

Team PINEAPPLE

Phase 2: Gathering User Requirements

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Personas Scenarios and HTA

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① General Description	③ Annoyances	⑤ Portrait
Raj Acharya is a small landholder with a farm in Haryana and lives with his 14 year old son and wife. Even though Raj is a hardworking man, he and his family are currently struggling financially because of reduced traffic to his farm because of covid. Nonetheless, Raj and his wife have agreed on sending his son to a good private boarding school in Delhi as he feels that the public school system is failing. Thus, he is trying to save money to fund his son's education and would like to save money on the travel expenses incurred by picking up and dropping him off on specific dates.	<ul style="list-style-type: none">Not very good with technologyStruggling financially	
② Goals	④ Quotes	⑥ Personal Information
He wishes to see the lowest prices available for his trip to Delhi with his son.	"Son is to father as website is to user. When the user gets mad, the user wants to beat the website, just like the father wants to beat the son. But they can't. Its against the law."	Raj Acharya (42)

Raj Acharya, a farmer from Haryana is very keen on sending his son to a popular boarding school in Delhi. Luckily Raj has some connections and manages to get discounts where he can, however he is required to take him home and to school via train on occasion. Therefore, he needs to try his best to reduce travel costs to a minimum to ensure he can fully support his son's education. He wants to buy the cheapest train ticket from Ismailia Haryana to Delhi. Firstly, he typed in the departure place and destination in the box. Then he pressed the next button to view prices in the search result page for the days he wanted. After comparing the corresponding prices, he chose the fittest day on Oct.28. The train numbered 04737 cost him 145 and took about 2 hours to arrive in Delhi. Raj felt satisfied about the ticket, he had just saved some money and ensured his son's transport.

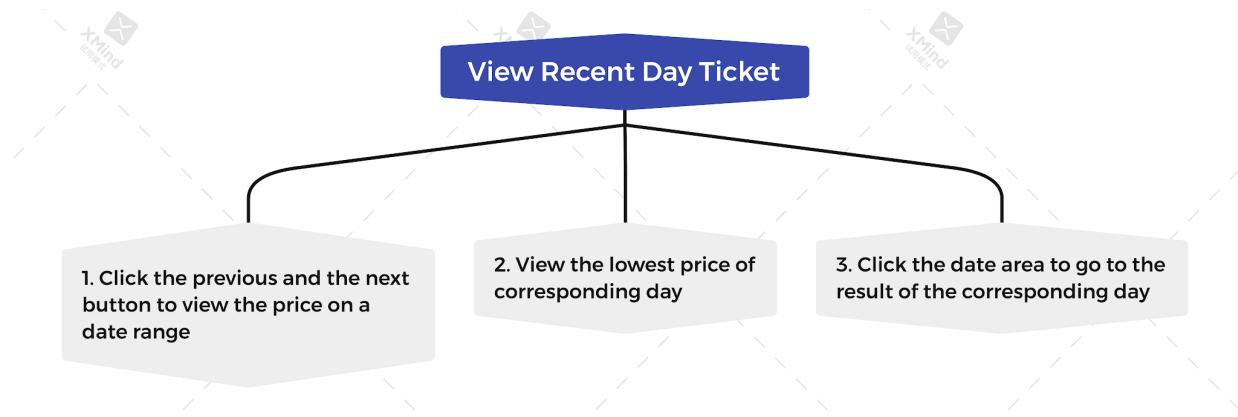


Figure 1. HTA for Viewing “Recent Day” Tickets with the Lowest Prices

❶ General Description

Muhammad Ahuja is the poster child of a self-made millionaire. His fortunes are attributed to the company he started 10 years ago in his garage called Big-O-Data which is occupied in the field of Data Science. He is an entrepreneur who now finds himself with a surplus of funds and a busy schedule. Currently, he is facing an exceptional shortage of time as his company is going through a merger with DataTechnicana and is going through the associated legal proceedings and thus, values his own time greatly is easily frustrated.

❷ Annoyances

- Time wasted in the form of over-complexified information delivery. He is fond of simple to the point communication in verbal and online mediums.
- He requires fast service, even at a cost. Best embodied in a "Time is money" mindset.

❸ Goals

In using this site, he hopes to save time in the online booking process as compared to booking a train at a railway office.

❹ Quotes

"Time is Money"

❺ Portrait



❻ Personal Information

Muhammad Ahuja (30)

Muhammad is a data science company entrepreneur, who is very good at web design and user experience and he is very rich. He knows how to get the information he wants in the fastest way. He never used the IRCTC website but he wanted to take a train from Lokmanya Tilak to Ernakulam Town to meet his client. He searched for the train ticket on Google and the IRCTC website popped up. Then he typed LTT, which is the abbreviation of Lokmanya Tilak in the "from box", and typed ERN in the "to box". Since he is very rich and busy, he chose AC First Class(1A) in the filter. In addition, he clicked the "Train with Available Berth" for better rest and premium tatkal for faster booking. Finally, Muhammad found a train called ERS DURANTO SPL, number 01223 for AC First Class(1A), which will depart for 5 hours. He was pretty satisfied with that.

