Modifications Made*: Yes

- *Changes Made:* Made a few minor overall design changes to the page. **Created two contacts us** pages namely when the user is directed from the Account creation pages and when the user is directed from the homepage once the user is logged in. The only difference between the two contacts us pages is that, user doesnt need to enter email once user is directed from homepage.

- *Nielson's Heuristics Addressed:* **Help and Documentation, Consistency and Standards, Match between system and real world.**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

Fig 8: Contact Us Page Before

After

Fig 9: Contact Us Page 1

Fig 10: Contact Us Page 2

6. *<u>Personalization Categories Pages</u>*

- *Brief Description*: Users **can choose** whichever **nature spots and activities** they prefer by clicking on the buttons (eg: Hill Stations, Ocean, and Waterfalls are my preferred spots to visit) and then clicking on the go button to proceed to the Travel Buddy homepage.

- *Any Modifications Made*: Yes

- *Changes Made: Added a message* **"Please Select Preferred Option"** at the top to instruct users to choose their desired options. Furthermore, added a icon to further confirm that the option is selected

- *Nielson's Heuristics Addressed:* **Visibility of System Status, Aesthetic and Minimal Design**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

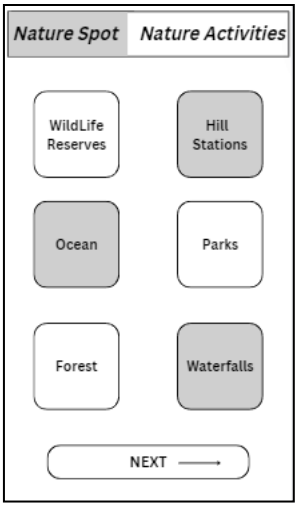


Fig 11: Nature Spots

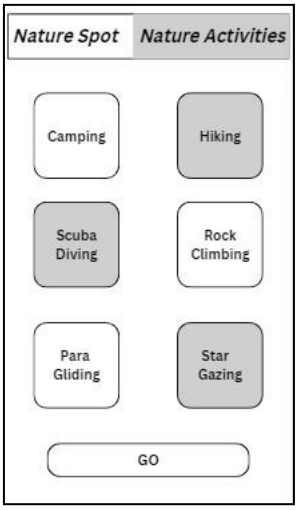


Fig 12: Nature Activities

After

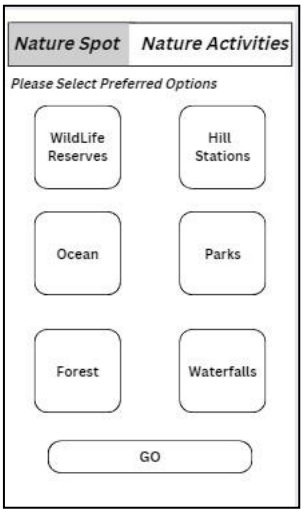


Fig 13: No Option Selected

Fig 14: Nature Spots

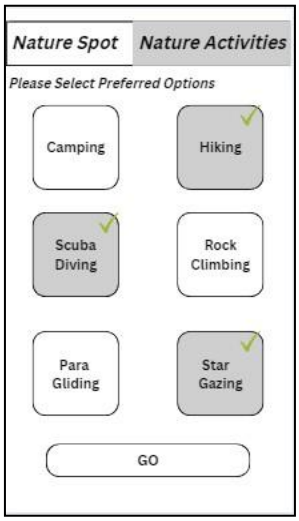


Fig 15: Nature Activities

7. <u>*Personalized Result of Nature Spot and Categories*</u>

- *Brief Description*: This page is the **home/main page of our app**. After the user chooses which all activities and nature spots they would like to explore, the users are redirected to home pg. Home pg consists of the following features.
  - The **current Location** will be displayed by default, the user can change the location manually by clicking it.
  - UA denoted **User Account**, it provides users with the view and edit user account details (eg: password), edit their personalization, and logout from the application.

- Activities/Nature Spots information
- **Horizontal nav bar** consisting of home pg, travel plan and contact us options.

- *Any Modifications Made*: Yes

- *Changes Made:* The following changes were made:
  - **Filter Based on Rating** - Users are provided with an additional option to filter nature spots and activities based on add-on option **ratings** as well.
  - **My Travel Buddy –** My Travel Buddy is an **AI-powered assistance bot**, which helps in assisting users with all their queries, provides guidelines, and makes **the entire application more engaging**.

- *Nielson's Heuristics Addressed:* **User Control and Freedom, Flexibility and Ease of Use, Help Recover from Errors, Error Prevention**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

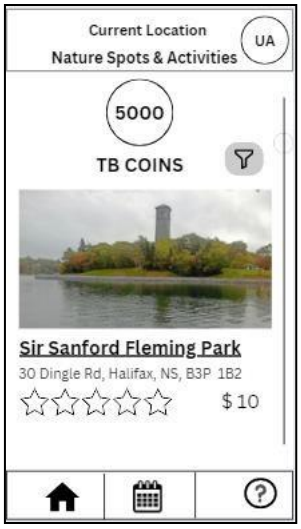


Fig 16: Home Page

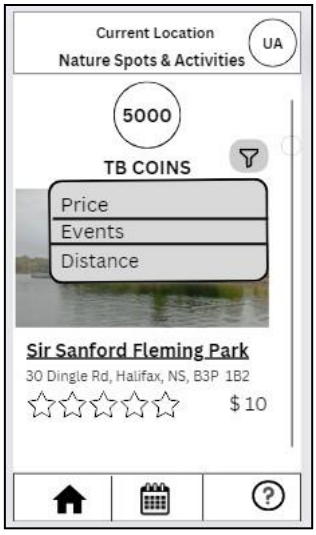


Fig 17: Filter Options

Fig 18: User Account

After

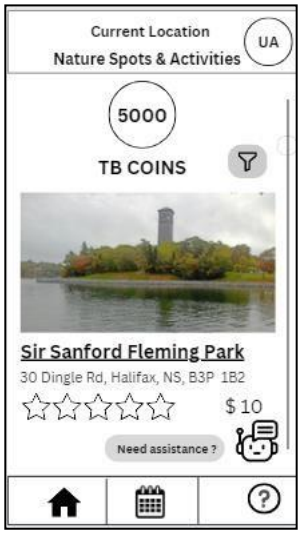


Fig 19: Home Page

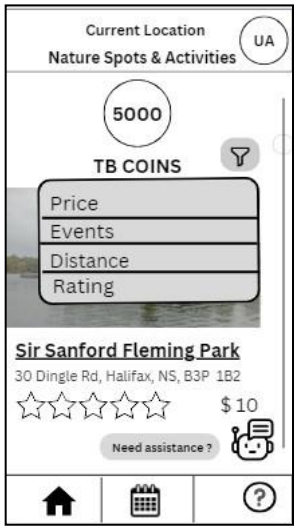


Fig 20: Filter Options

Fig 21: User Account

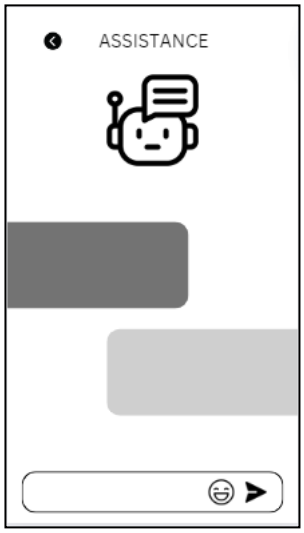


Fig 22: Chat Assistance

8. *<u>Activity Information Page</u>*

- *Brief Description*: The activity Information page **provides all the necessary information** essential for the trip. **Users can decide on whether to proceed or not** based on the information provided. This page consists of the following aspects:
  - Preview of experience: Video snippet of the places
  - Basic Activity Information (rules, regulations, important equipment etc)
  - Weather Forecast and Closure Updates
  - Personal Guide Option
  - Navigation Features (which include information about the transports available and nearest utilities available throughout the pathway from source to destination).

- *Any Modifications Made*: Yes

- *Changes Made:* Made a minor change, replaced the 'add' option with "make payment" option, along with seperating the "get directions" and "make payment" with seperate buttons.

- *Nielson's Heuristics Addressed:* **Visibility of System Status, Aesthetic and Minimal Design**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

Fig 23: Activity Info Before

After

Fig 24: Activity Info After

9. *<u>Payment Page</u>*

- *Brief Description*: Once the user wishes to proceed with the nature spot/activity, **if there is payment involved**, then the user will be directed to the payment page, where the user enters credit/debit information and make payment. Once **payment is successful**, the **event will be added to travel plans.**

- *Any Modifications Made*: Yes

- *Changes Made:* Four changes have been made to the payment functionality namely:

  - **Help icon next to CVV –** Users can click on the help icon to figure out what CVV is and where to find it from the card.

  - **Payment Confirmation –** An alert box to confirm if users really wish to proceed with the payment. This helps avoid any errors.

  - **Payment Status Messages –** Once Payment is successful, then payment successful message is shown, otherwise payment failure message is shown.

- *Nielson's Heuristics Addressed:* **User Control and Freedom, Error Prevention**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

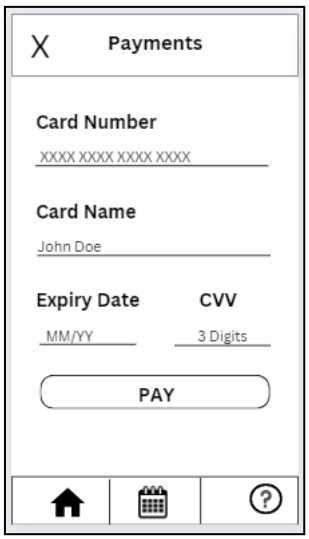


Fig 25: Payment Pg Before

After

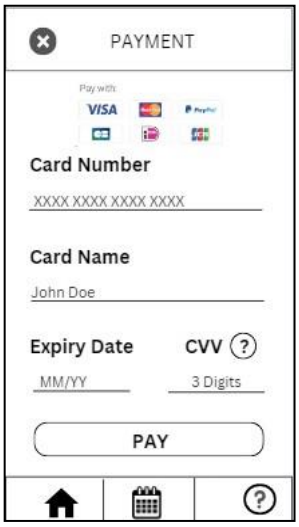


Fig 26: Payment Pg

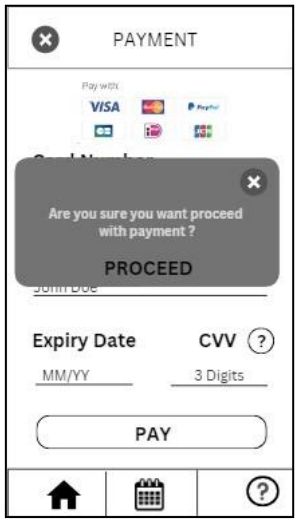


Fig 27: Alert Msg

Fig 28: Status Msg

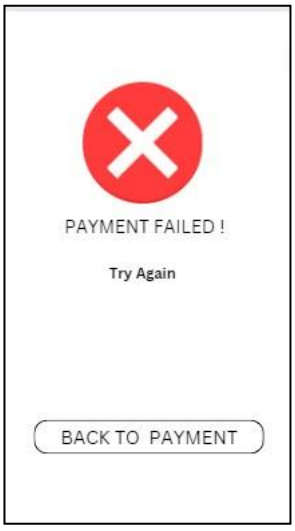


Fig 29: Status Msg

10. <u>*Travel Planner*</u>

- *Brief Description*: User can view **their travel plans** and check the status of the visit. Users will be notified when there are a few days left before the scheduled event. Users are also **provided an option to cancel** their booking, in case they change their priorities. Users will be allowed to cancel bookings till 5hrs before the trip.

- *Any Modifications Made*: Yes

- *Changes Made:* Added the following features-
  - **Cancel Button –** Users can click on cancel booking, to cancel their activity plans.
  - **Alert Box –** An alert box to confirm if users really wish to cancel their booking. This helps avoid any errors.
  - **Cancellation Status Message –** Once cancellation is successful, users will be notified with appropriate message.

- *Nielson's Heuristics Addressed:* **Visibility of System Status, User Control and Freedom, Error Prevention**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

Fig 30: Travel Plan

After

Fig 31: Travel Plan

Fig 32: Alert Msg

Fig 33: Status Msg

11. <u>Feedback Page</u>

- *Brief Description*: Once users have finished the activity, users will be provided with the option to provide their valuable feedback and earn rewards for the same.

