

Report for CSE 482L-1

Project name: ELITE EXPLORER (WEBSITE)*

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Introduction

Elite explorer is a travel agency that arranges transportation, accommodations, and itineraries for tourists and other travelers. We are thinking of building an advanced website for travelers from scratch.

People's brains are loaded with various questions before they consider traveling somewhere. Not everyone can plan the ideal trip. Those who do not travel on a regular basis have no idea how to plan a trip. Furthermore, when organizing a tour, one may feel helpless and unsure. Some people don't have any friends or partners. It takes a long time to research what exciting activities there are to do in that area, and finding the perfect hotel is difficult; finding the proper pricing is even more difficult.

To overcome these problems, Elite Explorer is an advanced solution where the admin can make travel arrangements, and the consumer can easily purchase packages based on their preferences. Elite Explorer agency will do the research and bring the best deals according to the consumer's demands.

The primary objective of developing a Travel Agency Management System is to eliminate manual errors and provide travelers with a comfortable journey because everyone wants a hassle-free travel experience and enjoy the benefits of everything in that place. It will obviously save the consumer valuable time. By using this website consumers would not have to worry about management because Elite Explorer will be in charge of everything. So, instead of taking hours to arrange a trip, it only takes minutes. Productivity rises, customer satisfaction rises, and partners receive reservations quickly, so they can plan their staffing accordingly.

About ELITE EXPLORER

The demand for the travel industry is on the higher side. Increasing number of travelers, especially on the untapped market like school-college tour, solo tour etc can make real wonders in the business. To build a good relationship with the customers is very important on this side. This website/application was developed to provide the best traveling services to the customers and travel agents. We are about to develop the Elite Explorer system to provide a search platform where a tourist can find their tour places according to their choices. This system also helps to promote responsible and interesting tourism so that people can enjoy their holidays at their favorable places. This system also helps to develop tourism with different cultures so that they enrich the tourism experience and build pride. We develop this system to create and promote forms of tourism that provide healthy interaction opportunities for tourists and locals and increase better understanding of different cultures, customs, lifestyles, traditional knowledge and beliefs. This system also provides a better way to connect with various events.

This system also gives tours related information like which places are tourist attractions, cities, and provinces. Tourists can also book tours through our Elite Explorer system. This system also keeps a history of visited places of its users. We ensure a safe and protected journey to our passengers' post covid.

Background and Product Context

Tourism is an important factor in boosting a country's economy. Tourism entices people outside the country, travelers, to visit and witness the beauty of their landmarks. Foreigners benefit much from tourism since it allows them to learn about a new culture, but it also provides many chances for locals. Governments that rely on tourism for a significant portion of their budget invest heavily in the country's developing infrastructure. The tourism sector can also be a bridge for cultural exchange between visitors and residents. Nowadays, everyone wants to have a hassle-free experience and enjoy their trip. This type of software/website will help an individual to save time. So, this is one of the main reasons why we want to build this website/software.

Hotel reservations are made on cellphones in 39 percent of cases, according to FCM Travels. Smartphones are the preferred device for 22% of flight bookings, according to the same report.

Condor Ferries published some very interesting stats on online travel bookings:

- 70% of travelers use smartphones for travel research
- 33% of travelers plan their trips with the help of a virtual travel assistant
- 82% of 2018 travel bookings were made without a travel agent
- 66% of all travelers make their bookings online
- 83% of consumers in the US prefer making their travel bookings online
- 80% of travelers rely on reviews on TripAdvisor before making bookings
- 72% of consumers won't make a booking before reading online reviews

Travel technology is on the rise, and the OTA market share confirms that we are slowly going towards a fully digital future.

So, in a travel agency application, consumers get all these things in one place. This type of website/software has a high demand in the market. There are considerable opportunities in the currently existing market. With the increased use of technology and smartphones, many doors to more and more opportunities are opening. So, we are confident that this project is worthwhile as it's intended to attract university students and people who have limited budgets.

Similar applications exist in the market as TripAdvisor, Trivago, Skyscanner, Zayaan travel, etc. But most of these agencies offered high-budget packages compared to the market. Additionally, zayaan.com provides only packages, but they have no blog section to know how much the consumers are enjoying their packages. A travel blog on a travel agency website is a very important feature. Consumers have got the full information and the experience about their destinations before they think of booking the trip.

