MCA Semester – III
Front End Development Project

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Front End Development Project - Report

Project Report submitted to Jain Online (Deemed-to-be University) as part of the course “Front End Development Project”

Master of Computer Applications

Submitted by

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Under the guidance of

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DECLARATION

I, *Nischay Chandra,* hereby declare that this Project Report has been prepared by me under the guidance of *Nikhil Eknathrao Karale.* I declare that this Project is towards the partial fulfilment of the credit requirement for the course “Front End Development Project,” which is part of the Master of Computer Applications degree given by Jain University, Bengaluru. I declare that the work done by me towards this Project is original in nature and is my own contribution.

Place: Bilaspur, CG

Date: 22-12-2023

_____

Nischay Chandra

USN: 221VMTR02040

CERTIFICATE

This is to certify that the Project report submitted by Mr./Ms. *Nischay Chandra* bearing *221VMTR02040* on the title **"Front End Development Project"** is a record of project work done by him/ her during the academic year 2023-24 under my guidance and supervision in partial fulfilment of Master of Computer Applications.

Place: Bangalore

Date: *22-12-2023*

ACKNOWLEDGEMENT

The Learners may acknowledge the organization guide, University officials, faculty guide, other faculty members, and anyone else they wish to thank for their contribution towards accomplishing the research project successfully. The Learners may write in their own words and in small paragraphs.

Nischay Chandra

USN: 221VMTR02040

EXECUTIVE SUMMARY

THE AIM

The project aims to create a website for a travel company called **Wanderlust Travels**. The website will include information about the company's services, travel packages, and a gallery of photos from previous trips. The website will also provide information about the company's history, mission, and contact details.

SIGNIFICANCE

The significance of this project is to provide an online platform for potential customers to learn about the travel company's offerings and to help them make informed decisions about their travel plans. The website will highlight the benefits of using Wanderlust Travels, such as hotel, food, guide, transportation, etc.

OUTCOMES

The key outcomes of this project are a comprehensive website that provides a detailed overview of Wanderlust Travels and its services. The website will help potential customers make informed decisions about their travel plans and will help the company attract more customers.

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1. Introduction

The absence of an online presence for a tours and travel company presents a mutual challenge for both the enterprise and its customers. For the company, it means limited visibility, reduced accessibility, and a missed opportunity to engage with a vast digital audience. This absence hampers customer reach, convenience, and the ability to compete effectively in an industry driven by online bookings and information accessibility. Simultaneously, customers face hurdles in accessing crucial information, booking conveniently, and establishing trust with a company lacking an online footprint. Ultimately, the lack of an online presence diminishes opportunities for growth, engagement, and seamless travel experiences for both the company and its clientele.

Creating a website stands as a pivotal solution to address the challenges stemming from the absence of an online presence for a tours and travel company. A website serves as a digital storefront, offering a centralized platform to showcase services, itineraries, and customer testimonials, significantly enhancing visibility and accessibility. Through a well-designed website, the company can harness the power of online bookings, providing customers with a convenient and efficient platform to plan and reserve their travel arrangements.

Moreover, a website enables the incorporation of engaging content, interactive features, and customer support functionalities, fostering a direct channel for communication and feedback. This digital space not only boosts the company's competitiveness but also establishes credibility and trust among customers by offering a reliable source of information and seamless booking experiences. Ultimately, creating a website emerges as an indispensable strategy to bridge the gap, enhancing the company's online presence and significantly improving the overall customer experience in the travel industry.

The choice of HTML, CSS, JS, and Bootstrap for developing the company's website holds significant advantages and aligns with various practical considerations:

1. HTML (Hyper Text Markup Language): Being the backbone of web development, HTML provides the structure and framework for the site's content. Its simplicity and versatility make it ideal for organizing the various sections and elements of the website, allowing for easy integration of different components.

2. CSS (Cascading Style Sheets): CSS complements HTML by enhancing the visual presentation and aesthetics of the site. It enables the customization of colours, fonts, layouts, and overall design elements, ensuring a visually appealing and user-

friendly interface. Using CSS allows for consistency across web pages and ensures a responsive design that adapts well to different devices.

3. JavaScript (JS): JS adds interactivity and dynamic functionalities to the website. With JS, you can implement features like the carousel in the hero section, form validation for the 'book now' form, and interactive elements throughout the site. It enhances user engagement by providing a more immersive experience.