- *Any Modifications Made*: Yes

- *Changes Made:* Minor change has been made. The number of stars in feedback has been increased from four stars to five stars.

- *Nielson's Heuristics Addressed:* **Consistency and Standards**

- *Screenshots of Page, Before Evaluation vs After Evaluation*

Before

Fig 34: Feedback before

After

Fig 35: Feedback After

12. <u>FAQ Page</u>

- *Brief Description*: Users can **view frequently asked questions** and gain information. If users do have any queries, then they can click need help, and the user will be directed to contact us page. Else, user can click back button and directed to homepage.

- *Any Modifications Made*: No

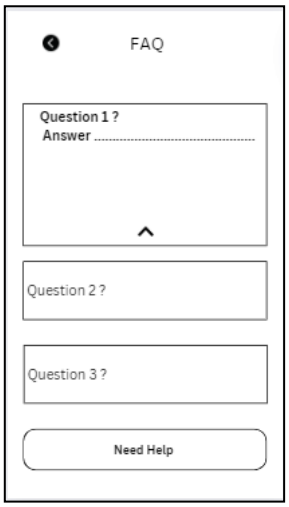
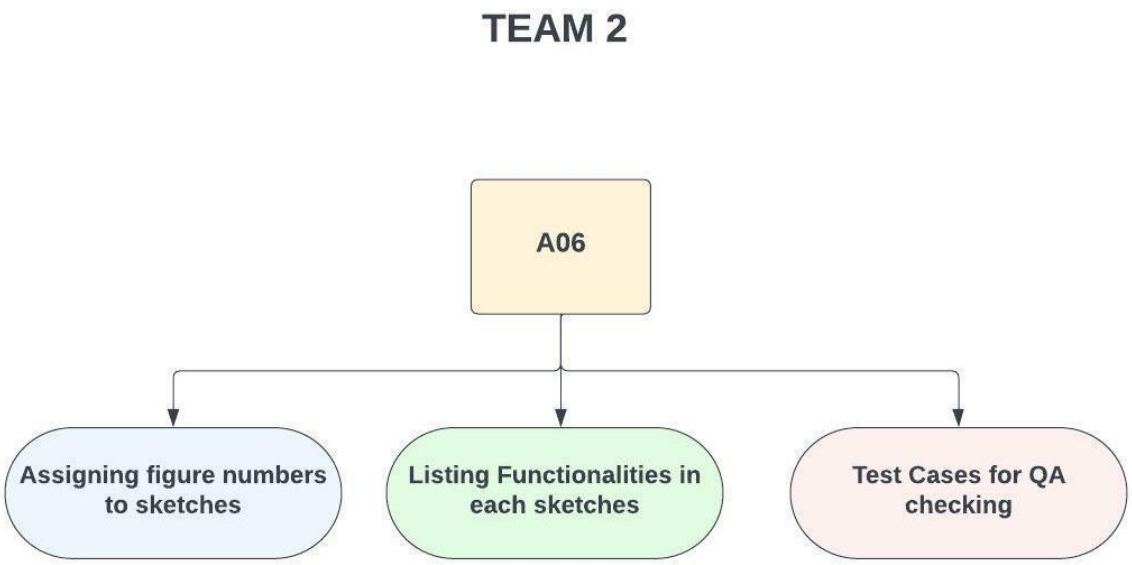


Fig 36: FAQ Page

VISUALIZATION OF DOCUMENT OUTLINE



PROVIDING FIGURE NUMBERS TO SKETCHES

Provided below are **figure numbers** for each sketch of our Travel Buddy App.

https://www.canva.com/design/DAFSboS5btc/5vGIj6P_UG3PLJl2PLHh4A/view?utm_content=DAFSboS5btc&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink

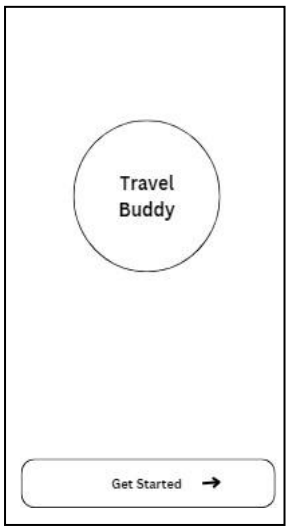


Fig 1: Welcome Page

Fig 2: Login In Page

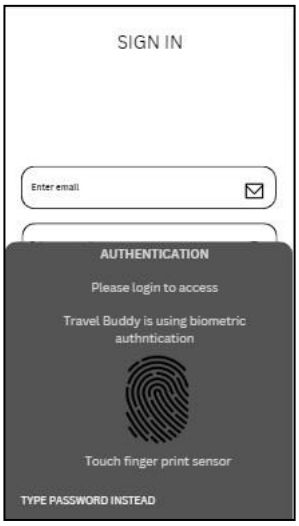


Fig 3: Biometric Login

Fig 4: Signup Page

Fig 5: Edit Account Page

Fig 6: Contact Us Page 1

Fig 7: Contact Us Page 2

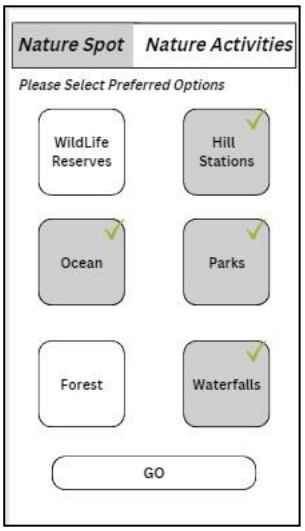


Fig 8: Nature Spots

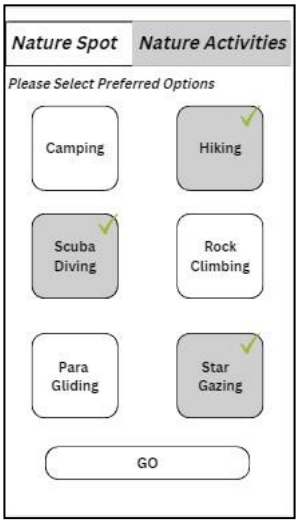


Fig 9: Nature Activities

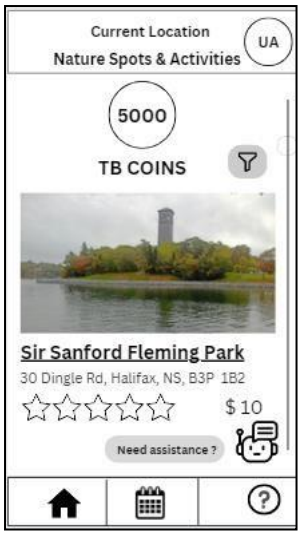


Fig 10: Homepage

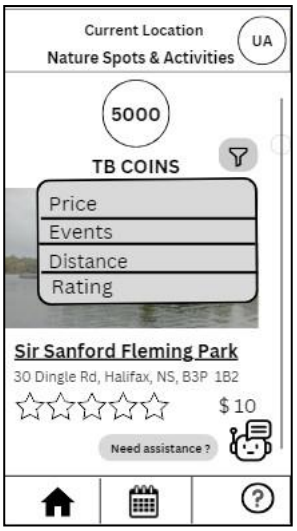


Fig 11: Filter Options

Fig 12: User Account

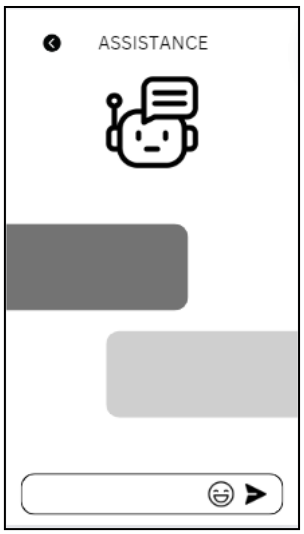


Fig 13: Chat Assistance

Fig 14: Activity Info

Fig 15: Payment Page

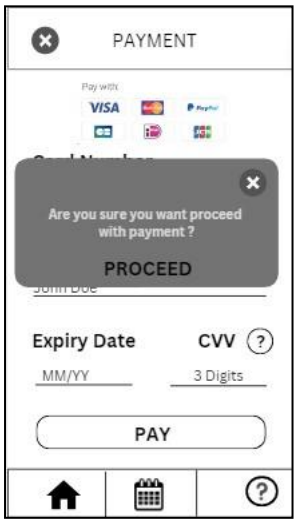


Fig 16: Alert Msg

Fig 17: Status Success Msg

Fig 18: Status Failure Msg

Fig 19: Travel Plan

Fig 20: Alert Msg

Fig 21: Status Msg

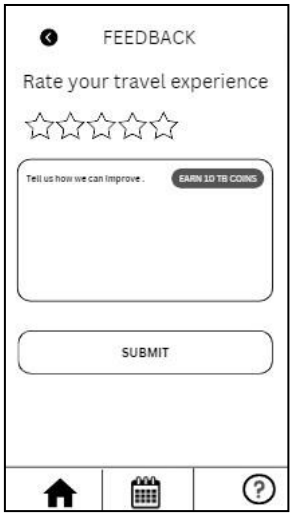


Fig 22: Feedback

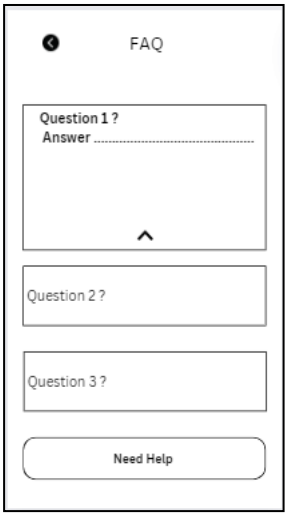


Fig 23: FAQ

LIST OF PROTOTYPE FUNCTIONALITIES

1. *<u>Travel Buddy Welcome Page</u>*

❖ *Description*: This is the page displayed when the user opens the app, user can click **get started to proceed**.

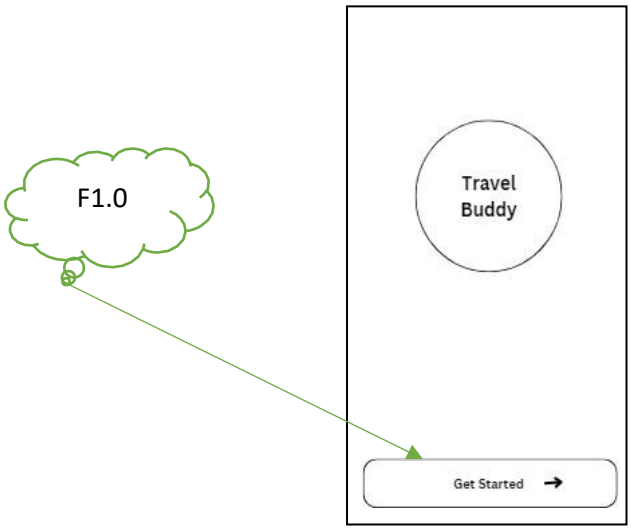


Fig 1: Welcome Page

Figure Number	Functionality ID #	Functionality Name	Description
1	*F1.0*	❖ *Get Started*	❖ User **who installs** the **Travel Buddy app** for **the first time** will see this page.

			❖ User needs **to click** on **get started** to **login/signup**.

2. *Login Page*

❖ *Brief Description*: For login, after the user enters the details, if the details are correct then the user is **directed to the home page**. If the user forgets the password, then the user can click on **forgot password**.