Furthermore, all these existing applications have some limitations like cancellation, reservation, guidance, and EMI facilities; the worst parts are fake promises and hidden charges on their packages. Ultimately consumers get exploited most of the time. According to an online database, customers faced many difficulties regarding the poor services of travel agencies.

From the highest percentage to the lowest percentage, Table 1 shows tourist complaints depending on their travel experiences. The low hotel quality, the reservation issue, and the tour's organizational issues are the top three responses.

According to the respondents, the quality of the hotels is a problem concerning their physical appearance, quality of furniture, and the level of offered services.

Table 1: Tourists' Complaints

Items	Frequency	Percentage
Quality of the hotel is low	205	14.43
Reservation (reserve a room, pay the price but the hotel is occupied)	103	7.25
Tours' organizational problems	98	6.90
Price difference problem	91	6.40
The hotel room is not what is expected	89	6.26
Interest is low after the sales	72	5.07
Refund problem	61	4.29
Lack of service	58	4.08
Agency's poor approach	51	3.59

As a result of all these factors, it is clear that this industry is still developing. This field necessitates more research.

User Story

Use Case 1:

Mr. Mahi admin of Elite Explorer travel website. He wants to add some trips in the site. He must log in into the site as an admin first.

a) Visit eliteexplorer.com site and go to log in page as an admin. Successfully entering the correct password, he able to log in to the admin dashboard of the site.

b) Then from the add trips option he must enter all the information for adding any trips.

Use Case 2:

Mr. Adnan while in the vacation he wanted to go for a cox bazar trip within budget.

He has 2 options

a) Visit eliteexplorer.com site and search for cox bazar trip from the search box.

b) Select his desires package and checkout.

Use Case 3:

Mr. Anik wanted to go for a long trip outside of the country. He needs some assistance.

- a) Visit eliteexplorer.com site
- b) From the chatbot he can directly seeking his information.

Use Case 4:

Mr. Pranto completed a tour with elite explorer. He wanted to share his experience.

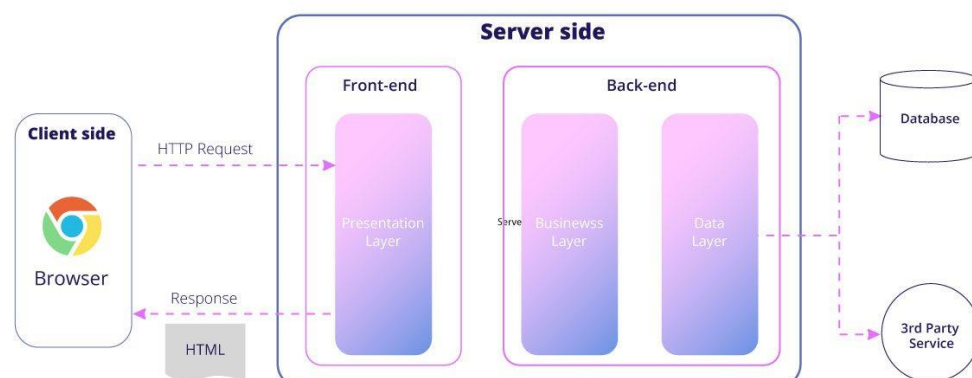
- a) Visit eliteexplorer.com site
- b) After successfully log into his account from the blog section he can share his experience.

Solution Description

Architecture

We want to develop a platform that our user can access it any time from any side from this world. So, our platform will be fully a web application. User can access our site by internet connection. This platform offers services in Desktop, tab, mobile view. Considering all this matter we took the decision to develop our platform with HTML, CSS, BOOSTRAP, JAVA-SCRIPT, PHP, MYSQL.

SERVER SIDE RENDERING (SSR)



mobidev

And to develop the site we follow the waterfall model during the development part. The Waterfall Approach was the first widely used SDLC Model in software engineering to ensure project success. The entire software development process is split into distinct phases using "The Waterfall" approach. Typically, in this Waterfall model, the results of one phase serve as the input for the following phase sequentially.

The sequential phases in Waterfall model are –

- **Requirement Gathering and analysis** – All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification document.
- **System Design** – The requirement specifications from the first phase are studied in this phase and the system design is prepared. This system design helps in specifying hardware and system requirements and helps in defining the overall system architecture.
- **Implementation** – With inputs from the system design, the system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality, which is referred to as Unit Testing.
- **Integration and Testing** – All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration, the entire system is tested for any faults and failures.
- **Deployment of system** – Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market.