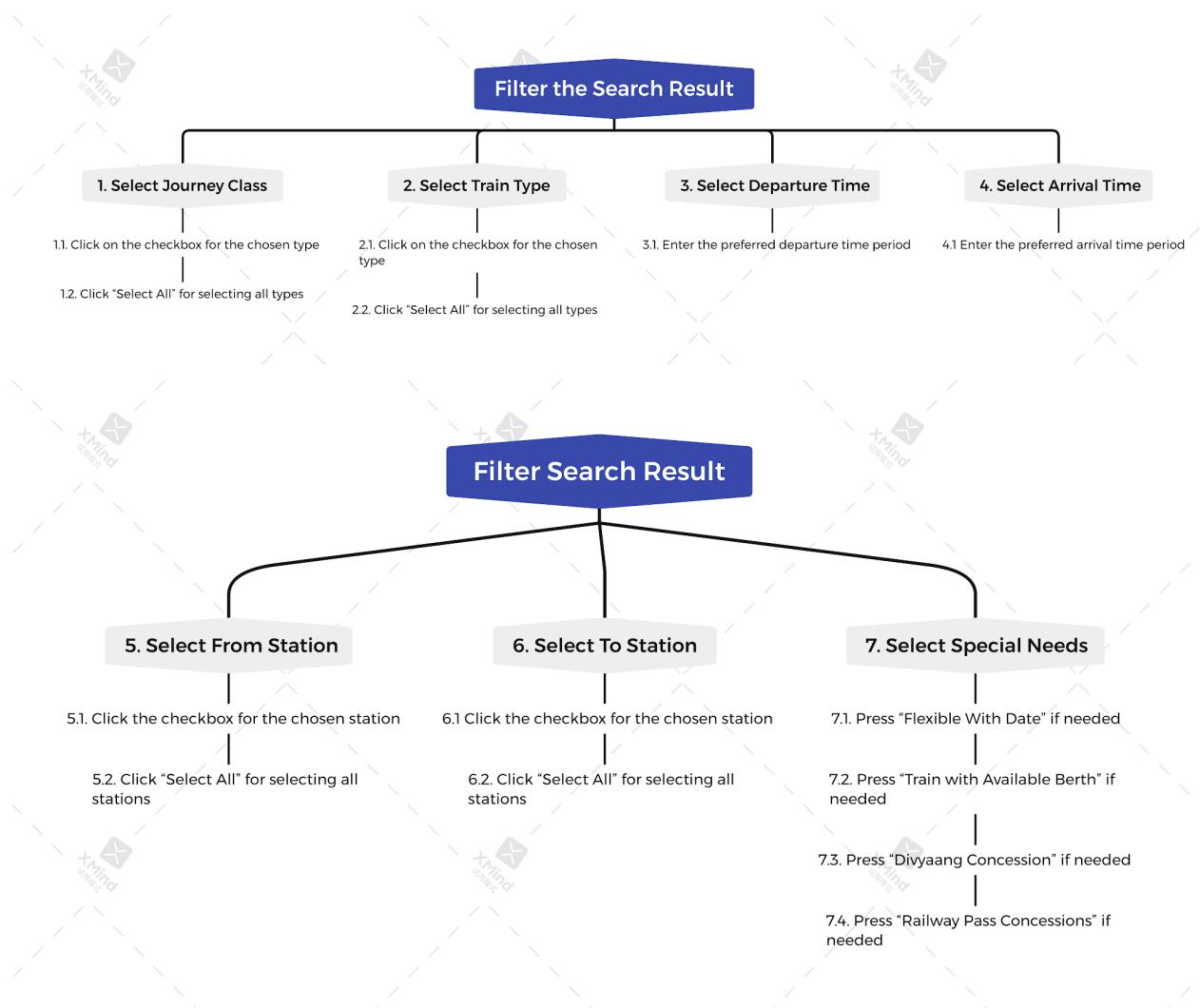


Figure 2. HTA for Filtering Search Result

● General Description

At 65 years old, Anish Anand is happily retired. Having worked all his life in the back-breaking work as a laborer in construction, he is now enjoying his old age peacefully on his retirement fund. His greatest achievement is the success of his daughter who has become an IAS (Indian Administrative Service) officer. He is proud to be able to provide his daughter with an education that he never had the chance to obtain. Consequently, he himself is unable to read English and is only able to read Hindi. Recently, happiness in his life has been further magnified by the birth of his granddaughter. Currently, he is planning a trip to Guwahati to visit them.

● Annoyances 🚫

- As his English is limited, his ability to use the internet to troubleshoot is limited.
- He has trouble reading small text
- He is afraid of accidentally clicking the wrong buttons or doing the wrong things.

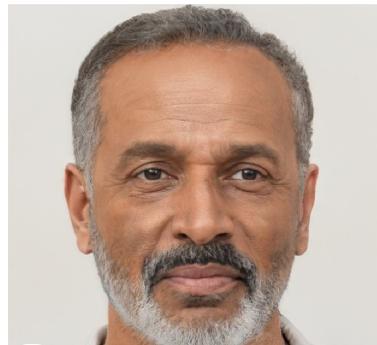
● Goals 🎯

Anish has never used any sort of online booking software. As a simple person that has lived a simple life, Anish's only objective is to successfully book a train and surprise his daughter with his technological prowess.

● Quotes 🏁

"Age is just a number"

● Portrait 📸



● Personal Information 🧑

Anish Anand (65)



Anish is a 65 years old man born in India, he can only read and speak in Hindi. This summer, he is planning to meet his grandchild by taking a train to his daughter's place in Guwahati. However, due to Covid-19 pandemic related restrictions and lockdowns, there aren't physical stores open for buying tickets. Anish's daughter recommended that he buy the train ticket through the IRCTC and messaged the website link to him. When Anish opened this website, everything was in English and he was lost. Suddenly, he found there is a "language: English" on the top right corner of the website. After he clicked the drop down button, he saw a Hindi word. Happily, he clicked on the Hindi word and the website turned all text into Hindi. Anish can read the train information on the IRCTC easily.