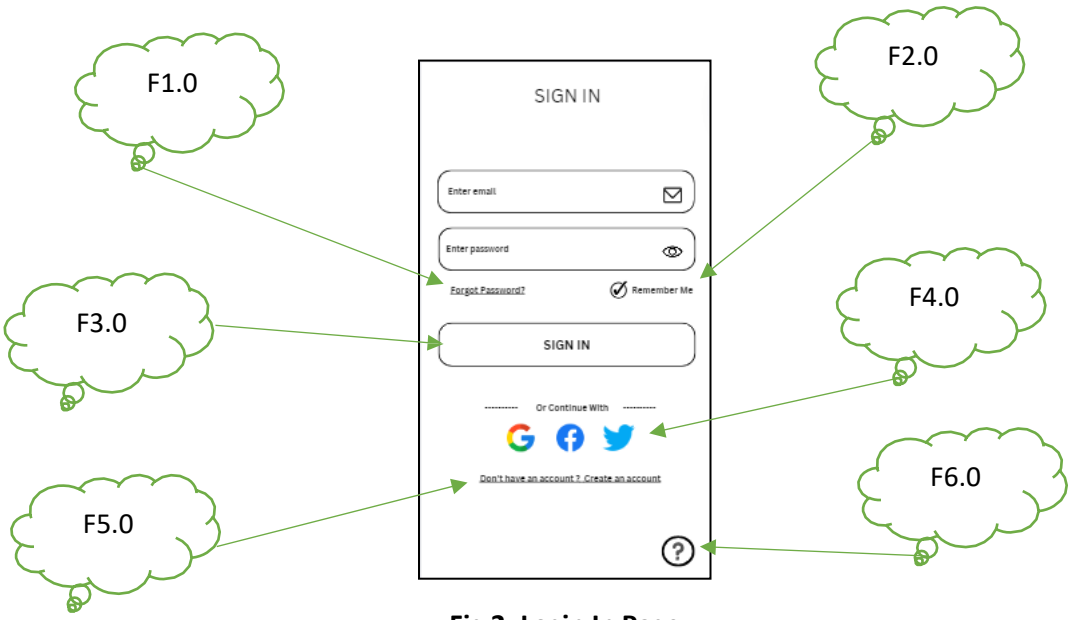


Fig 2: Login In Page

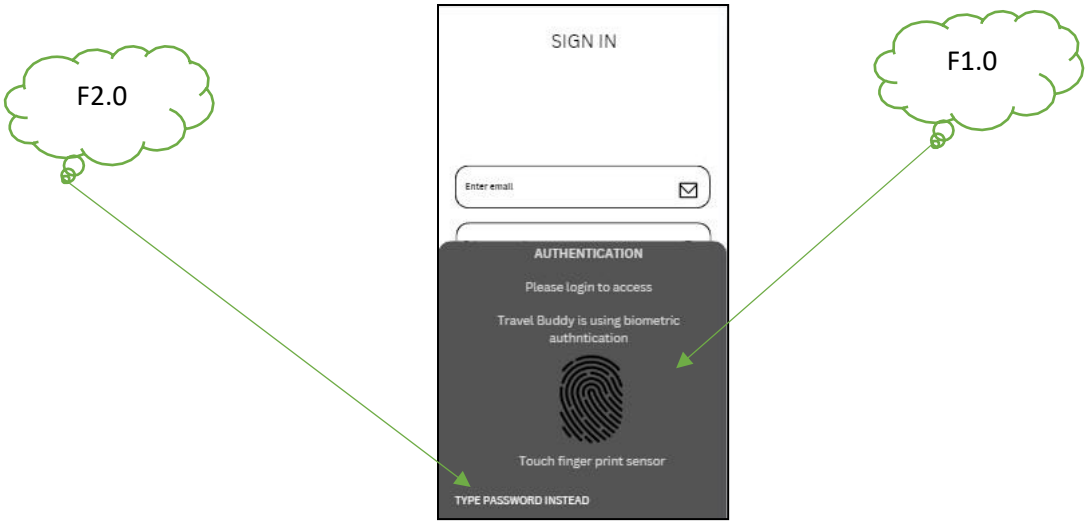


Fig 3: Biometric Login

Figure Number	Functionality ID #	Functionality Name	Description
2	*F1.0*	❖ *Forgot Password*	❖ User **who forgets to recollect their password** can click on forgot password. ❖ User will be sent mail and **steps to enter a new password**.
	F2.0	❖ *Remember Me*	❖ User who clicks on remember me, will only have to enter the username and password a single time. ❖ User when they **re-login**, the username and password will **automatically be entered**. ❖ This **functionality acts as an accelerator**, increases the **ease of users**, and **reduces human error**.
	F3.0	❖ *Sign in*	❖ Once the user enters a **valid username** and **password**, the user can click on the sign-in button to login in. ❖ On **successful account validation** and login, the user will be **directed to the homepage**.
	F4.0	❖ *Login via Social Media Platforms*	❖ User can also login **via social media platforms** such as **twitter, facebook and google**. ❖ Reduces **typing errors** and **account creation hassle**.
	F5.0	❖ *Create an Account*	❖ Users who **don't yet have an account** can click on create account link to create an account. ❖ User on **clicking on the link** will be directed to signup page.
	F6	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on ⓘ icon. ❖ User will be **directed to Contact Us page.**
3	*F1.0*	❖ *Biometric Login*	❖ Users can also login to travel buddy app via their **biometric validation**. ❖ **Assuming that**, when user creates account, a **message prompt** will ask whether they want to **add biometric login**.
	F2.0	❖ *Type Password Instead*	❖ In case **user prefers to enter password or user hasnt set up biometric login or users biometric is not working**, then user can click on type password for **entering account credentials manually**.

3. *Signup Page*

❖ *Brief Description*: For signup, after the user enters all details and clicks the signup button the **user is directed to the personalization page**. If they already have an account, then they can click the Sign in link.

Fig 4: Signup Page

Figure Number	Functionality ID #	Functionality Name	Description
4	*F1.0*	❖ *Sign up*	❖ User **can name, email, and password** and **click on signup** to create an account**.** ❖ User will be directed to **the personalization page**.
	F2.0	❖ *Click here to Sign in*	❖ Users **who already have an account**, **can redirect to the login page** by clicking on this link.

4. *Edit Account Page*

❖ *Brief Description*: Edit account page is an option that allows users to **update their Account details** and passwords.

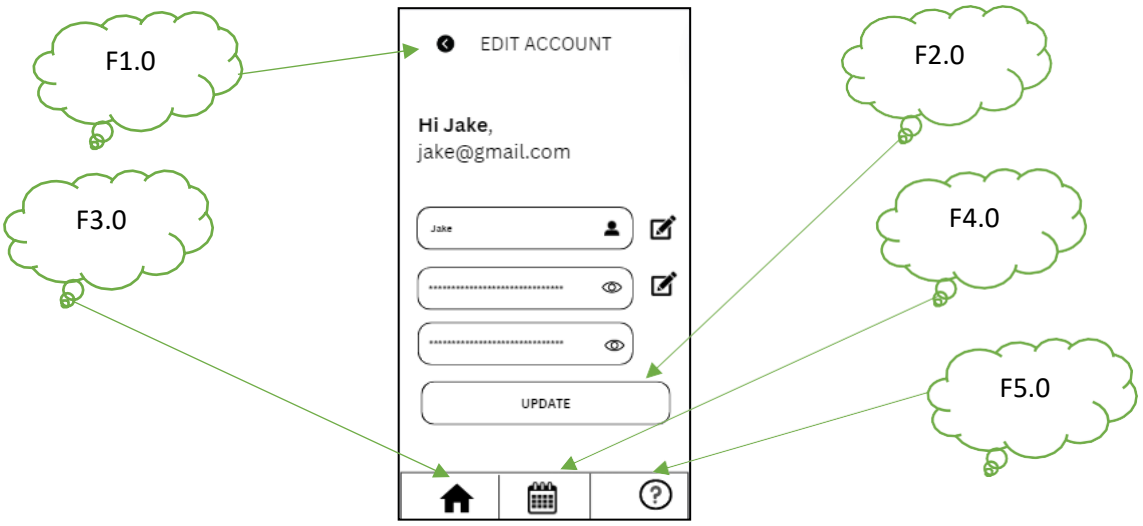


Fig 5: Edit Account Page

Figure Number	Functionality ID #	Functionality Name	Description
5	*F1.0*	❖ *Back Icon*	❖ User who wants to **redirect back to the homepage** can click on icon.
	F2.0	❖ *Update*	❖ User can edit their name and password by clicking on the respective **icon**. ❖ Once the user **has made the changes**, the user can click on **the update button**. ❖ User will be **redirected to the homepage**.
	F3.0	❖ *Home icon*	❖ User can also **redirect back to the homepage** by clicking on icon.
	F4.0	❖ *Calendar icon*	❖ User can **view their travel plans** by clicking on icon.
	F5.0	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on icon. ❖ User will be **directed to FAQ page**

5. *<u>Contact Us Page</u>*

❖ *Brief Description*: For the contact us page, users can either make a phone call or enter **their grievances** as a message and click submit button, and the user will be directed back to the homepage.

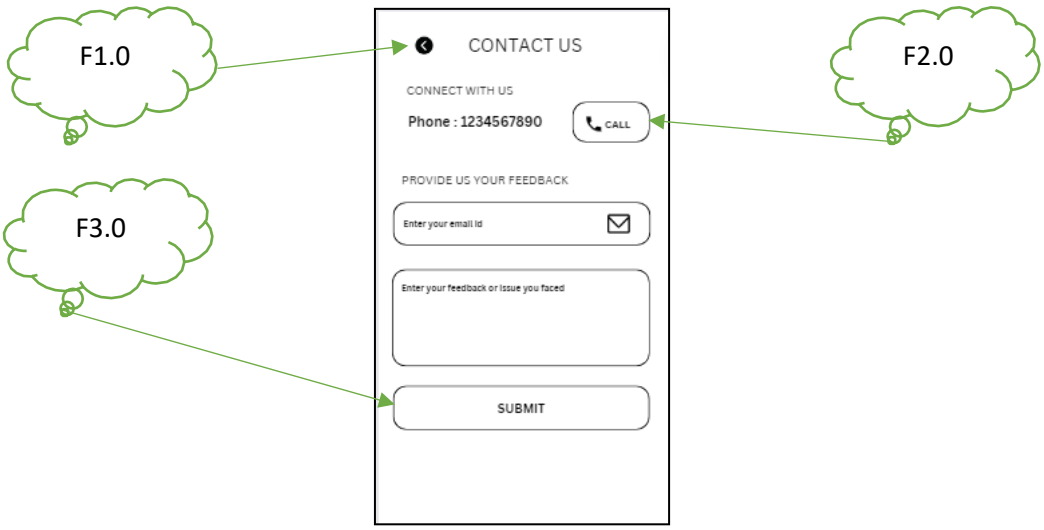


Fig 6: Contact Us Page 1

Fig 7: Contact Us Page 2

Figure Number	Functionality ID #	Functionality Name	Description
6	*F1.0*	❖ *Back Icon*	❖ User who wants to **redirect back to the login/signup page depending on from which page the user has clicked this icon** can click on icon.
	F2.0	❖ *Call*	❖ Users who **want to have a telephone conversation** to **clarify queries** faced can click on the CALL icon.
	F3.0	❖ *Submit*	❖ If the **user wants to enter feedback via text**, then the user can enter their mail and provide the message and click on submit.

			❖ Travel Buddy team **will then be in touch with them via mail**.
7	*F1.0*	❖ *Back Icon*	❖ User who wants to **redirect back to the homepage** can click on icon.
	F2.0	❖ *Call*	❖ Users who **want to have a telephone conversation** to **clarify queries** faced can click on the icon.
	F3.0	❖ *Submit*	❖ If the **user wants to enter feedback via text**, then the user can enter their message and click on submit. ❖ Travel Buddy team **will then be in touch with them via mail**.
	F4.0	❖ *Calendar icon*	❖ User can **view their travel plans** by clicking on icon.
	F5.0	❖ *Home icon*	❖ User can also **redirect back to the homepage** by clicking on icon.
	F6.0	❖ *Help icon*	❖ Users **who have difficulties or queries** while using the app can click on icon. ❖ User will be **directed to FAQ page**

6. <u>*Personalization Categories Pages*</u>

❖ *Brief Description*: Users **can choose** whichever **nature spots and activities** they prefer by clicking on the buttons (eg: Hill Stations, Ocean, and Waterfalls are my preferred spots to visit) and then clicking on the go button to proceed to the Travel Buddy homepage.