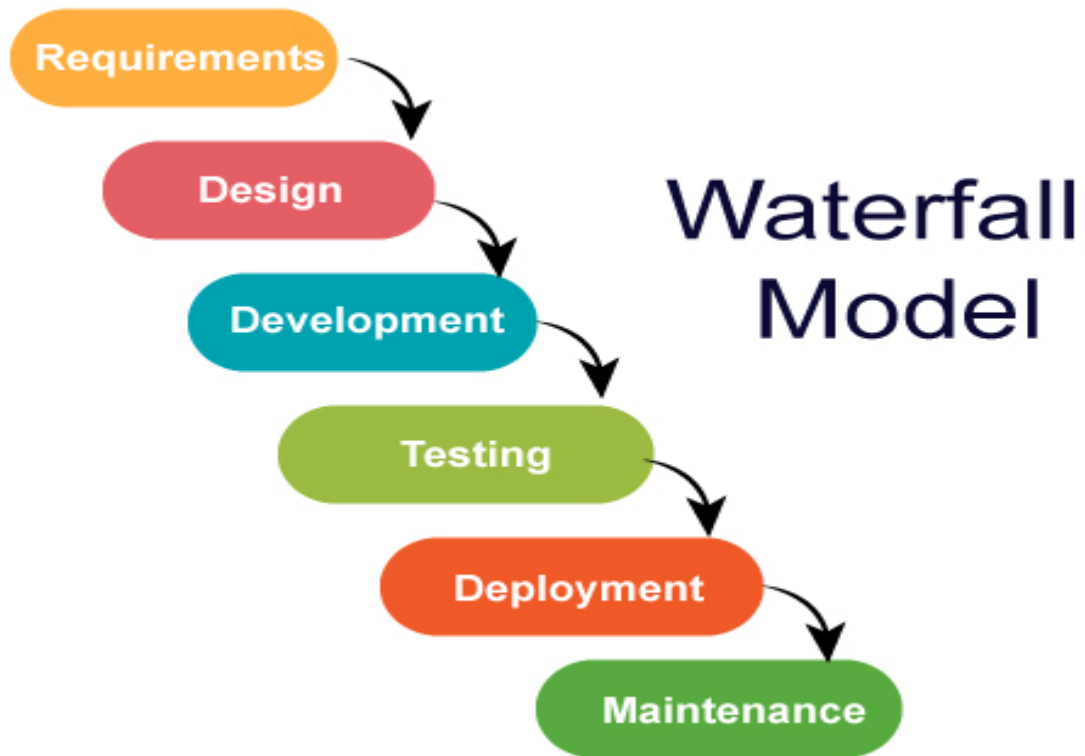
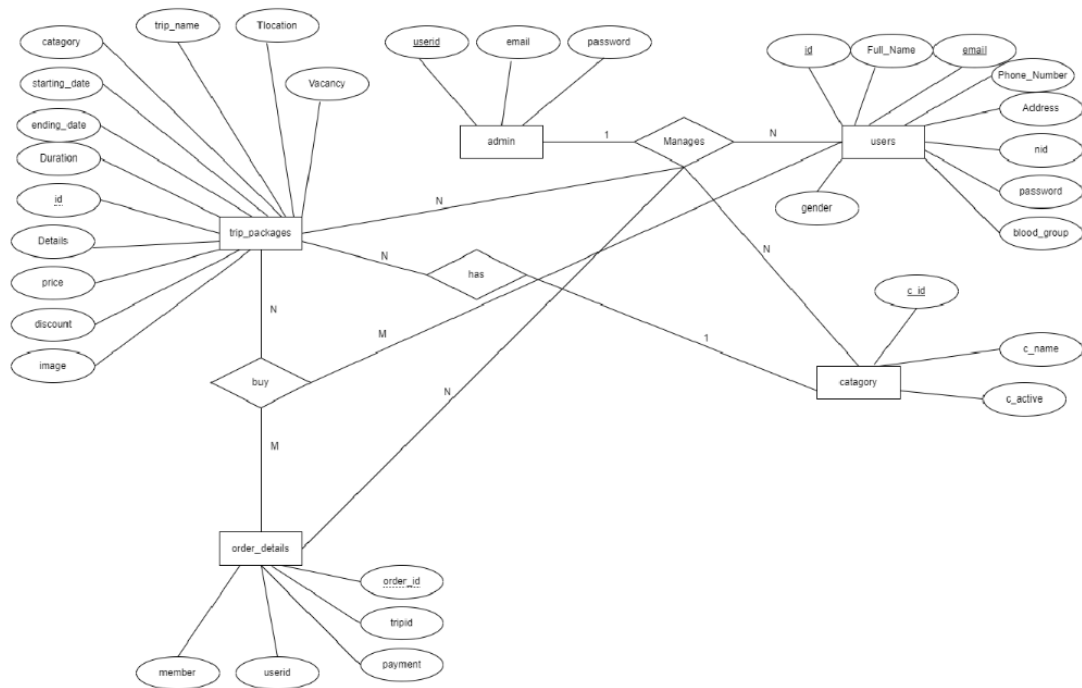