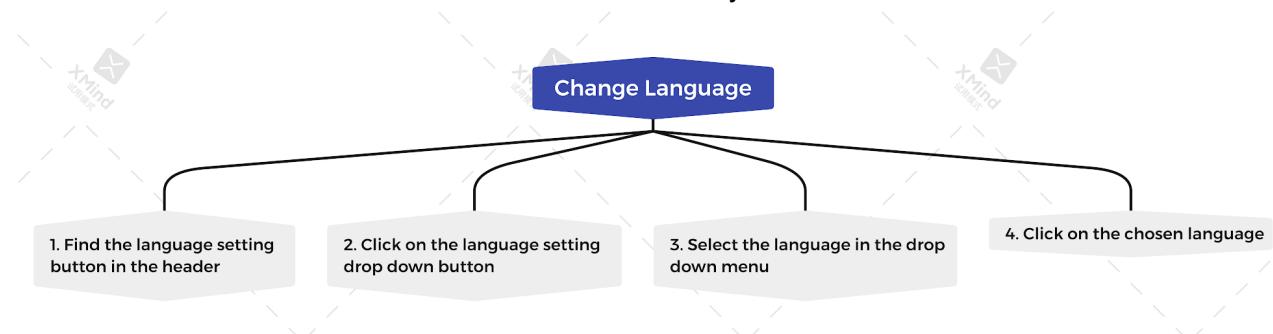


Figure 3. HTA for Changing Language

① General Description

John McCain has spent all of his childhood in Ernakulam Town, in Kerala. As a college student, he frequently used trains to travel to and from his home and Thiruvananthapuram. One year ago, he was offered a job in Erode, Tamil Nadu as a steel factory manager. As the job paid handsomely, he was willing to live in a far-away city and isolated from his family. However, in this one year on the job, he has developed homesickness. Therefore, he plans to take the train to Ernakulam Town and spend the Dussehra holidays with his family.

③ Annoyances 🚫

- As a pragmatic man, he would be disappointed if the website did not produce ticket information for his trip.

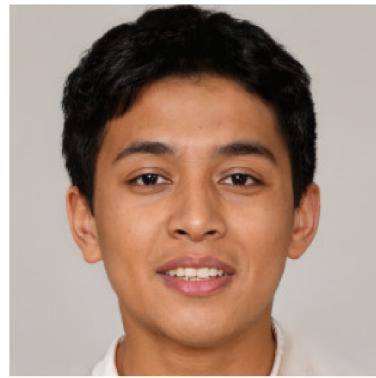
② Goals 🧠

John wishes to book a train to Ernakulam Town for October 14 to spend the Dussehra (October 15) day with his family.

④ Quotes 🎭

"Continuous improvement is better than delayed perfection"

⑤ Portrait 📸



⑥ Personal Information 🚩

John McCain (25)

John is a young man of 25 years. He is working as the factory manager in Erode. For the Dussehra holiday, he wants to go back to his family in Ernakulam Town, in Kerala. Since he had taken public transport in India many times for commuting to different cities, he opened the IRCTC website which has been stored in his browser bookmark. Then, he clicked the "from box" and chose Erode, as well as clicked the "to box" and chose Ernakulam Town. Firstly John chose the earliest day he could leave in the calendar on the website, which was October 14, 2021. The factory he worked at didn't pay him much and he was not in a hurry to go back home, so he tried to save money on the train ticket. Therefore, he chose Second Sitting (2S) in the class list and clicked the "Flexible With Date" box to search for the cheapest and fittest ticket. Finally, John found a train called MAS TVC SPL, number 02697 has Second Sitting (2S) on Oct.17, which costs him 140. He was pretty happy with that, and he was looking forward to going back home and seeing his family.

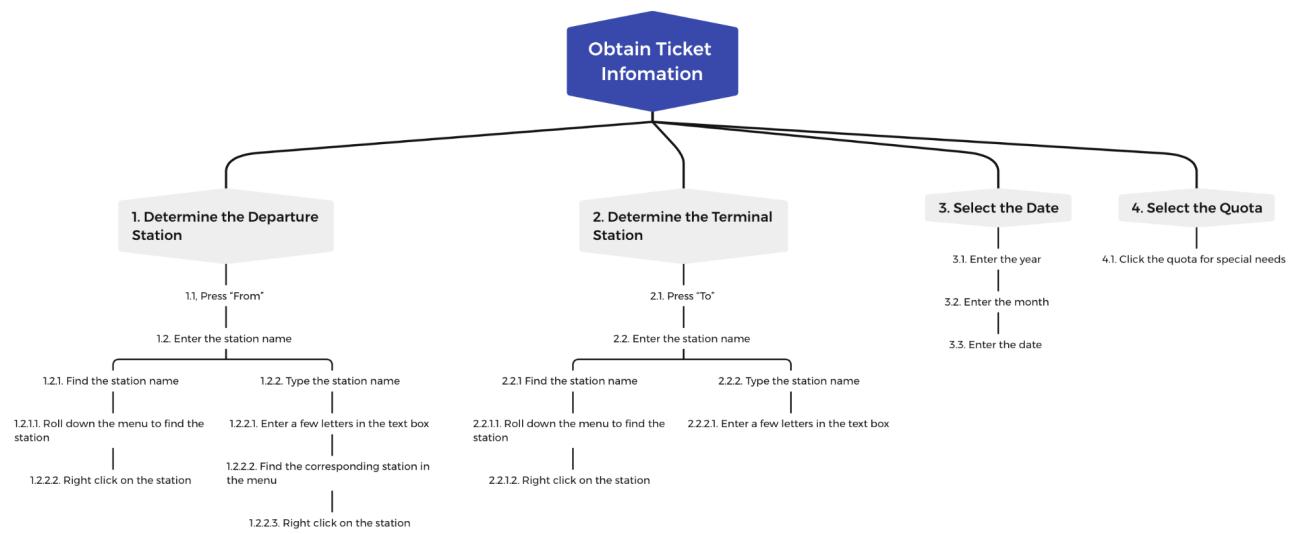


Figure 4. HTA for Obtaining Ticket Information

① General Description

Cynthia, after 18 years of life in Vadodara, is excited to live in a new city for her university. She is excited to experience a new found sense of freedom while studying as an Art Major at the University of Delhi. This will be her first time traveling out of her state (or province) and being away from her family. As such, she is anxious to quickly book her train ticket and is spending her time researching artwork along with architecture in the city.

③ Annoyances 🚫

- She believes that creating the account should be a quick process and dislikes services asking for more information than necessary.

② Goals 🎯

Cynthia wishes to create an account and book a train to Delhi at the earliest possible time.