4. Bootstrap: Bootstrap is a front-end framework that offers pre-designed templates, components, and utilities for building responsive and mobile-first websites. Using Bootstrap streamlines the development process by providing ready-to-use components like carousels, cards, and grids, enabling faster development and ensuring consistency across different devices and screen sizes.

Significance of Technology Choices:

Efficiency and Speed: Using Bootstrap components significantly speeds up the development process. The predefined elements allow for rapid prototyping and implementation, reducing the time and effort required to create a responsive and visually appealing website.

Responsive Design: Bootstrap's mobile-first approach ensures that the website is optimized for various devices, including desktops, tablets, and smartphones. This responsiveness is crucial in today's digital landscape where users access websites from diverse devices.

Consistency and Maintenance: The use of frameworks like Bootstrap promotes consistency in design and layout across the site. It also simplifies maintenance, as updating or modifying the website can be done efficiently through Bootstrap's standardized components.

User Experience: Implementing features like the carousel for showcasing destinations, the 'book now' form for easy reservations, and the visually appealing travel packages using Bootstrap cards enhances user engagement and overall experience.

Overall, the chosen technologies offer a blend of efficiency, responsiveness, ease of maintenance, and enhanced user experience, making them well-suited for developing a functional and visually appealing tours and travel website.

2. Objectives

2.1 Checkpoint - 1

To create a welcome page, i.e. index.html. Welcome page should have a navigation menu at the top with brand logo and name. The navbar should also have a Login/Register button on the left and all the links to the different sections of the page.

Below that the ‘hero’ section of the website will appear with a background image, atop that a carousel that shows different places offered to visit by the company.

2.2 Checkpoint - 2

A section below ‘hero’ section that has heading ‘Book Now’. Half of the section shows a brand related image and other half has a form with fields where, when and with whom to plan the trip.

In next section a package gallery should be there. Each package information shows image, name, price, ratings and attractions included in the package.

Below that a ‘Services’ section that shows the different services offered by the travel company throughout the trip.

2.3 Checkpoint - 3

After services, a ‘Gallery’ section to show various photos, glimpse experienced by the customers/company in previous trips.

A ‘About Us’ section that gives information about the company’s establishment, mission statement and other relevant details.

Then add a footer containing brand logo, social media links and copyright information.

2.4 Checkpoint - 4

On click of the ‘Login/Register’ button, a new page to appear asking to allow user to login or create an account on the website. Both of these pages should have option to go to other without going back to index page. Proper form validation to be used.

At the end whole website to be pushed live on github.io or Netlify.

3. Project Description

3.1 Checkpoint - 1

Creating the index.html page, the first page to be seen by the customer when they visit the company website. We have to add a navigation menu which contains a brand logo that resonates with the company, and hyperlinks to different parts of the page adding ease of access to the users as they don't have to scroll through the page and they can directly jump to any part of the page as per their requirements.

In the same menu we have a Login/Register button that takes the users to the respective pages.

Below that we have a "hero" section, which is essentially the first presentation the user will see. Hero section covers up the entire view width and height of the page. It has a background image luring the customers to get their backpack and escape to nature. Atop that site a bootstrap carousel that slides through name of different countries that are offered by the company in their tour packages.

3.2 Checkpoint - 2

After the hero section we have to create a "Book Now" section to make the users able to fill up a simple form to get started with their trip planning by deciding where to go, when to go and with whom to go. The form is equipped with form validation thanks to JavaScript to validate the user input before it reaches the server.

Next section we have to add the details of travel packages offered by the company. We are using bootstrap cards for it. Each card contains an image of the place, attractions of the place, price per person and approval ratings. User can directly choose any package of their choice and book it by clicking 'book now' button.

After that we have a 'Services' section to display the services provided by the travel company throughout the trip. This includes Affordable hotels, Food and Drinks, Safety Guid for the adventure side, Transportation, Guided Tours and 24/7 Online Customer Support to make sure they get the support no matter whichever part of the world they are going.

3.3 Checkpoint – 3

Then comes the most interesting and probably the most gazed part of the website – the image gallery section. Here we show the images of previous trips in a grid view of variable image sizes made possible by CSS grids. I have used unsplash API. to get different dynamically sized image on each refresh. User can hover the image to get a zoomed view and can click it to view it on Fullscreen.

After gallery we have the ‘About Us’ section that gives the information about the company, its establishment, mission statement and other details. It also shows a company logo on one side.

At footer we have hyperlinks to different social media handles of the travel company. The users can click the relevant icons and view their social media page in a separate tab. The footer also consists of a copyright information at the very end.