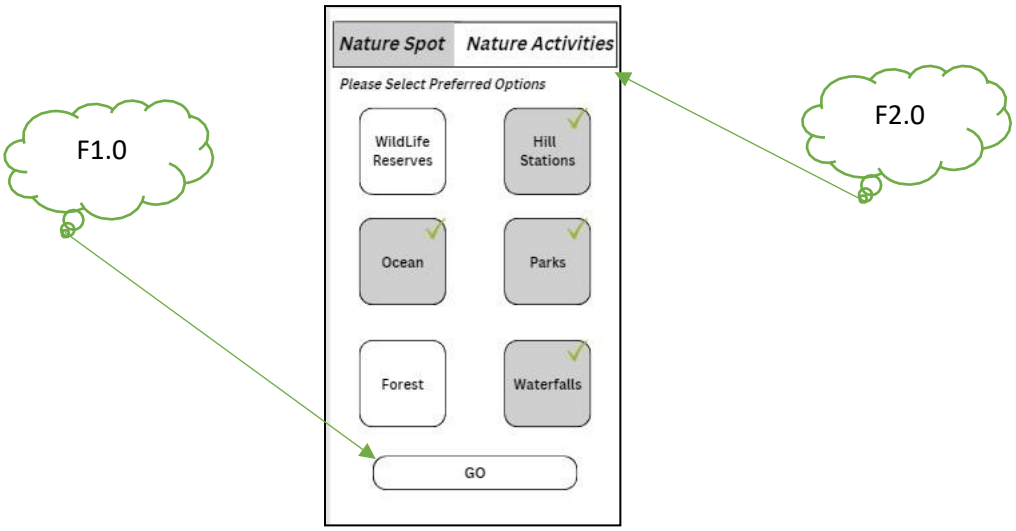


Fig 8: Nature Spots

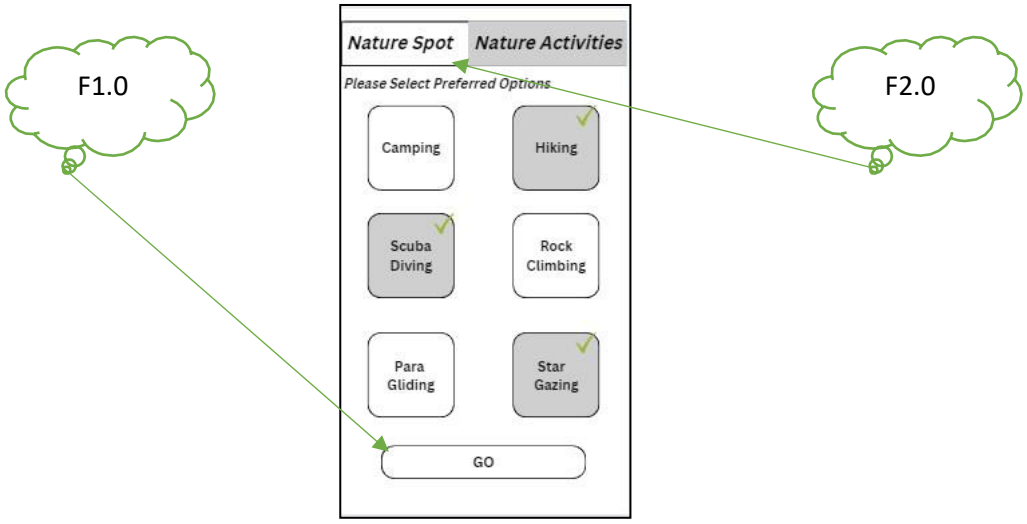


Fig 9: Nature Activities

Figure Number	Functionality ID #	Functionality Name	Description
8	*F1.0*	❖ *Go*	❖ Users **who have made their selections of preferred nature spots and activities** can click on the go button to **redirect to the homepage**.
	F2.0	❖ *Nature Activities*	❖ Users can toggle to make **preferred selections** on nature activities by **clicking on the nature activities button**.
9	*F1.0*	❖ *Go*	❖ Users **who have made their selections of preferred nature spots and activities** can click on the go button to **redirect to the homepage**.
	F2.0	❖ *Nature Spot*	❖ Users can toggle to make **preferred selections** on nature spots by **clicking on the nature spots button**.

7. *Personalized Result of Nature Spot and Categories*

❖ *Brief Description*: This page is the **home/main page of our app**. After the user chooses which all activities and nature spots they would like to explore, the users are redirected to home pg. Home pg consists of the following features.
  ❖ The **current Location** will be displayed by default, the user can change the location manually by clicking it.
  ❖ UA denoted **User Account**, it provides users with the view and edit user account details (eg: password), edit their personalization, and logout from the application.
  ❖ Activities/Nature Spots information
  ❖ **Horizontal nav bar** consisting of home pg, travel plan and contact us options.

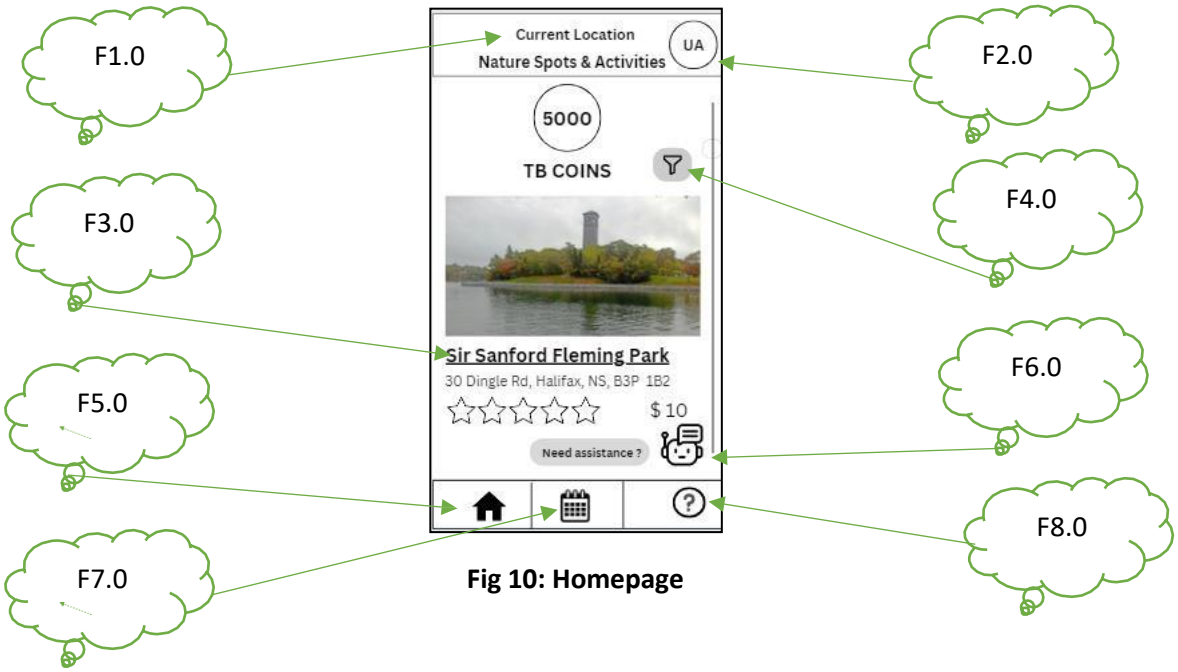


Fig 10: Homepage

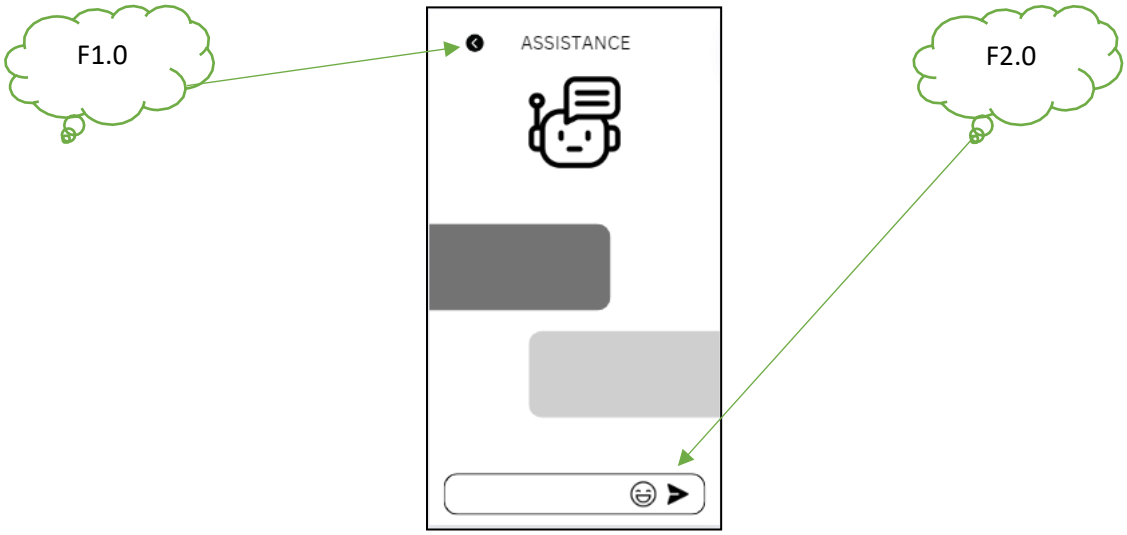


Fig 13: Chat Assistance

Figure Number	Functionality ID #	Functionality Name	Description
10	*F1.0*	❖ *Current Location*	❖ Nature spots and activities displayed will be those destinations that can be commutable from the current location. ❖ If the user **wants to view nature spots of a different location**, then the **user can click on the current location** and change the location. (eg: I am staying in Halifax, but I

			want to view nature spots in Toronto, then I can change the location to Toronto)
	F2.0	❖ *User Account (UA)*	❖ Users can click on icon to **edit their personalization, edit their account information and log out from the application.**
	F3.0	❖ *Nature Spot Title*	❖ When the user clicks on the title of the nature spot or activity, the **user will be directed to the activity information page**.
	F4.0	❖ *Filter Icon*	❖ User can click on the icon, to **adjust the nature spots and activities** based on **price range, events happening, distance, and based on ratings range**.
	F5.0	❖ *Home Icon*	❖ User can also **redirect back to the homepage** by clicking on icon.
	F6.0	❖ *Chatbot Icon*	❖ User who wants **real-time assistance** can interact with an **AI-powered chatbot**, to get **instant assistance and help**. User just need to click on icon.
	F7.0	❖ *Calendar Icon*	❖ User can **view their travel plans** by clicking on icon.
	F8.0	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on icon. ❖ User will be **directed to FAQ page**
13	*F1.0*	❖ *Back Icon*	❖ User who wants to **redirect back to the homepage** can click on icon.
	F2.0	❖ *Message Icon*	❖ Users can **have a conversation** with the chatbot by typing messages, adding emojis if they prefer and clicking on icon.

8. <u>*Activity Information Page*</u>

❖ *Brief Description*: The activity Information page **provides all the necessary information** essential for the trip. **Users can decide on whether to proceed or not** based on the information provided. This page consists of the following aspects:

- ❖ Preview of experience: Video snippet of the places
- ❖ Basic Activity Information (rules, regulations, important equipment etc)
- ❖ Weather Forecast and Closure Updates
- ❖ Personal Guide Option
- ❖ Navigation Features (which include information about the transports available and nearest utilities available throughout the pathway from source to destination).

Fig 14: Activity Info

Figure Number	Functionality ID #	Functionality Name	Description
14	*F1.0*	❖ *Back Icon*	❖ User who wants to **redirect back to the homepage** can click on icon.
	F2.0	❖ *Make Payment*	❖ Once the user prefers to proceed with the activity, the **user can click on make payment** to proceed with the payment option.
	F3.0	❖ *Get Directions*	❖ Users who want to **view the navigation pathway**, can click on get directions.
	F4.0	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on icon. ❖ User will be **directed to FAQ page**
	F5.0	❖ *Calendar Icon*	❖ User can **view their travel plans** by clicking on icon.