④ Quotes 🗣

"Art is a way of survival"

⑥ Portrait 📸



⑥ Personal Information 🧑

Cynthia Rodgers (18)

Cynthia is a first-year university student majoring in art. She planned to take a train to the University of Delhi from her home Vadodara on October 28. All information regarding the train number and time has been emailed to her by the school. Now, she simply needs to create an account and buy the ticket. Firstly, she Googled the IRCTC website and pressed the registration button on the navigation bar. Then she filled in basic details: user name, password, security answer, etc. After that, Cynthia filled in her personal details containing her name, gender, email, phone number as well as address. Finally, she checked the information she filled in and completed registration by pressing the register button. After having an account, Cynthia quickly found the train she wanted and bought the ticket. She was looking forward to meeting her new school and friends.

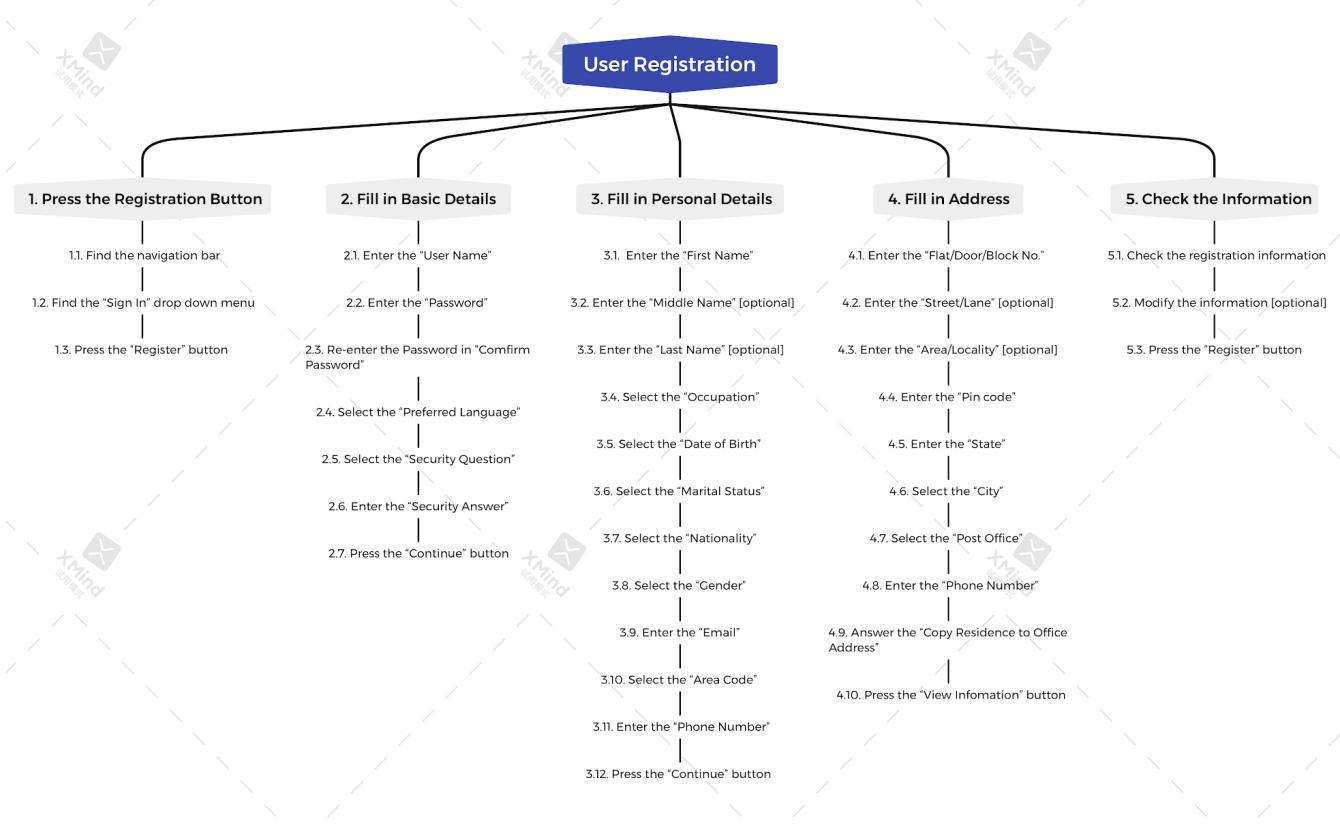


Figure 5. HTA for User Registration

Techniques

Unfortunately, due to the current pandemic situation, we were forced to limit our techniques for gathering user requirements to online-based services only. While this limited the atmosphere in which we could gather information, it did not affect the number of, or quality of responses.

The first technique we used to gather user requirements and feedback was to administer a survey through Google Forms. We chose this service for its popularity, ease of use (form creation and completion), and quicker response times as compared to alternative questionnaires. Furthermore, Google Forms provides a data visualization of the responses, which allows us to analyze the result easily. An example of this is shown in the figure below. Fifty-eight percent of respondents stated that they used public transportation more than ten times in the past year.