3.4 Checkpoint - 4

Login and Register pages have similar look and feel to keep the UI consistent. Login pages has a form asking email and password of the account and register page has full name, date of birth, contact, gender, email and password fields to create an account.

Both the pages have hyperlinks to the other page, so that the user can switch between them without going back to homepage. Forms are validated before submissions and if something does not match the format that we intend an alert box appears with appropriate message.

Finally, to deploy the website I am using Vercel as it is free and directly connected to the GitHub repository where the code lives.

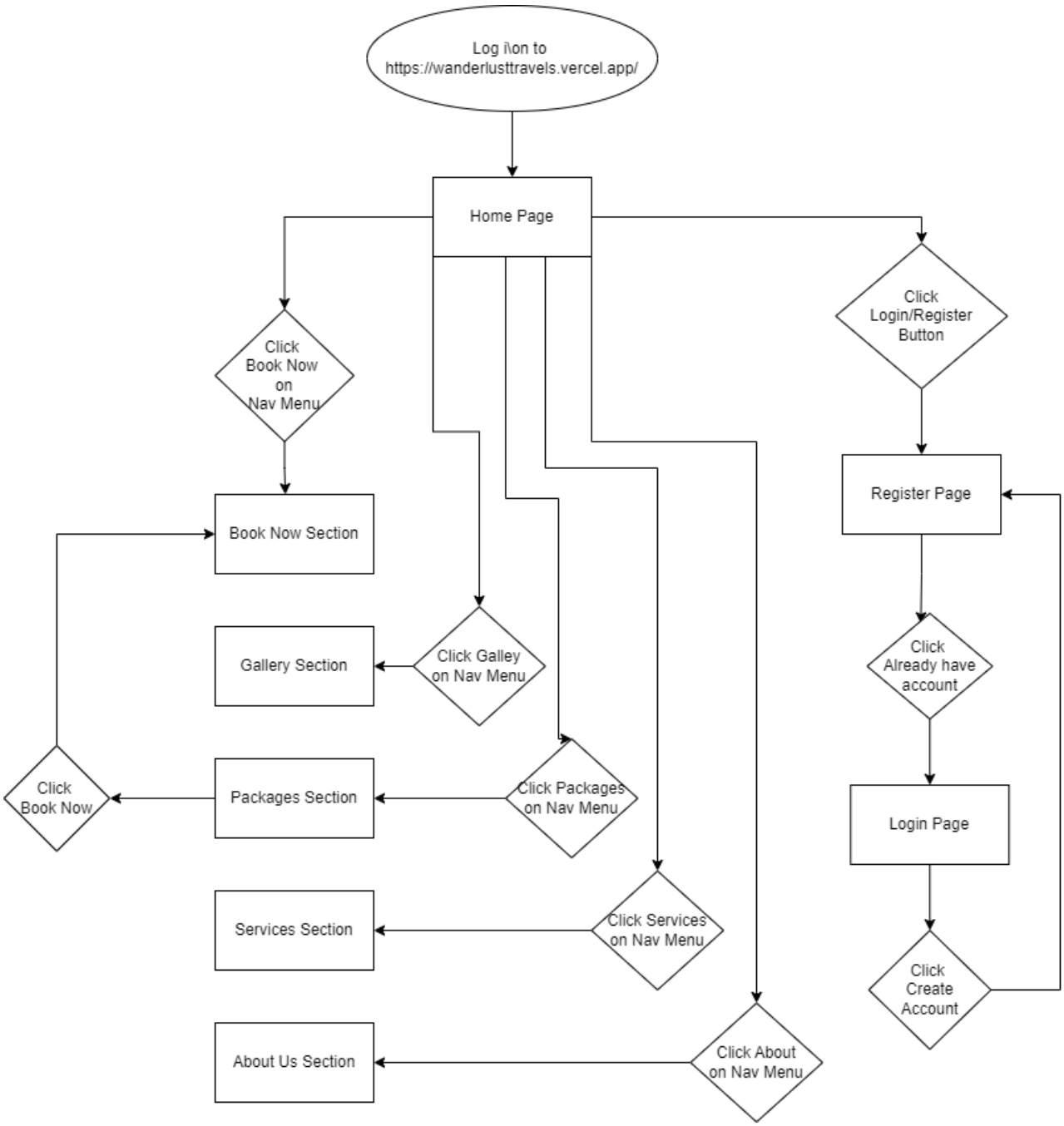
4. Additional Features

Responsiveness:
The website is having responsive UI making it properly accessible from any device you are looking. A responsive website design offers a crucial advantage by adapting seamlessly to various screen sizes, ensuring an optimal user experience across devices. This adaptability enhances accessibility, enabling users to effortlessly navigate and interact with the content on desktops, tablets, and smartphones alike. With a responsive design, businesses can reach a broader audience, as users increasingly access the internet through diverse devices. This approach not only improves user satisfaction but also positively impacts search engine rankings, as search algorithms favour mobile-friendly websites. Ultimately, a responsive website fosters a consistent and user-friendly interface, bolstering engagement, reducing bounce rates, and contributing to an overall positive perception of the brand.