Figure 1: Architecture plan

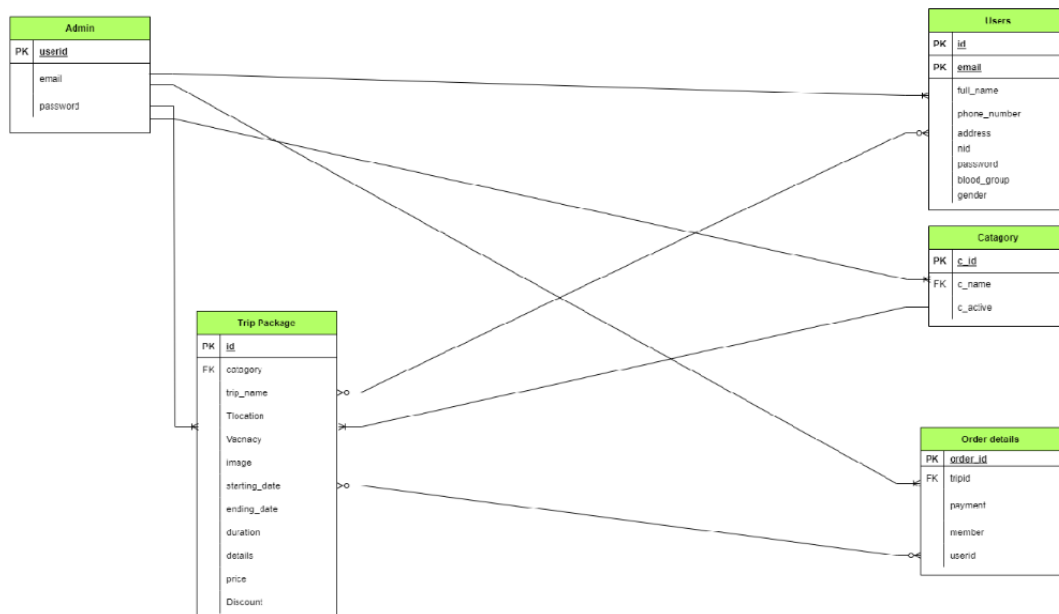
Workflow: The flow diagram shows how we organized all the features. First front-end parts are developed. Then backend works are started and lastly connect the database with the frontend.



ER diagram:



Relational Model:



ER diagram and the Relational model show the relations among the tables and refer to the primary keys, foreign keys etc. This is the primary step to designing the database.

Front-end plan

A total of 18 pages was created.

1. Home page
2. Search result page
3. Register/login page
4. Browse Category
5. Services page
6. Blog/Review page
7. Contact page
8. Cart page
9. Checkout page
10. View My Order page
11. My Profile pages
12. Edit Profile page
13. Admin Dashboard page
14. Manage Trip page
15. Manage Category page
16. View Users page
17. View Orders page
18. Customer Support page

Back end development

1. Account Creating, Password Recover:
 - a. Sign up form.
 - b. Login
 - c. Forgot Password
 - d. MySQL Database
2. Other Management:
 - a. Homepage design
 - b. User Profile
 - c. Checkout
 - d. Blog/Review
 - e. Admin panel
3. Searching facility:

Live search

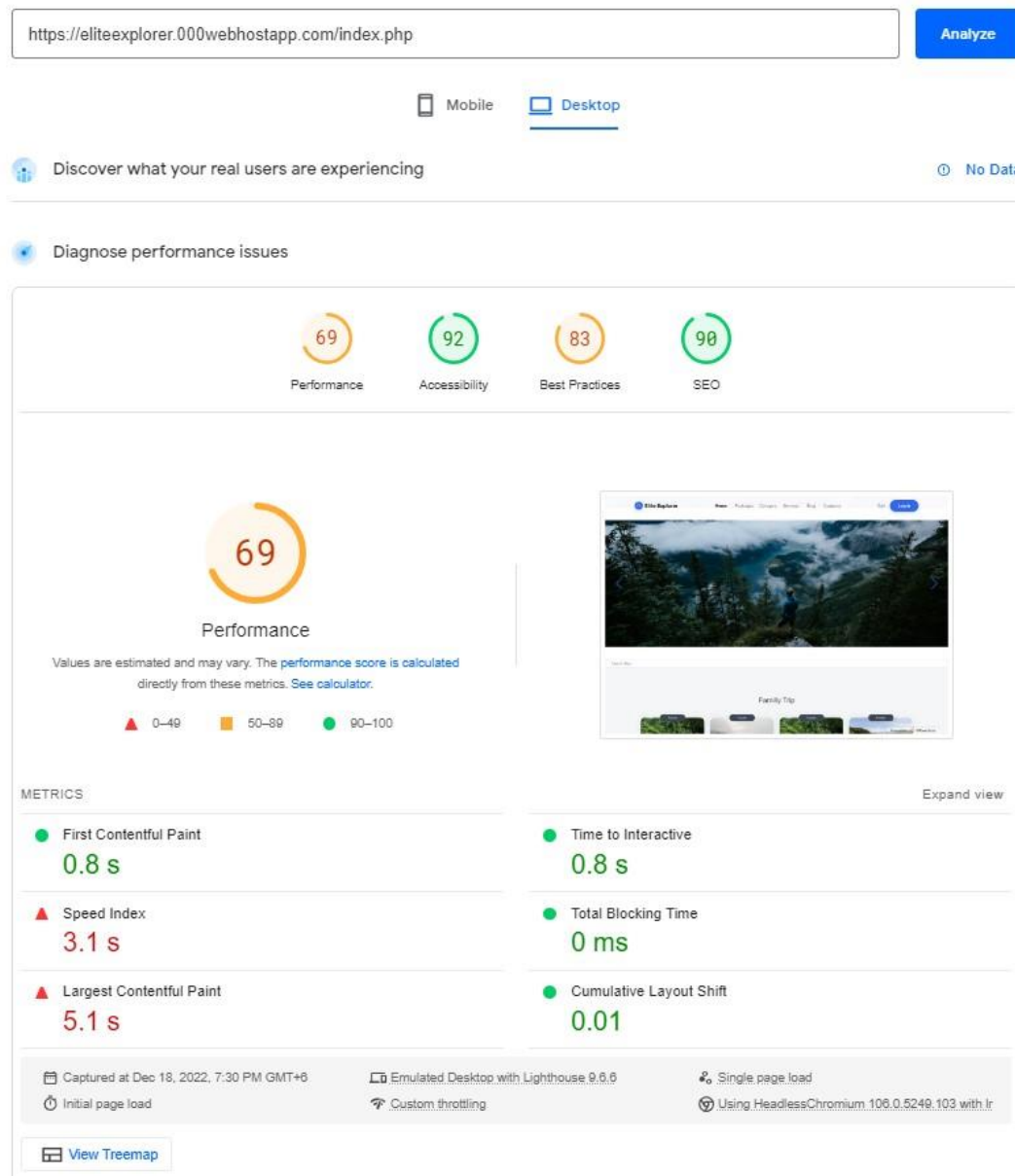
 - a. Trip based
 - b. Location based
 - c. Price search

Performance plan:

We have done performances analysis of project through the pagespeed.web.dev online performance test analyzer.

According to the report we got different types of result for desktop and mobile view.

Desktop View:



This picture shows the performance that we get of our website in desktop. It's 69%

FCP: First Content full Paint (FCP) is when the browser renders the first bit of content from the DOM, providing the first feedback to the user that the page is loading and that is 0.8S