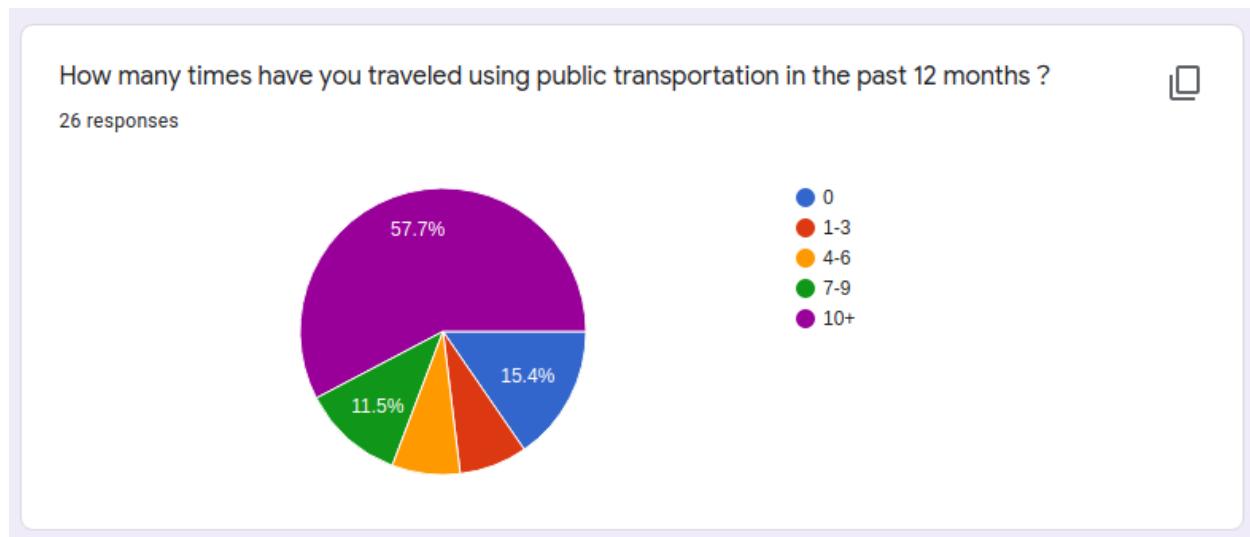


Figure 5.1 - Responses from our Google Form

In contrast, one of the benefits of an online form is the convenience of it. Having users fill out a ten minute survey at the comfort of their own homes, rather than asking them on the street, allowing users more time to think about questions, check out the website, and make decisions about how they feel.

The second technique that was used to gather user feedback involved getting in touch with those who left public online reviews. Prior to creating the Google Form, we scoured the web in search of existing user complaints of the IRCTC website. We reached out to these people through various means of contact (email inquiries, direct messages on social platforms such as Reddit) and conducted semi-structured interviews with them when possible. This technique gave us access to detailed feedback from the regular users of the website. This method gained us fewer, but higher quality, responses.

The details of the survey questions and the semi-structured interview script is described in the Artifacts section in this phase. We attempted to have a wide range of feedback in order to create the best list of user requirements that encompasses all use cases. The expansive range of feedback ensured that the entire website was reviewed, and our improvements encompassed as many issues as possible.

Types of Users Selected

In order to ensure the proper relevance of the responses, we collected the demographic data of our respondents. Furthermore, to increase the reliability of our data, we focused on reaching as many people as possible.

Based on statistical research, the average ages that use the IRCTC website are people aged twenty-five to forty. Men are using the website 68% of the time, women using it 32% of the time (Sri Ram, 2020). In order to gain proper insight into how people use the website, we decided to mainly follow Sri Ram's demographics in our case study. Even though these demographics indicate the main area we could select users from, we made sure not to exclude those outside this demographic. Therefore, we also interviewed and sent our Google Form out to the older and younger demographics. This was to ensure that we did not ignore the older demographic that constitutes infrequent users. Moreover, we also included the website's future users in our survey because the IRCTC website is owned by the government and has a broad reach of users. This group of potential users could be international students who have moved to India for studies, travel enthusiasts, and so on.

Our second technique, the interviews, were mostly done with those in our demographic. While everyone was given the chance to answer our Google Form, we focused on those who use public transportation regularly and had interviews with them. That being said, we did also interview one person outside the demographic, and one who has never used the public transportation websites before, to ensure that we did not narrow our vision on the problem.

The current pandemic impacted the demographic and a number of users that were reached. Despite the large sample size of our Google Form, simply asking people to complete a short survey in person could have given us diverse answers. Another limitation that we encountered was the geographical location that the IRCTC website encompassed, as the website is only for use in India. The majority of our respondents live in Canada, and, therefore, do not have personal experiences using the IRCTC website or train. These limitations had effects on our survey results, however, we managed to, with our interviews and a sheer number of responses, gather a large and diverse set of feedback.

Artifacts

To gather user requirements for this phase, we used various techniques such as an online survey, a semi-structured interview, and low-fidelity prototypes to get feedback.

Online Survey: <https://forms.gle/Zoy531uey6K2HBgm9>

The main purpose of the survey is to get brief information about the user feedback. The survey was divided into three parts: Personal Information, Feedback on Website, and Feedback on Prototype. We first ask for personal information like age, sex, and travel frequency. With these pieces of information, we can separate the users into distinct categories as mentioned earlier. Section 2 - Feedback on the Website focuses on the problem we found in phase one (Registration, Homepage, Search Result Page) and the users' thoughts with a follow-up short answer question at the end of the website feedback section for any unmentioned defects. Lastly, we mainly used a rating system to quantify the user satisfaction on our low-fidelity prototypes and improved user experience.

Interview Question:

<https://docs.google.com/document/d/18AVCObdUOHri0Gz2DwudrLENb87pMRkUy1IbY9rQXYo>

We decided to also conduct several semi-structured interviews and go more deeply into the questions we discuss in the survey using the following format. Starting with introductions if we don't already know the interviewer, we then follow up with questions relating to the site. We wanted the interviewee to express their opinion on the IRCTC website as it relates to our scenarios and chosen areas of improvement for the site. After that, we end the interview with feedback on our prototype and project in general. However, since it's a semi-structured interview, we don't always follow the questions on the interview sheet exactly and just aim for relevant information for the project.

Introduce:

1. Firstly, do you mind introducing yourself a bit, so we can get to know you better?
2. How long have you been using public transportation websites?
3. (Maybe ask them why they are using this website?)

Question:

1. How was your experience with the IRCTC website? (Ask them to explain more)
2. Is there any feature that the website can add to make it better?
3. Are there any features/designs that you dislike on the current website?
4. What other similar e-ticketing website you've used that you think is good and why?
5. If you can change one part of the website, which part would it be?
6. We'll explain our full low-fidelity prototype to you, and then can you tell us what you think about it?

Low-fidelity prototypes.

To illustrate the solutions we provided, we have drawn several low-fidelity prototypes on the home page, the registration form, and the search result page.

Homepage:

We first organized the “alert” pop-up and placed it on the top of the page. If users do not want to see the message from these alerts, they can press the collapse button on the top left or click the exit button (Figure 6). At the top right corner, we also placed settings for the page such as the font size as well as the language preference which was a predicted issue for the user base. Furthermore, we moved transportation, hotel, and holiday booking from the navigation bar to the search ticket area below. After restructuring the navigation bar, it has only one line in the prototype (Figure 7).