On Load Animation:
On-load animations significantly enhance a website's feel by providing visual appeal, improving user engagement, and offering smooth transitions between elements. These animations captivate attention, guide focus, and contribute to a polished browsing experience. They also serve a functional role by providing loading feedback and can convey brand personality or tell a story. However, a balance must be maintained to avoid negatively impacting load times, emphasizing the importance of judicious implementation for optimal user experience.

Full Screen Galley Images
You can click any image in the gallery to make it full screen. Incorporating a full-screen capability in your website's image gallery elevates the user experience by offering a more immersive and detailed view of the showcased images. This feature allows visitors to engage with the content on a deeper level, appreciating the finer details and nuances of each picture. It provides a more interactive and dynamic exploration, enhancing the visual impact of the gallery. Users can enjoy a closer look at the images without distractions, creating a more compelling and memorable experience. This full-screen functionality adds a layer of sophistication to the gallery, making the website stand out by prioritizing user engagement and satisfaction. Overall, the inclusion of full-screen capability enriches the image gallery, transforming it into a visually captivating and user-friendly showcase.

5. Flowchart


Log in to
https://wanderlusttravels.vercel.app/
Home Page
Click
Book Now
on
Nav Menu
Click
Login/Register
Button
Book Now Section
Register Page
Gallery Section
Click Galley
on Nav Menu
Click
Already have
account
Click
Book Now
Packages Section
Click Packages
on Nav Menu
Login Page
Services Section
Click Services
on Nav Menu
Click
Create
Account
About Us Section
Click About
on Nav Menu

6. Coding

The project has been made using **HTML, CSS and JavaScript.**

HTML gives us the skeleton of the website, it defines the DOM tree, sections, divs, buttons, nav, main, footer etc. It also defines the head tag and the contents inside it. The head tag in HTML is a container for metadata and other head elements that are not part of the main content of a webpage. It is an essential element for providing information about the document, linking to external resources, and defining various settings.

```
<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <link rel="apple-touch-icon" sizes="180x180" href="/images/apple-touch-icon.png">
  <link rel="icon" type="image/png" sizes="32x32" href="/images/favicon-32x32.png">
  <link rel="icon" type="image/png" sizes="16x16" href="/images/favicon-16x16.png">
  <link rel="manifest" href="/site.webmanifest">

  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.4.1/dist/css/bootstrap.min.css"
    integrity="sha384-Vkoo8x4CGsO3+Hhxv8T/Q5PaXtkKtu6ug5TOeNV6gBiFeWPGFN9MuhOf23Q9Ifjh" crossorigin="anonymous">
  <link rel="stylesheet" href="style.css">

  <title>Wanderlust Travels | Home</title>
</head>
```

CSS is used to give visual look and feel to the website. The colour schema, background images, fonts are possible due to CSS. An external CSS file can be attached to the HTML page using the ‘link’ tag inside head. This implementation can be seen in above image. Adding CSS on the HTML page itself is also possible, just open a ‘style’ tag inside ‘head’ and put your CSS code there. (See example below)

```
<title>Wanderlust Travels | Login</title>
<style>
    body {
        min-height: 100vh;
        display: grid;
        place-items: center;
    }
    h2 {
        text-align: center;
        color: #333;
    }
```

JS is providing the functionality to the site. Be it form validation, full screen mode on galley or the sliding carousel, JS is behind this.

The image below shows the JS code snippet used to create the full screen functionality of image gallery. First it selects all the ‘img’ elements inside #gallery, and attaches an event listener of ‘click’ on each of it. Whenever an image is clicked it takes the value of ‘src’ attribute and puts it to full screen using a modal which is positioned ‘absolute’ such that it stays on top of everything else.

```
<script defer>
  let images = document.querySelectorAll("#gallery img");
  let modal = document.getElementById("g-modal");

  modal.addEventListener("click", () => {
    modal.style.display = "none";
  })

  images.forEach((img) => {
    img.addEventListener("click", () => {
      let imgUrl = img.getAttribute("src");

      let modalImgBody = document.querySelector("#g-modal-img");
      modalImgBody.setAttribute("src", imgUrl)

      modal.style.display = "grid";
    });
  });
</script>
```

Bootstrap is a CSS framework which has been used to add responsiveness and pre built UI components to the projects such as cards, buttons, navbar. The carousel is also built using bootstrap’s carousel component.