9. *<u>Payment Page</u>*

❖ *Brief Description*: Once the user wishes to proceed with the nature spot/activity, **if there is payment involved**, then the user will be directed to the payment page, where the user enters credit/debit information and make payment. Once **payment is successful**, the **event will be added to travel plans.**

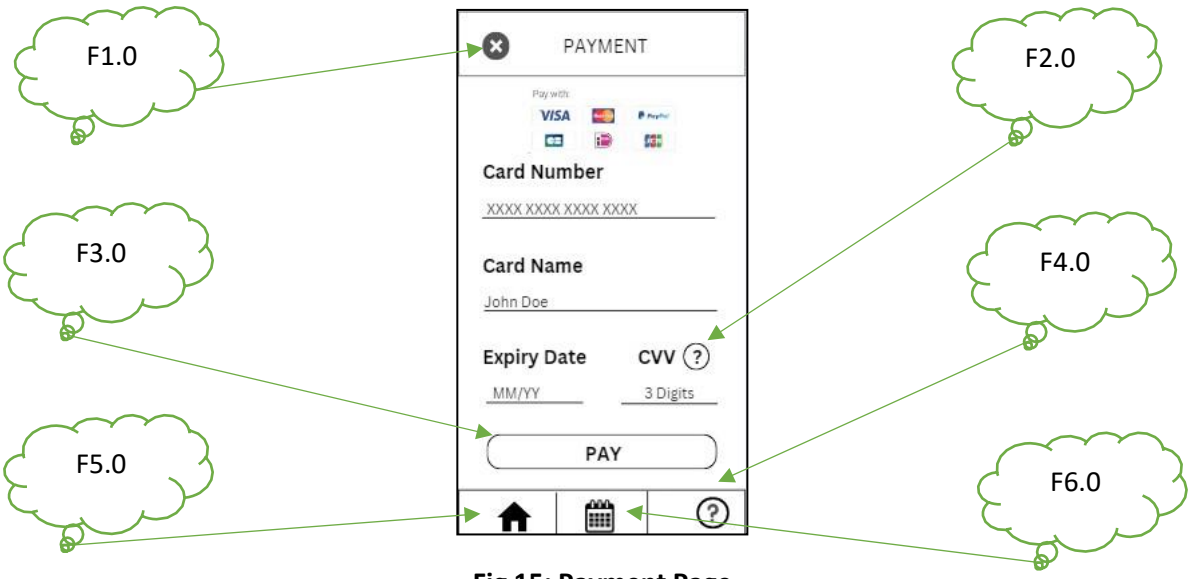


Fig 15: Payment Page

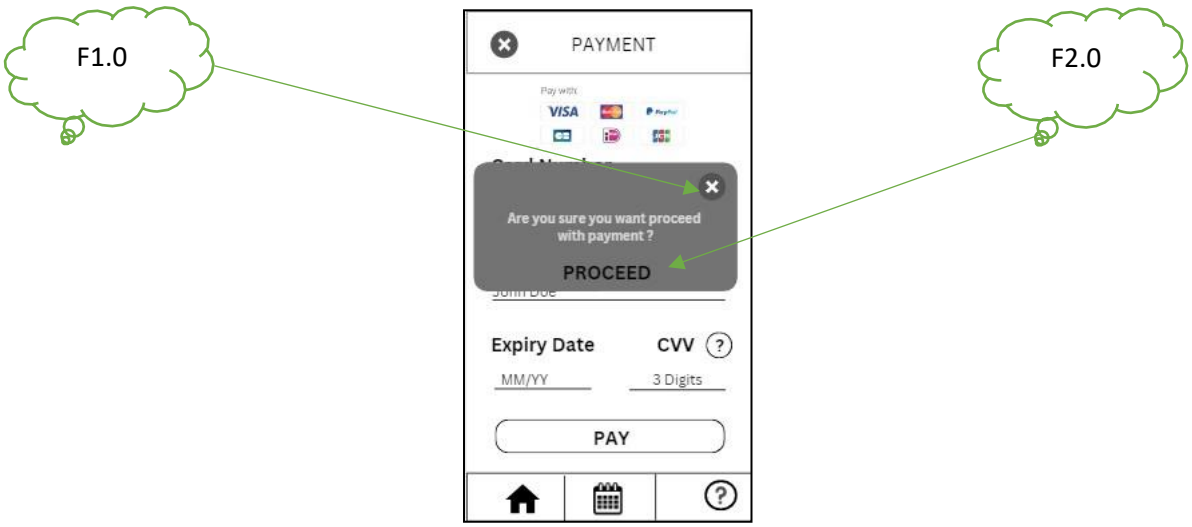


Fig 16: Alert Msg

Fig 17: Status Success Msg

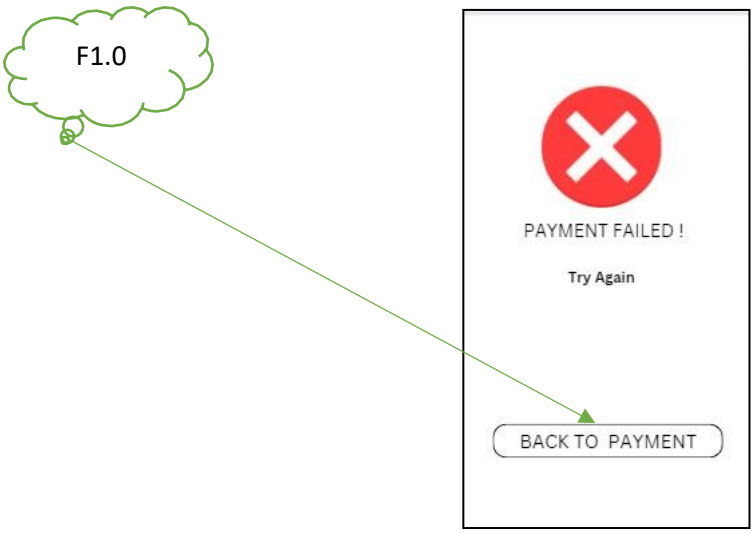


Fig 18: Status Failure Msg

Figure Number	Functionality ID #	Functionality Name	Description
15	*F1.0*	❖ *Cross Button*	❖ In case the **user wants to cancel the payment**, the user can click on the X button. ❖ User will be directed **to the activity information page**.
	F2.0	❖ *Question mark icon*	❖ Users can click on ⓘ icon, to **know more about CVV**.
	F3.0	❖ *Pay*	❖ When the user **wants to make payment**, the user can click on the pay button.
	F4.0	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on ⓘ icon. ❖ User will be **directed to FAQ page**
	F5.0	❖ *Home Icon*	❖ User can also **redirect back to the homepage** by clicking on 🏠 icon.
	F6.0	❖ *Calendar Icon*	❖ User can **view their travel plans** by clicking on 📅 icon.
16	*F1.0*	❖ *Cross Button*	❖ In case the **user wants to re-verify the payment**, the user can click on the X button.
	F2.0	❖ *Proceed*	❖ Users can click on proceed to **confirm payment**.
17	*F1.0*	❖ *Back to Homepage*	❖ Status of payment will be shown, the user can click on the homepage button to **land on homepage**.
18	*F1.0*	❖ *Back to Homepage*	❖ Status of payment will be shown, the user can click on the homepage button to **land on homepage**.

10. <u>Travel Planner</u>

- *Brief Description*: User can view **their travel plans** and check the status of the visit. Users will be notified when there are a few days left before the scheduled event. Users are also **provided an option to cancel** their booking, in case they change their priorities. Users will be allowed to cancel bookings till 5hrs before the trip.

Fig 19: Travel Plan

Fig 20: Alert Msg

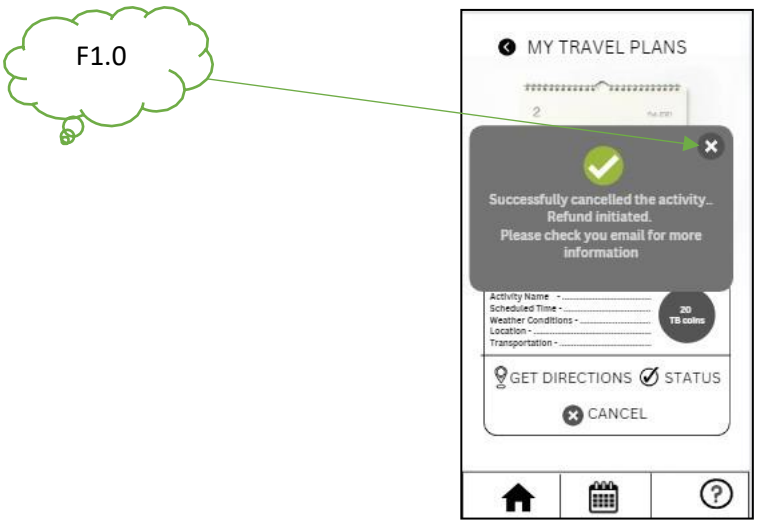


Fig 21: Status Msg

Figure Number	Functionality ID #	Functionality Name	Description
19	*F1.0*	❖ *Back Icon*	❖ In case the **user wants to cancel the payment**, the user can click on the X button. ❖ User will be directed **to the activity information page**.
	F2.0	❖ *Cancel*	❖ Users can click on the cancel button, in case they want to **delete the activity**. ❖ User will be **notified by mail** about the refund amount and process.
	F3.0	❖ *Get Directions*	❖ Users who want to **view the navigation pathway**, can click on get directions.
	F4.0	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on ⓘ icon. ❖ User will be **directed to FAQ page**
	F5.0	❖ *Home Icon*	❖ User can also **redirect back to the homepage** by clicking on 🏠 icon.
	F6.0	❖ *Calendar Icon*	❖ User can **view their travel plans** by clicking on 📅 icon.
20	*F1.0*	❖ *Cross Button*	❖ In case the **user doesn't want to cancel the activity**, the user can click on the X button.
	F2.0	❖ *Proceed*	❖ Users can click on proceed to **cancel activity**.
21	*F1.0*	❖ *Cross Button*	❖ Status of payment will be shown, **user can click** on X button to view other travel plans.

11. <u>Feedback Page</u>

- *Brief Description*: Once users have finished the activity, users will be provided with the option to provide their valuable feedback and earn rewards for the same.

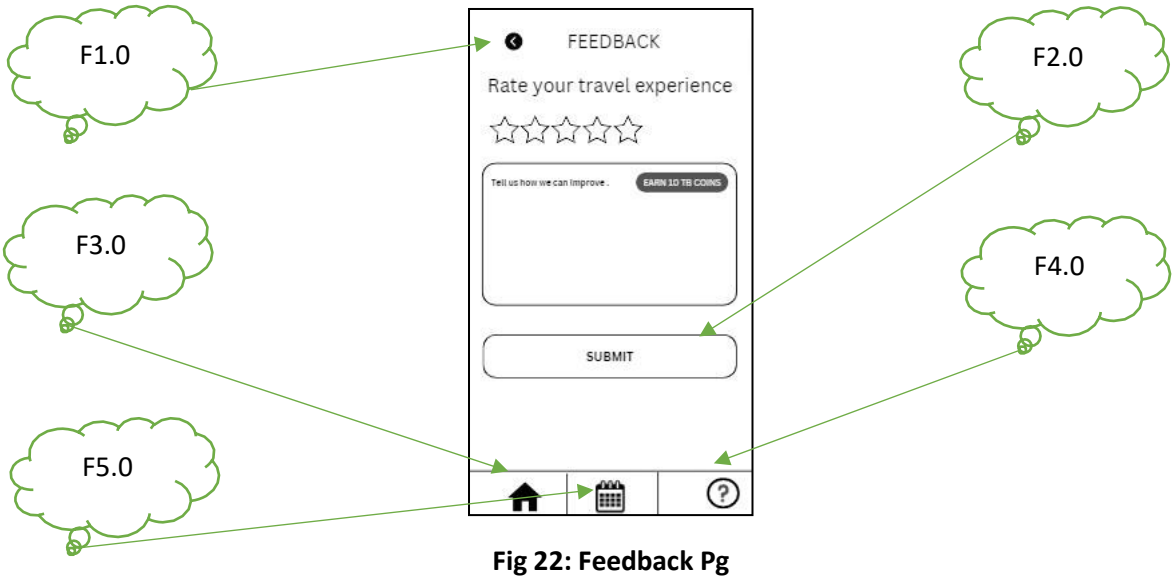


Fig 22: Feedback Pg

Figure Number	Functionality ID #	Functionality Name	Description
22	*F1.0*	❖ *Back Icon*	❖ User will be directed **to the homepage.**
	F2.0	❖ *Submit*	❖ Users can rate their **travel experience** and provide necessary feedback and click on submit button.
	F3.0	❖ *Home Icon*	❖ User can also **redirect back to the homepage** by clicking on icon.
	F4.0	❖ *Help Icon*	❖ Users **who have difficulties or queries** while using the app can click on icon. ❖ User will be **directed to FAQ page**
	F5.0	❖ *Calendar Icon*	❖ User can **view their travel plans** by clicking on icon.

12. <u>FAQ Page</u>

- *Brief Description*: Users can **view frequently asked questions** and gain information. If users do have any queries, then they can click need help, and the user will be directed to contact us page. Else, user can click back button and directed to homepage.