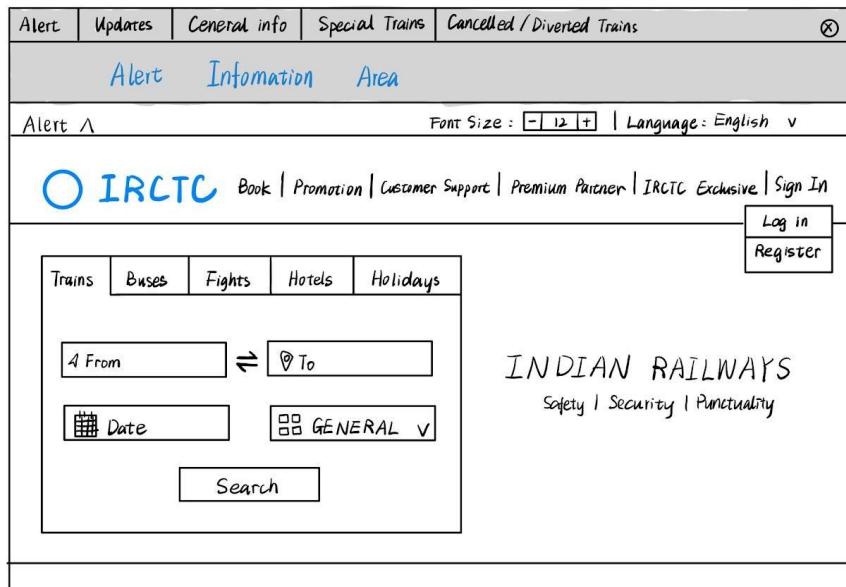


Figure 6. Low fidelity of the home page with expanded alert information section

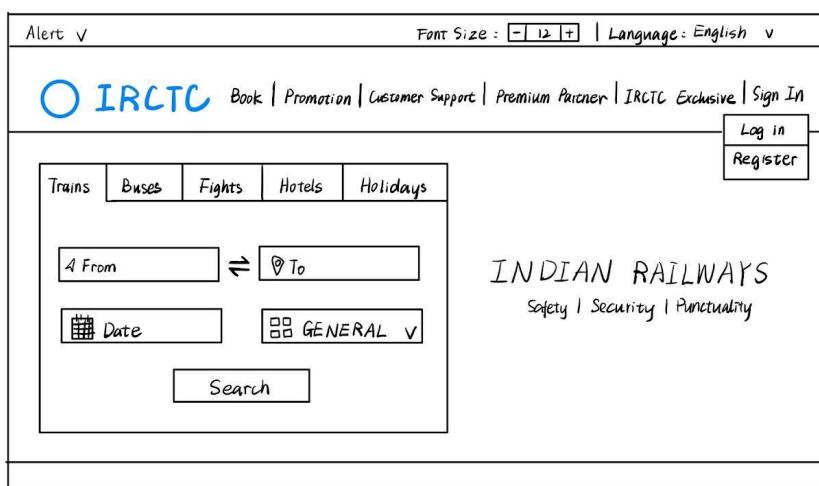


Figure 7. Low-fidelity Prototype of the Home Page

In the train ticket search page, we decided to highlight the invalid input with a red border instead of a left pop up error message (Figure 8). Second, there is a drop down menu in both the month and the year, so users can choose the date more quickly (Figure 8).

Entering Date					Error Message																																																			
Trains	Buses	Fights	Hotels	Holidays	Trains	Buses	Fights	Hotels	Holidays																																															
<input type="text" value="From"/> A	<input type="text" value="To"/> P				<input type="text" value="From"/> NEW DELHI - NDS	<input type="text" value="To"/> CHANDIGARH - CDG																																																		
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Figure 8. Low-fidelity Prototype for Entering Date information and Error Message

Registration Form:

The registration form was divided into several steps (Basic Details, Personal Details, etc.) which the user needs to finish in order to move to the next step. The prototype lists out all of the requirements first (see Figure 9), and then places a checkmark on the left to indicate valid inputs (Figure 10). In addition to this, we added an information preview page at the end (Figure 11). Users can review and modify their information before registration.

Alert V Font Size : - 12 + | Language: English v

IRCTC Book | Promotion | Customer Support | Premium Partner | IRCTC Exclusive | Sign In

Create Your Account SIGN IN

Basic Details Personal Details Address View Information

User Name *	<input type="text"/>	<small>② User Name is required</small>
Password *	<input type="password"/>	<small>② Password is required</small>
Confirm Password *	<input type="password"/>	<small>② Confirm Password is required</small>
Preferred Language *	<input type="text"/>	<small>② Preferred Language is required</small>
Security Question *	<input type="text"/>	<small>② Security Question is required</small>
Security Answer *	<input type="text"/>	<small>② Security Answer is required</small>
<input type="button" value="Cancel"/> <input type="button" value="Continue ⇒"/>		

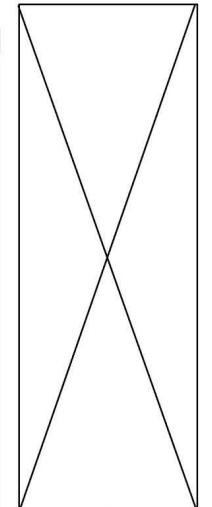


Figure 9. Low-fidelity Prototype for Empty Registration Form Highlighting All Requirements

Alert V Font Size : - 12 + | Language: English v

IRCTC Book | Promotion | Customer Support | Premium Partner | IRCTC Exclusive | Sign In

Create Your Account SIGN IN

Basic Details Personal Details Address View Information

Example User Name	<input type="text"/> <small>✓</small>
*****	<input type="text"/> <small>✓</small>
*****	<input type="text"/> <small>✓</small>
English	<input type="text"/> <small>✓</small>
What is your pet name?	<input type="text"/> <small>✓</small>
Example Pet Name	<input type="text"/> <small>✓</small>
<input type="button" value="Cancel"/> <input type="button" value="Continue ⇒"/>	