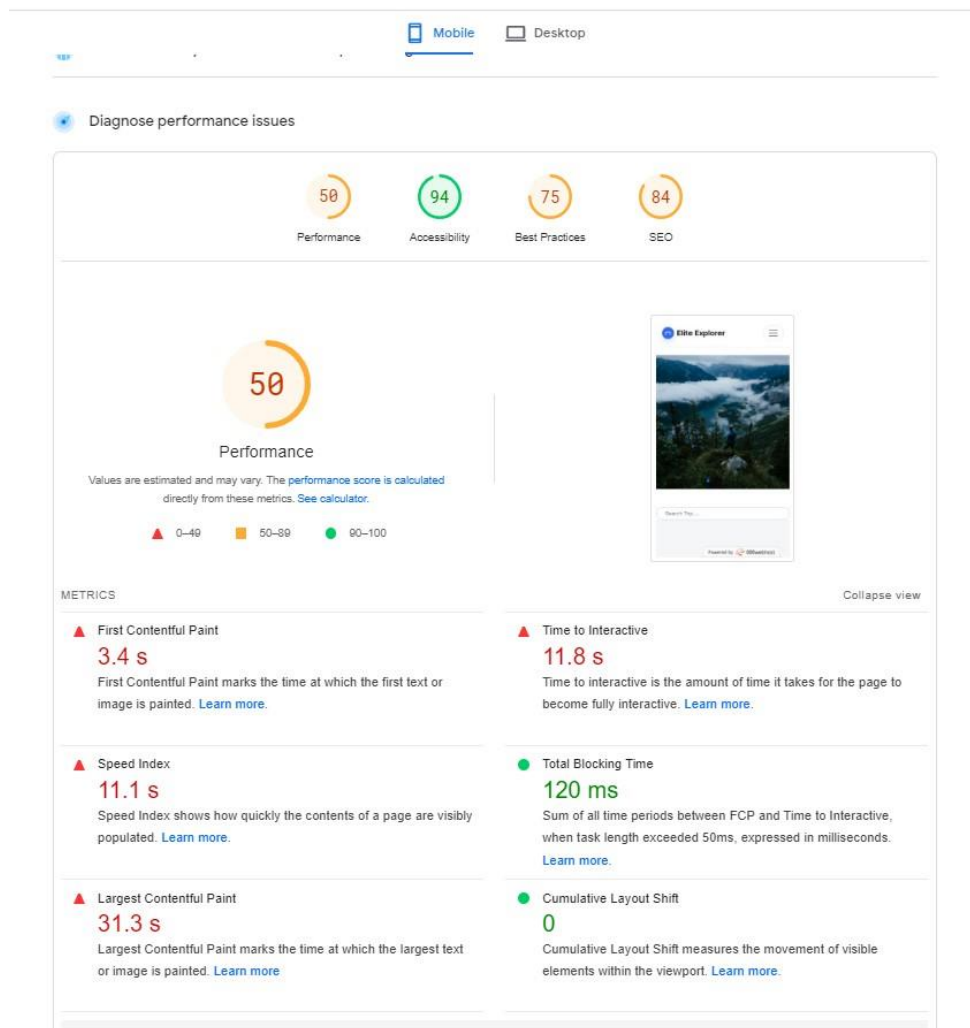
SI: Speed Index (SI) is a page load performance metric that shows you how quickly the contents of a page are visibly populated. It is the average time at which visible parts of the page are displayed. Expressed in milliseconds, and dependent on the size of the viewport, the lower the score, the better. And for our website it is 3.1s what is quite more that we must make lower.

LCP: Largest Content full Paint (LCP) is one of the three Core Web Vitals metrics, and it represents how quickly the main content of a web page is loaded. Specifically, LCP measures the time from when the user initiates loading the page until the largest image or text block is rendered within the viewport. For us it is 5.1s.

TTI: Time to Interactive (TTI) is a non-standardized web performance 'progress' metric defined as the point in time when the last Long Task finished and was followed by 5 seconds of network and main thread inactivity. And that is 0.8s what show the performance of our site is very impressive.

-Lasty in the case of total blocking time and cumulative layout shift that's in total 0. That's make our website much faster and better than all.

Mobile View:



This picture shows the performance that we get of our website in mobile. It's around 50%.

First Content full Paint (FCP) is 3.4s

- Speed index is 11.1s,
- Largest content full paint is 31.6s,
- Time to interactive 11.8s
- Total blocking time 120ms and
- Cumulative layout shift 0

Improve Performance:

Desktop: For desktop view, we got 69% performance. We need to do lot of things to improve the initial results. We used online image sources that makes the rendering

time longer. Image formats like WebP and AVIF often provide better compression than PNG or JPEG, which means faster downloads and less data consumption. We can use these format images to reduce the loading time.