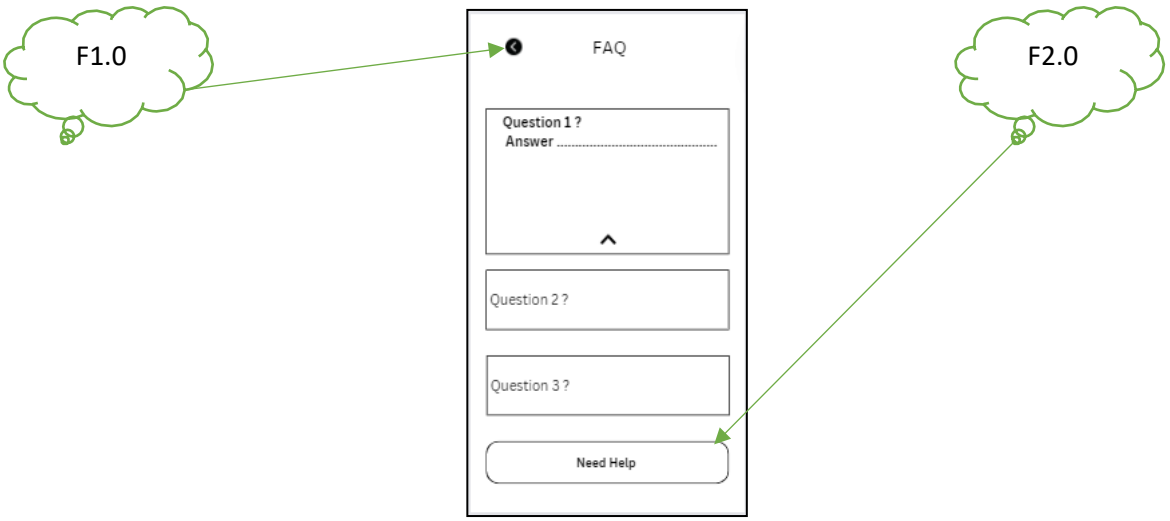


Fig 23: FAQ

Figure Number	Functionality ID #	Functionality Name	Description
23	*F1.0*	❖ *Back Icon*	❖ User will be directed **to the homepage.**
	F2.0	❖ *Need Help*	❖ Users can click on need help if they **have further queries**. ❖ User will be directed to the **contact us page**.

TEST CASES

Functional Tester						Executing Tester	
Fig Num	Func_ID	Test Case	Pre Condition	Steps to Reproduce	Expected Result	Actual Result	Pass/Fail
2	*F2.0*	User enabled remember me in login page	User is a registered user & User has enabled Remember me	Click on type password instead when biometric authentication message prompts	Sign in page should be displayed with email and password text area	Sign in page should be displayed with email and password text area	Pass
				Click on signin button	Home page is displayed	Home page is displayed	
2	*F3.0*	Login via email	User is a registered user	Click on type password instead when biometric authentication	Sign in page should be displayed with email and	Sign in page should be displayed with email and	Pass

				message prompts	password text area	password text area	
				Enter your email and password	Data should be populated with password being hidden	Data should be populated with password being hidden	
				Click on signin button	Home page is displayed	Home page is displayed	
3	*F1.0*	Login via Biometric Id	User is a registered user	Place finger on the fingerprint sensor	Home page is displayed	Home page is displayed	Pass
4	*F1.0*	Sign up for First time user	User is signing up for first time & User has opened welcome page	Click on get started button	Sign in page should be displayed with Biometrics validation popup	Sign in page should be displayed with Biometrics validation popup	Pass
				Click on type password instead	Sign in page should be displayed with email and password text area	Sign in page should be displayed with email and password text area	
				Click on Don't have an account? Create an account	Sign up page should be displayed	Sign up page should be displayed	
				Enter your name, email, password and confirm password	Data should be populated with password being hidden	Data should be populated with password being hidden	
				Click on signup button	Personalization page must be displayed	Personalization page must be displayed	
5	*F2.0*	Edit Personal Name in the app	User is already logged in application &	Click on "UA" Icon on top right corner of the home page	Menu should appear just below the "UA" Icon	Menu should appear just below the "UA" Icon	Pass

			User is on home page	Click on "Account" from opened menu	Edit Account screen should open	Edit Account screen should open	
				Click on Edit Icon near to current display name	Textbox should comes to enter name in place of current name label	Textbox should comes to enter name in place of current name label	
				Change the new name and press Update button	Name should be changed and new entered name's lable should come instead of text box	Name should be changed and new entered name's lable should come instead of text box	
7	*F2.0*	Call to customer support	User is already logged in application & User is on home page	Click on "?" Icon on below application horizontal menu	FAQ screen should appear	FAQ screen should appear	Pass
				User can search the answers from FAQ Answers and click on need help button	Contact US page should appear	Contact US page should appear	
				Click on call button	Call should be initialted to customer care number	Call should be initialted to customer care number	
8	*F1.0*	User wants to visit nearby hill stations and also perform para gliding activity	User has signed up for first time & Personalization page with nature spot is displayed	Select the desired spot i.e the Hill station in the nature spot	Desired nature spot is selected	Desired nature spot is selected	Pass
				Click on Nature Activities	Nature activities are displayed	Nature activities are displayed	

				Select the desired activity i.e the Para Gliding activity	Desired nature activity is selected	Desired nature activity is selected	
				Click on go	Home page is displayed With hill stations and paragliding activities places	Home page is displayed With hill stations and paragliding activities places	
10	*F2.0*	Change Personalization after login	User is already logged in application & User is on home page	Click on "UA" Icon on top right corner of the home page	Menu should appear just below the "UA" Icon	Menu should appear just below the "UA" Icon	Pass
				Click on "Edit Personalization" from opened menu	Personalization screen should open with previously selected natural sports and activities	Personalization screen should open with previously selected natural sports and activities	
				Select/Change some activities and natural sports and click on go button	User should be redirected to home screen	User should be redirected to home screen	
				Check the activites which come on home screen	Activities should be according to the new personalization	Activities should be according to the new personalization	
10	*F2.0*	User views his upcoming activity and wants to Logout from Travel Buddy App	User is already logged in application & User is on travel plan page	Click on the home icon from horizontal navbar	User is directed to homepage	User is directed to homepage	Pass
				Click on UA icon and then click on logout	User will redirected to signin page	User will redirected to signin page	

10	*F3.0*	User wants to select an activity after customizati on of filters	User is already logged in application & User is on home page	Click on the filter icon on the homepage and customize the preferences based on price, distance, events and ratings.	Filter section modal box is displayed	Filter section modal box is displayed	Pass
				Click on the name of desired filtered nature spot/activity	Activity page will appear	Activity page will appear	
13	*F2.0*	User wants to seek assistance using chatbot	User is already logged in application & User is on home page	Click on chatbot icon	Chatbot chat page opens	Chatbot chat page opens	Pass
				On the message page, user needs to type the message and press enter	Chatbot sends appropriate reply to the users message	Chatbot sends appropriate reply to the users message	
14	*F2.0*	Payment with Valid Card	User has selected the activity & User is on Preview activity page	Click on 'Make Payment'	Payment page should open	Payment page should open	Pass
				Enter Card details (Card No, Name, Expiry Date, CNN)	Input field should be available to enter Card details (Number for card details and String for Name)	Input field should be available to enter Card details (Number for card details and String for Name)	
				Click on 'PAY'	User should be prompted for confirmation	User should be prompted for confirmation	
				Click on 'Proceed' to	Status 'PAYMENT	Status 'PAYMENT	

				confirm the action	COMPLETED' should display	COMPLETED' should display	
				Click on 'BACK TO HOMEPAGE'	User should be brought back to Homepage to browse other activity	User should be brought back to Homepage to browse other activity	
15	*F3.0*	Payment with Invalid card	User has selected the activity & User is on Preview activity page	Click on 'Make Payment'	Payment page should open	Payment page should open	Pass
				Enter Card details (Card No, Name, Expiry Date, CNN)	Input field should be available to enter Card details (Number for card details and String for Name)	Input field should be available to enter Card details (Number for card details and String for Name)	
				Click on 'PAY'	User should be prompted for confirmation	User should be prompted for confirmation	
				Click on 'Proceed' to confirm the action	Status 'PAYMENT FAILED' should display	Status 'PAYMENT FAILED' should display	
				Click on 'BACK TO PAYMENT'	User should be prompted to retry payment	User should be prompted to retry payment	
19	*F2.0*	Cancellation of the upcoming particular activity	User is already logged in application & He has upcoming future activity on particular future date &	Click on calendar button	My Travel Plans page should open	My Travel Plans page should open	Pass
				Click on particular future date from calendar dates	Upcoming activity should display for the selected date	Upcoming activity should display for the selected date	
				Click on Cancel button	Confirmation popup should come	Confirmation popup should come	

			User is on home page				
				Click on Proceed	Success message should come	Success message should come	
19	*F2.0*	Cancellation of the past completed activity	User is already logged in application & He has upcoming past activity on particular future date & User is on home page	Click on calendar button	My Travel Plans page should open	My Travel Plans page should open	Fail
				Click on particular past date from calendar dates	Past activity should display for the selected date	Past activity should display for the selected date	
				Check cancel button	Cancel button should not display	Cancel button is displayed	
19	*F3.0*	User wants to view the directions of his upcoming activity	User is already logged in application & User is on home page	Click on calendar icon from horizontal navbar and click on the calender and choose the upcoming date and time	Activity information will be displayed	Activity information will be displayed	Pass
				From the activity information section, click on get directions	User will be directed to offline maps page	User will be directed to offline maps page	
19	*F6.0*	User wants to view an upcoming future activity	User is already logged in application & User is on home page	Click on calendar icon from horizontal navbar and click on the calender and choose the upcoming date and time	Activity information of that date and time will be displayed	Activity information of that date and time will be displayed	Pass

22	*F2.0*	Feedback on Activity Completed	User has logged in the app & Selected Activity is past dated	Click on 'Calendar' icon at bottom of screen	Calendar should open with Current month	Calendar should open with Current month	Pass
				Days with activities scheduled should highlight in Red color	Details for particular day should display underneath calendar	Details for particular day should display underneath calendar	
				Click on 'Status'	Feedback Page should open (if activity is past dated)	Feedback Page should open (if activity is past dated)	
				Click on Stars to express Positive response (from low to high)	Stars should highlight	Stars should highlight	
				Enter text in the area provided	Text area should allow input with all alpha numeric characters	Text area should allow input with all alpha numeric characters	
				Click on 'SUBMIT' button	Feedback with Rating should reflect in the Review section of that activity/location 10 Coins should be credited to User account on successful submission of Feedback	Feedback with Rating should reflect in the Review section of that activity/locati on 10 Coins should be credited to User account on successful submission of Feedback	

RESULT OF COGNITIVE WALKTHROUGH AND UPDATED PROTOTYPE

The **Last process** was to create the **semi-functional prototype** for the sketches above. We have used the **Microsoft Power Apps** tool to create the semi-functional prototype.

Screenshots of different pages of the prototype are provided below.

1. *Travel Buddy Welcome Page*

- *Description*: This is the page displayed when the user opens the app, user can click **getstarted to proceed**.

Fig 1: Welcome Page

2. *Login Page*

- *Brief Description*: For login, after the user enters the details, if the details are correct then the user is **directed to the home page**. If the user forgets the password, then the user can click on **forgot password**.