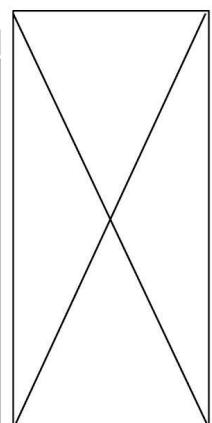


Figure 10. Low-fidelity Prototype for Registration Form of All Valid Inputs

Alert V

Font Size : - | 12 | + | Language: English v

IRCTC Book | Promotion | Customer Support | Premium Partner | IRCTC Exclusive | Sign In

Create Your Account

SIGN IN

Basic Details **Personal Details** **Address** **View Information**

User Name Example User Name	✓		
Password *****	✓		
Confirm Password *****	✓		
Preferred Language English	✓		
Security Question What is your pet name?	V ✓		
Security Answer Example Pet Name	✓		
First Name Example Name	✓	Middle Name [Optional]	Last Name [Optional]
Occupation Student	V ✓	Date of Birth 01-01-2000	✓
Gender Male	V ✓	Nationality India	V ✓
Email example@gmail.com	✓	Marital Status Single	✓
Area Code India +91	V ✓	Phone Number 1234-567890	✓
Flat / Door / Block No. Example address	✓		
Street / Lane [Optional.]			
Area / Locality [Optional.]			
Pin Code Example Pin Code	✓	State Example State	✓
City New DELHI	V ✓	Post Office Example Post Office	V ✓
Phone Number 1234-567890	✓	Copy Residence to office Address @ Yes @ No	✓
Cancel	Register		

Figure 11. Low-Prototype for Previewing User Registration Information

Alert V

Font Size: [- 12 +] | Language: English v

IRCTC

Book | Promotion | Customer Support | Premium Partner | IRCTC Exclusive | Sign In

NEW DELHI - N DADAR - DR 21/10/2021 GENERAL Modity Search

Refine Filter [Reset Filters](#)

JOURNEY CLASS [Select All](#)

- AC First Class (IA) AC 2 Tier (2A)
- Second Sitting (3S) AC 3 Tier (3A)
- AC Chair Car (CC) Exec. Chair Car (EC)
- Sleeper (SL)

TRAIN TYPE [Select All](#)

- GARIB RATH SPECIAL

DEPARTURE TIME [Select All](#)

00:00 TO 24:00

ARRIVAL TIME [Select All](#)

00:00 TO 24:00

FROM STATIONS [Select All](#)

- DELHI CANTT
- NEW DELHI
- H NIZAMUDDIN

TO STATIONS [Select All](#)

- BANDRA TERMINUS
- C SHIVAJI MAN T
- DADAR
- MUMBAI CENTRAL
- PANVEL

Flexible with Date
 Train with Available Berth
 Divyaany Concession
 Railway Pass Concessions

[Reset Filters](#)

NEW DELHI → DADAR

< ₹ 2035 | ₹ 2560 | ₹ 2210 | ₹ 2170 | ₹ 2170 >

Fri - Oct 29 Sat - Oct 30 Sun - Oct 31 Mon - Oct 31 Tue - Oct 31

AUG KR RAJ SPL (02954)

17:15 ————— 18:50 ————— 10:05
H NIZAMUDDIN | Sun, 31 Oct MUMBAI CENTRAL | Mon, 01 Nov

AC 3 Tier (3A) AVAILABLE - 0369 ₹ 2210 ⓘ	AC 2 Tier (2A) AVAILABLE - 0124 ₹ 2900 ⓘ	AC First Class (IA) WL 94% ₹ 4495 ⓘ
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CSMT RAJDANI SPL (01222)

16:55 ————— 18:20 ————— 11:15
H NIZAMUDDIN | Sun, 31 Oct C SHIVAJI MAH T | Mon, 01 Nov

AC 3 Tier (3A) AVAILABLE - 0375 ₹ 2210 ⓘ	AC 2 Tier (2A) AVAILABLE - 0101 ₹ 2810 ⓘ	AC First Class (IA) AVAILABLE - 0008 ₹ 4800 ⓘ
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THE END

Figure 12. Low-fidelity Prototype for the Search Result Page

Search Result Page:

First of all, we reallocated the search bar to the result page by moving the special needs (Flexible with Date, Train with Available Berth, etc.) to the filter. Secondly, on the filter, we allow users to select their preferred departure and arrival period as well as clear up the search information and only keep the departure and the arrival place (Figure 12).

One important new feature we added is the daily lowest price and the price trend (Figure 13). Users can see the recent lowest prices below the ticket information and change to another day. Also, there is a daily lowest price calendar and a price trend after clicking the calendar button.

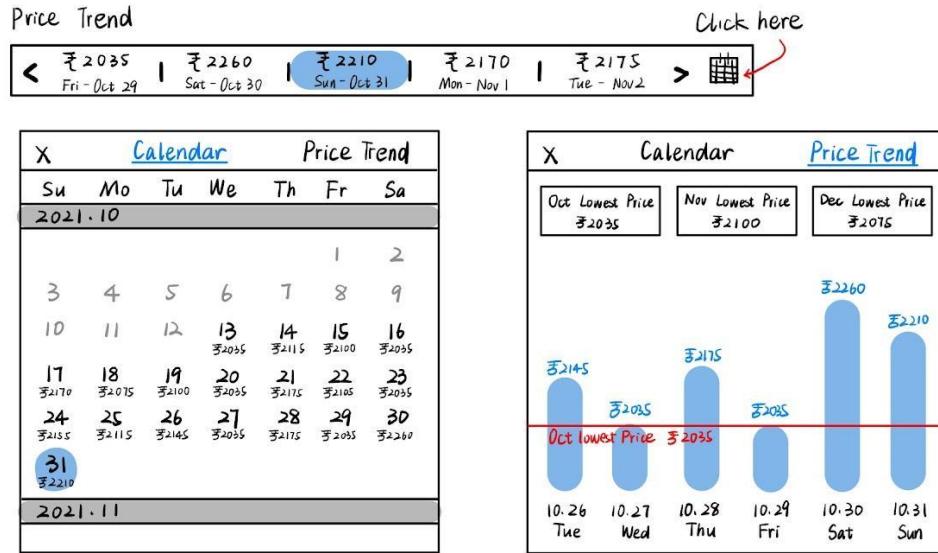


Figure 13. Low-fidelity Prototype for the Daily Lowest Price and the Price Trend

Summary

In the survey, we received 26 responses. 76.9% of users aged from 15-24, and 61.5% of them are male. 57.7% of the users traveled more than 10 times using public transportation in the past 12 months.