Mobile: For mobile view we get nearly 50% performance we need to do lot of works for getting the better result. We might to do these things

First content full paint - FCP:

- reduce initial server response time
- element render blocking resources
- Reduced unused CSS

Total blocking time - TBT:

- Minimize main thread work
- Avoid long-main thread tasks

Largest content full paint - LCP:

- reduce initial server response time
- reduce unused JavaScript
- element render blocking resources
- Reduced unused CSS

Development Plan

1. Analysis and Decision making: We first analysis all our data what travel services we will provide and what type of user we should have. After selecting the categories and users we make a diagram of what will be relation between all of those.
2. Front End: In this section we have two views as per our user. One is for the customer and another one is for the admin user. We develop that part by html CSS and bootstrap. To make our platform ore lively and interactive we used JavaScript at our front-end part. We also make that website responsive to use it on desktop, tab, mobile all.

3. Database: As there are a lot of platforms for databases, we select MySQL to develop our database. It is the most suitable for develop our platform
4. Back end: For the back-end part we select the popular language PHP. In our development part we first done our login/register part. Then we have done the admin part where admin can add, delete, update any categories which will be shown in the home page. After that we worked on the home page where if a customer has successfully logged in then they can see the packages & can add the packages to his/her cart. After that we have worked on a blog page where customer can review about any of our services that the have taken. After that we did our checkout part. In all our pages we have added PHP session so that a customer should always logged in during selecting any of the packages.

Hardware/Hosting Plan

Here is a list of possible cloud plans. We must choose one that fits best and economical. We picked 000webhost for hosting our website with free of cost.

Here is the link: <https://eliteexplorer.000webhostapp.com/>

Cloud Provider	DC location	Latency (ms)	Starter description	Start er price (USD)	Mobile app ext. (with Redis)	Mobile app ext. price (USD)	Total expense (USD/ mo)
AWS (Amazon Inc.)	Singapore	83	EC2- small, EBS, Transfer 20TB, 0.12\$/GB	\$16.84	0.022/hr for a cache.t2.micro, goes lower (\$0.009/hr) with 3 year term	\$15.84	\$32.68
Godaddy (Godaddy Inc.)	Singapore	80	1 GB memory, 1 core, 30GB SSD, 2TB Transfer	\$14.99	512 MB memory 1 CPU 20GB SSD 1TB transfer	\$5.00	\$19.99
Azure (Microsoft)	Chennai	110	1 core, 20 GB Disk, \$0.018/hr, 0.75GB memory	\$13.39	250MB, \$0.022/hr	\$16.37	\$29.76
Azure (Microsoft)	Singapore	88	1 core, 20 GB Disk, \$0.018/hr, 0.75GB memory	\$13.39	250MB, \$0.022/hr	\$16.37	\$29.76
GCP (Google Inc.)	Singapore	??	1 shared vCPU .6 GB memory 10 GB disk	\$4.28	0.6 GB memory, 10 GB disk	\$4.28	\$8.56
000webhost				FREE	300 MB	FREE	FREE

Collaboration Plan

Tasks	Member
Frontend User all Pages	Adnan
Frontend Admin all pages	Anik
Database	Anik
Backend Admin Panel	Anik
Backend User Home pages	Adnan
Backend Card Section	Adnan
Backend Live Search	Anik
Hosting	Adnan

Project Schedule:

SL	Deliverable	Week					Man-week
		1	2	3	4	5	
1	Interface design, Pages with HTML/CSS/ JS						2
2	PHP and DB integration						2
3	Registration, session initiation, cookie setting, search, database integration						3
4	Hosting and API calls						1
5	Deployment and final release						1
	Total duration						9

Conclusion

An agency engaged in selling and arranging transportation, accommodations, tours, and trips for travelers. Travel agents facilitate customers to find out the best possible travel arrangements. They recommend destinations and decide for the hotel accommodations, car rentals, transportation, and tours for customers. Travelers may book tickets at their booking offices. A prospective travel agency is one which decides of travel tickets; travel documents (passports, visa and other documents required to travel); accommodation, entertainment, and other travel-related services from principal suppliers. It may also secure travel insurance and foreign currency for traveling people. For this type of problem, we have made this project & this project will help the travelers. Our main idea was to make an easier platform for travelers to travel in our own country and to provide good deals to travelers by our packages.

In Bangladesh people are deprived of traveling and exploring. Causing burnout and mental dissatisfaction. Which is why we have done this project. If it is perfectly implemented, then the travel shrinkage and agency issues for our local tourism will be removed.