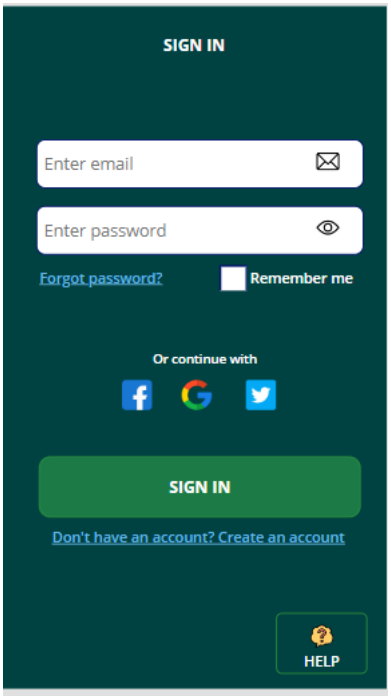


Fig 2: Login Page

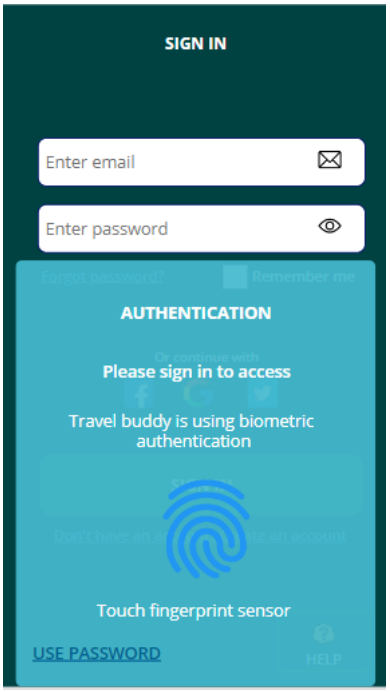


Fig 3: Biometric Login

3. *Signup Page*

❖ *Brief Description*: For signup, after the user enters all details and clicks the signup button the **user is directed to the personalization page**. If they already have an account, then they can click the Sign in link.

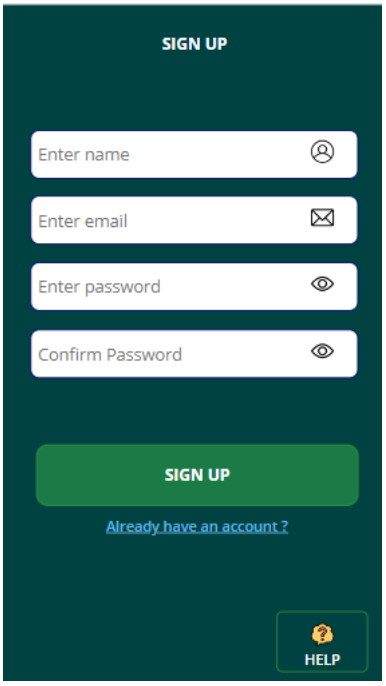


Fig 4: Signup

4. *Edit Account Page*

❖ *Brief Description*: Edit account page is an option that allows users to **update their Account details** and passwords.

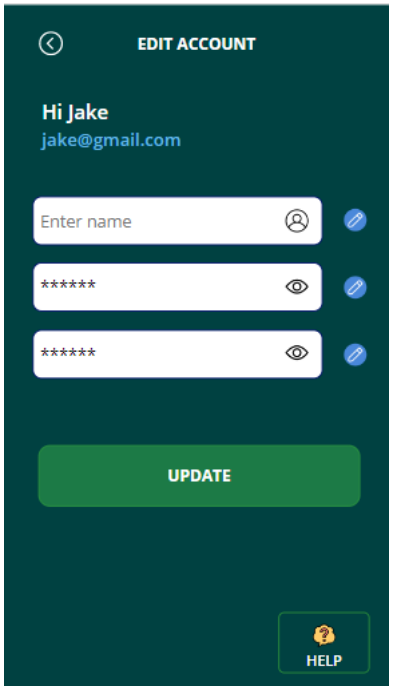


Fig 5: Edit Account

5. *Contact Us Page*

❖ *Brief Description*: For the contact us page, users can either make a phone call or enter **their grievances** as a message and click submit button, and the user will be directed back to the homepage.

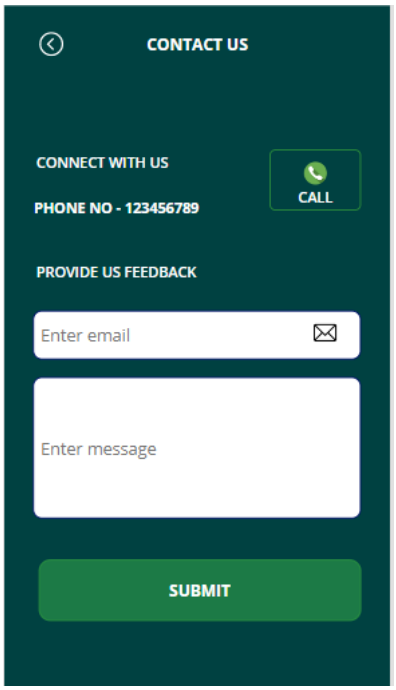


Fig 6: Contact_Page 1

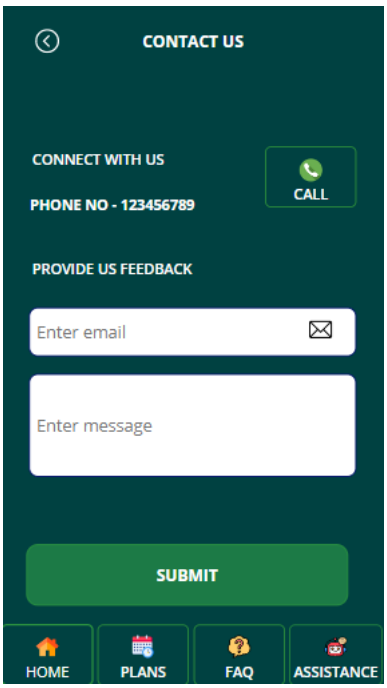


Fig 7: Contact_Page 2

6. *Personalization Categories Pages*

- *Brief Description*: Users **can choose** whichever **nature spots and activities** they prefer by clicking on the buttons (eg: Hill Stations, Ocean, and Waterfalls are my preferred spots to visit) and then clicking on the go button to proceed to the Travel Buddy homepage.

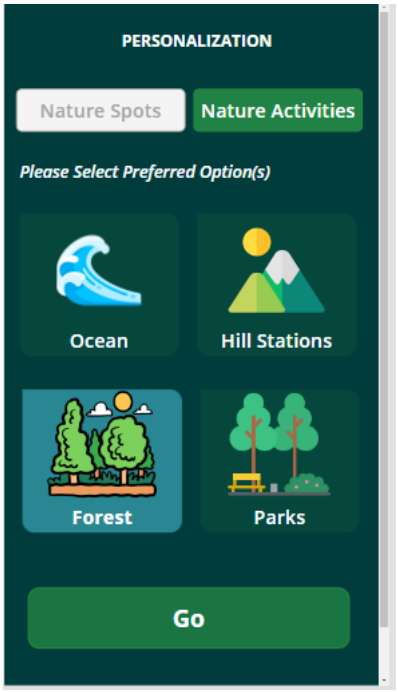


Fig 8: Nature Spots

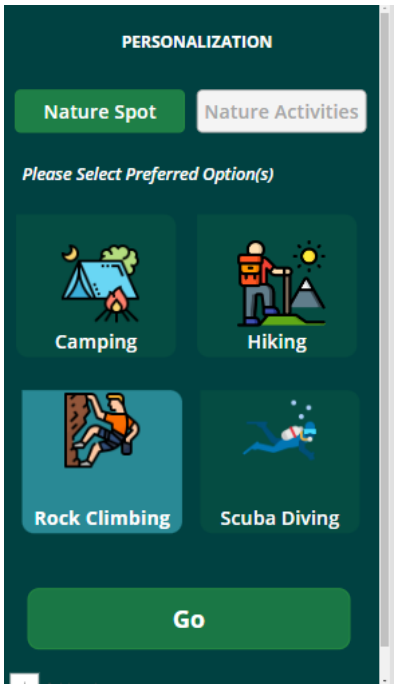


Fig 9: Nature Activities

7. *Personalized Result of Nature Spot and Categories*

- *Brief Description*: This page is the **home/main page of our app**. After the user chooses which all activities and nature spots they would like to explore, the users are redirected to home pg. Home pg consists of the following features.
  - The **current Location** will be displayed by default, the user can change the location manually by clicking it.
  - UA denoted **User Account**, it provides users with the view and edit user account details (eg: password), edit their personalization, and logout from the application.
  - Activities/Nature Spots information
  - **Horizontal nav bar** consisting of home pg, travel plan and contact us options.

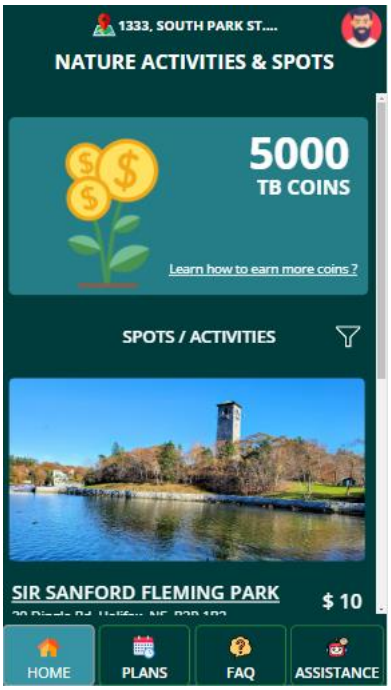


Fig 10: Homepage

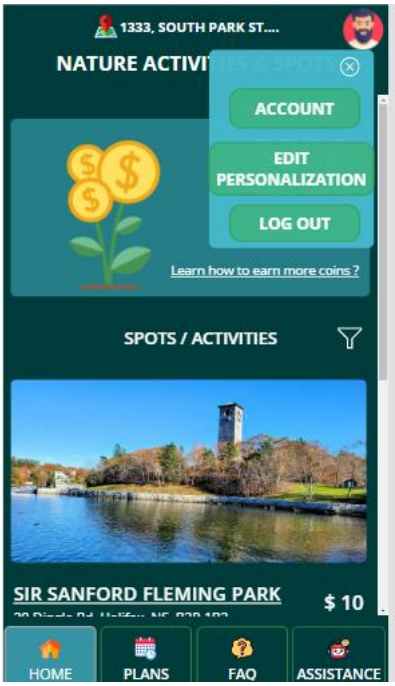


Fig 11: User Account

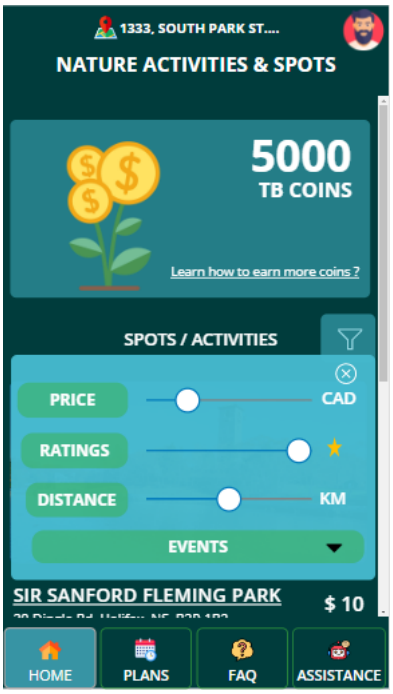


Fig 12: Filter

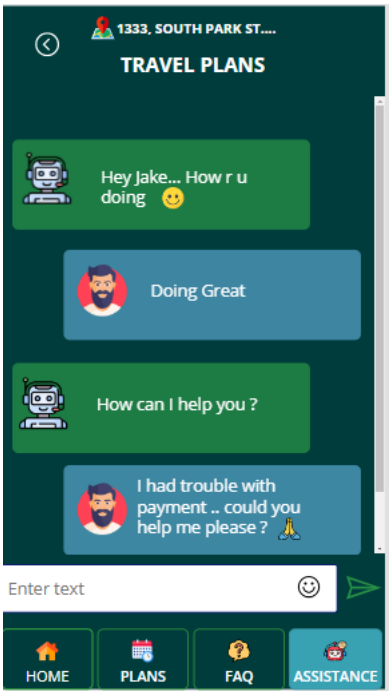


Fig 13: Chatbot Assistance

8. *Activity Information Page*

- *Brief Description*: The activity Information page **provides all the necessary information** essential for the trip. **Users can decide on whether to proceed or not** based on the information provided. This page consists of the following aspects:
  - Preview of experience: Video snippet of the places
  - Basic Activity Information (rules, regulations, important equipment etc)
  - Weather Forecast and Closure Updates
  - Personal Guide Option
  - Navigation Features (which include information about the transports available and nearest utilities available throughout the pathway from source to destination).