Looking at the result from the Feedback of Website section, it is clear that most users are dissatisfied with the current website, and most of them have encountered several issues. 33.6% of the people who took the survey feel that the overall user experience on the website was terrible (rate under 3 out of 7). And 34.6% think the website is average (rate 4 out of 7). For the majority of the sample, especially for the registration process and the search result page, the features of the website were unsatisfactory. When asked about the most frustrating part of using the website, the common answer was the surplus of advertisements as mentioned here: “[The] entire UI is wacky and unintuitive, and full of ads”. Since advertisements are categorized as a part of marketing, it is outside the scope of our recommended changes in this project, even though on a personal level we feel that they are used incorrectly. Another issue that was frequently mentioned in the comments was the “cluttered and hard to read” layout of the website as users felt it had “[inconsistent] GUI designs, cluttered, disorganized pages” and “[frustrating] redirects that take too much time to process and makes the whole [booking and registration] process annoying”. One user expressed his frustration regarding “the manual effort required in each aspect of the site. It’s unclear what certain words mean and certain terminology in itself is inconsistent and confusing. It’s unclear whether things are meant to be clicked

or scrolled along. The lack of color separation makes it hard to distinguish what parts of the site are interactive and what is not.”

In the Feedback on Prototype section, most of our changes and the new functions in low-fidelity prototypes were supported by survey takers. More than 90% of the users think the daily lowest price and the price trend functions we add to the prototype are useful and impressive. Therefore, we are going to keep these two functions into the next phase. Also, the newly designed registration process generally turned out to be successful, since it satisfied over 60% of the survey takers. However, from the feedback, we need to explore a more proper way of highlighting the required fields and input verification in the registration process for the next phase. Interestingly, every respondent rated all changes related to the timing field (Date in the search ticket, Departure, and Arrival time in the filter of the search result) higher than a 4 (out of 7). Therefore, we will take this change into the next phase.

Due to the limitations including but not limited to the pandemic and geographical distance to the user base of the website, we only managed to conduct three interviews.

One of the interviewees was a male student who travels frequently. He had used the website since high school. Now, as an international student in university, he also uses Air Canada and WestJet websites to book tickets and flies back to India. He thinks compared with the IRCTC, both WestJet and Air Canada have a good website. He thinks their layout is clean, and the booking process more intuitive and easy to follow. On the other hand, he complained about the number of ads on the IRCTC website and suggested a reduction in the number of ads. Additionally, he found the booking pages following a poor layout. After explaining our low-fidelity prototype to him, he could visualize the significant improvement that our high-fidelity prototype brings to this website. However, he was not a fan of the alert feature. He doesn't like how users must go down and close the alert because it is inconvenient and confusing. He suggested that our team design an alert button, which would lead to a drop-down list showing all the alerts. Also, there would be a red counter on the alert button that keeps track of unread alerts. In keeping with his suggestion, we will change the alert feature to his specification in our next phase using the high-fidelity prototype.

The second interviewee was a male computer science student who doesn't travel a lot. An example of an e-ticketing website he used to compare against is Go transit which he is much more familiar with. He thinks the Go transit website is good because it is compact, consistent and he can find what he wants very quickly. He was also annoyed by the registration/login process of the IRCTC website as it is often full of errors that aren't reported properly and uses a difficult version of reCAPTCHA for the first time on the login page. For our low-fidelity prototype, he suggested that the register and login buttons could both be placed in the navigation bar and liked the idea of having validation on the registration page. However, he thought it would be better if the developer allowed users to go back to edit the previous form they've filled. Lastly, he thought the price change calendar is a good additional feature but believed the bar graph of the price trend was not so impressive. In the next phase, our team will put recent booking history

into the high-fidelity prototype and will consider the suggestion of this interviewee and come up with a better approach to the navigation bar layout.

Anonymous user #3, a female office worker, frequently travels to another city to visit her boyfriend. Her use of this website only began recently. She has used other travel-based websites like Air India (that she dislikes). She thinks every item on the Air India home page is jammed together, and the UI looks like the developer was rushing to finish the website. However, everything is organized and easy to follow on the search result page. She thinks the IRCTC website has a similar problem but is better than the Air India website, and rated the IRCTC website as high on the survey. She suggested the addition of a click icon (on the top-left of the screen) that would lead back to the homepage. After explaining our low-fidelity prototype to her, she thought that the price calendar and price bar graph are helpful. With a bar graph, she could find which days might have the lowest price and plan her trip accordingly. Furthermore, she found a mistake in our filter section as users were able to press the 'select all' button on the departure and the arrival period. Also, she thought having more language options was nice and helpful. But she thinks there should be a pop-up confirmation before canceling registration, avoiding users press it by accident. During the next phase, we will add this error prevention method in registration, a new method to go back to the homepage, and will clear up the mistake we made on the low-fidelity prototype.

We utilized the data from our survey and interview to ensure that our improvements to the website were on the right track. Throughout the user requirement gathering process, we found that the biggest problem of the IRCTC website was the layout. We've made some changes to the website's layout, but our team was more focused on the registration process and the search results filter. In our high fidelity prototype, we will make our top priority to create a clean and organized layout. The changes that received positive feedback will be retained in the high-fidelity prototype. Hence, our prototype will mainly focus on these areas: making the registration process more smooth and user-friendly, adding new features to the searching feature to make the website more convenient and helpful, and restructure layouts to make the website clean and easy to follow.

Resources

Fisher // October 6, S. (2021, October 3). *How to create an effective survey*. Qualtrics. Retrieved October 13, 2021, from <https://www.qualtrics.com/blog/10-tips-for-building-effective-surveys>

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