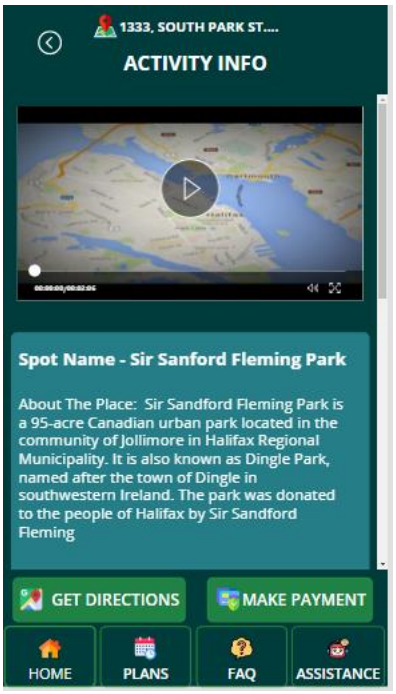


Fig 14: Activity Information

9. *<u>Payment Page</u>*

❖ *Brief Description*: Once the user wishes to proceed with the nature spot/activity, **if there is payment involved**, then the user will be directed to the payment page, where the user enters credit/debit information and make payment. Once **payment is successful**, the **event will be added to travel plans.**

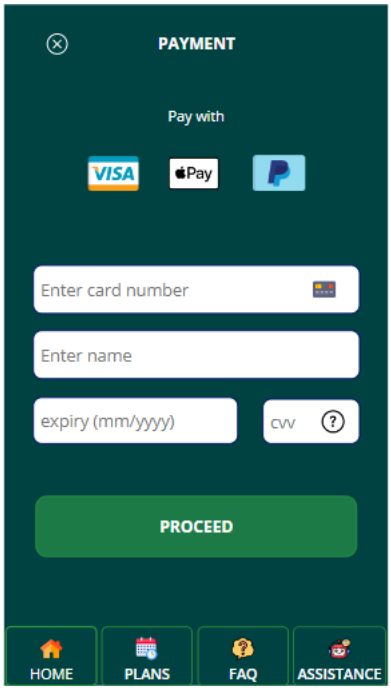


Fig 15: Payment

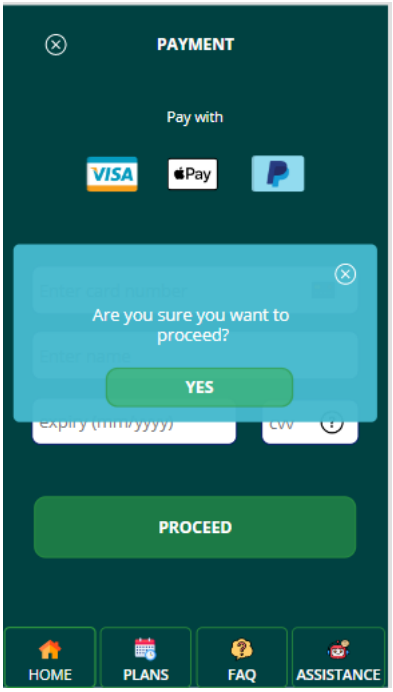


Fig 16: Alert Msg

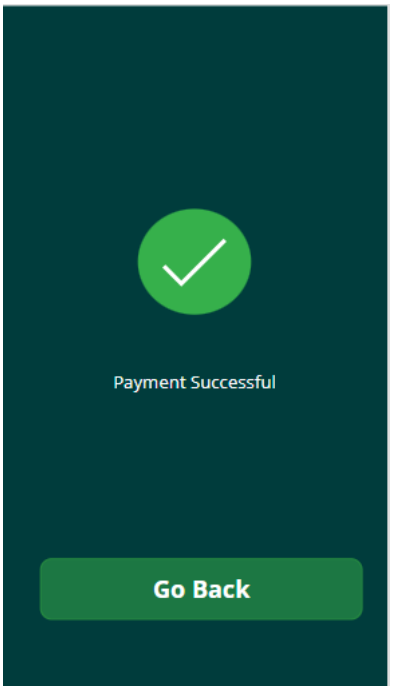


Fig 17: Success Msg

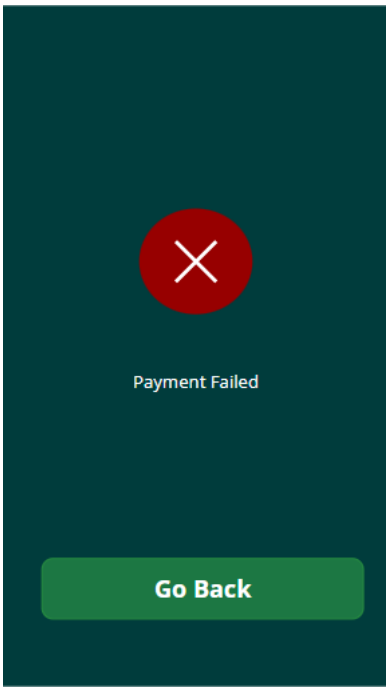


Fig 18: Failure Msg

10. <u>Travel Planner</u>

- *Brief Description*: User can view **their travel plans** and check the status of the visit. Users will be notified when there are a few days left before the scheduled event. Users are also **provided an option to cancel** their booking in case they change their priorities. Users will be allowed to cancel bookings till 5hrs before the trip.

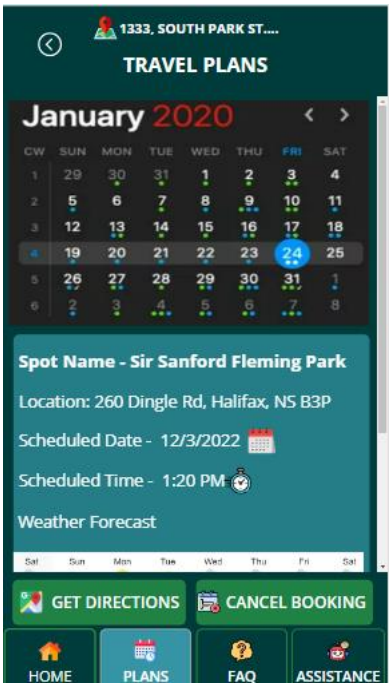


Fig 19: Travel Plans

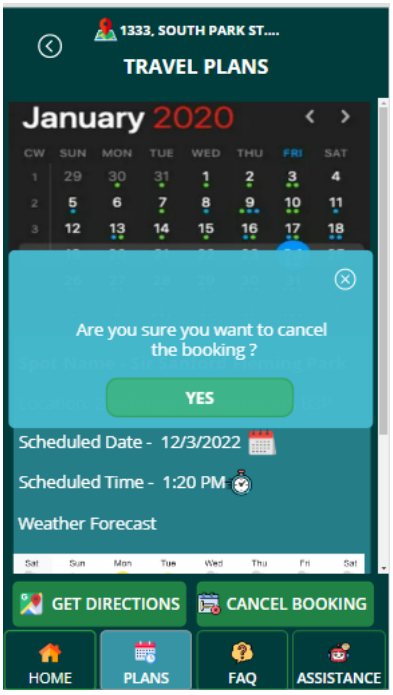


Fig 20: Alert Msg

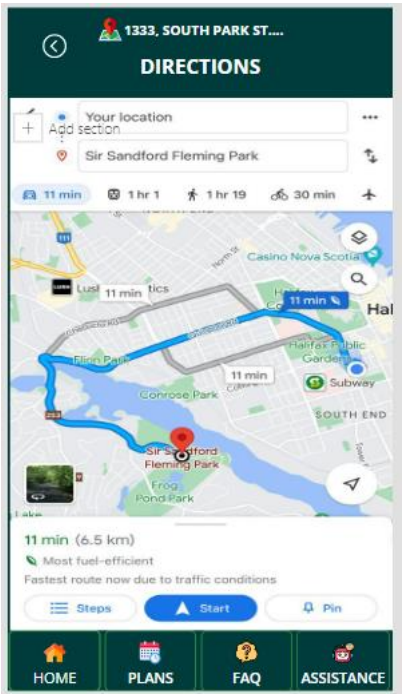


Fig 21: Directions

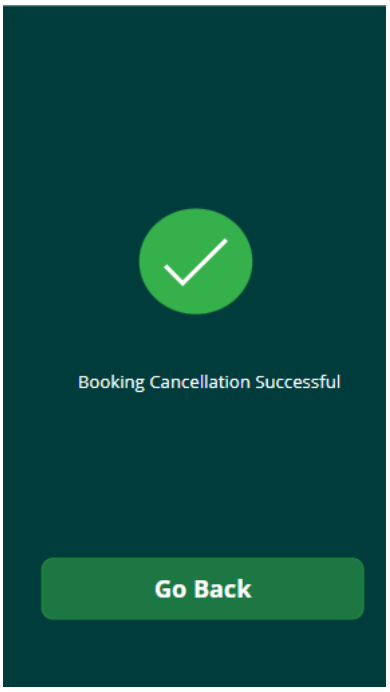


Fig 22: Success Msg

11. <u>Feedback Page</u>

- *Brief Description*: Once users have finished the activity, users will be provided with the option to provide their valuable feedback and earn rewards for the same.

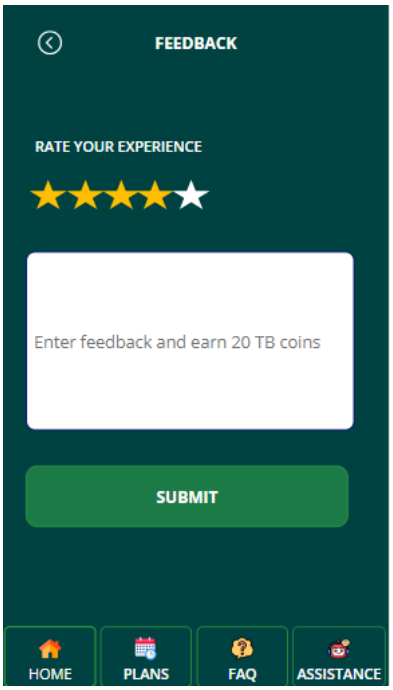


Fig 23: Feedback Msg

12. <u>FAQ Page</u>

- *Brief Description*: Users can **view frequently asked questions** and gain information. If users do have any queries, then they can click need help, and the user will be directed to contact us page. Else, user can click back button and directed to homepage.

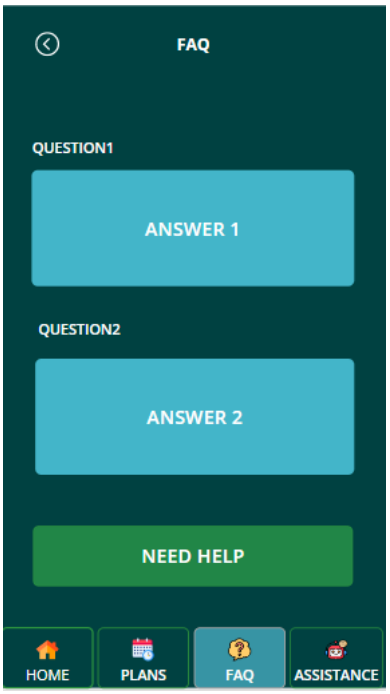


Fig 24: FAQ

CONCLUSION

- Travel Buddy mobile application has been intended to **utilize technological capabilities** to **motivate users to interact with nature**. This app allows users to choose their preferred nature spots and activities based on their personalization.
- Users are also provided with **reward scheme** (Travel Buddy Coins). This reward scheme motivates users to perform task to gain more rewards and hence avail more discounts.
- All **aspects essential** for nature trips is included in the application. Hence user can visit nature spots and perform nature activities with ease.
- The entire UI/UX development has been created **following** the **design thinking principles systematically**.
- We thoroughly enjoyed the process and would like to express our **heartfelt gratitude** towards **Dr. Yasushi, Moe and Anas**.

FUTURE WORKS

- Transform semi-functional prototype to **functional prototype**.
- Add validations of data, store the **data in database**.
- Built an **offline map**.
- **Research** on the possibility of **incorporating AR/VR experience** for preview of experience.
- **Deploy** our app in App store and Google Play Store.
- Constant maintenance of the app to provide users with the best possible experience.

REFERENCES

1. https://play.google.com/store/apps/details?id=lv.cube.daba&hl=en_CA&gl=US
2. https://www.tripadvisor.ca/Attractions-g154976-Activities-c57-Halifax_Halifax_Regional_Municipality_Nova_Scotia.html
3. https://wanderlog.com/home
4. https://www.youtube.com/
5. https://roadtrippers.com/
6. https://www.tripit.com/web/free/
7. https://contentsquare.com/blog/10-common-ux-problems-on-travel-sites/