An interesting challenge I faced during coding is in the ‘on load animation’ part. I have added a ‘swipe in’ animation on some elements in the ‘hero’ section such that when the page loads, it should look like they emerge from the bottom of the screen.

I have given a class ‘swipe-in’ to the elements on which I want to show this animation. The problem is if I put the ‘swipe-in’ class directly in the HTML code, then all the element will show the animation at once, which does not look that great. So, I had to pull in JS for this, in JS, first, I grab all the elements with ‘swipe-in’ class and then loop over them to add another class ‘animated’. This ‘animated’ class is the responsible for performing the swipe-in animation.

I have also added a delay multiplier which is just the order of the elements with ‘swipe-in’ class in the DOM. This delay multiplier delays the animation of that

particular element by adding the ‘animated’ class after a delayed time. This makes the elements animate one by one instead of just going all at once.

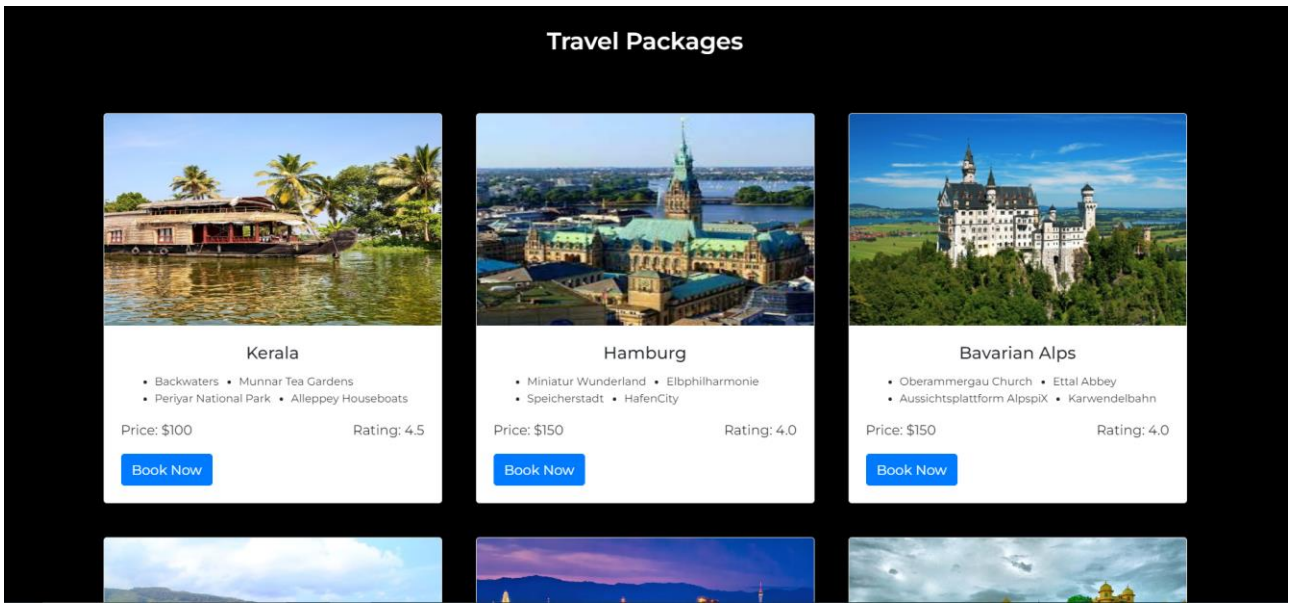
```
const toAnimate = document.querySelectorAll('.swipe-in');
for (let index = 0; index < toAnimate.length; index++) {
    loadAnimation(toAnimate[index], index);
}

function loadAnimation(node, delayMultiplier) {
    let delay = 500 * delayMultiplier;
    setTimeout(() => {
        node.classList.add('animated');
    }, [delay])
}
```

```
.swipe-in {
    opacity: 0;
    position: relative;
    top: 100px;
}

.swipe-in.animated {
    opacity: 1;
    top: 0;
    animation: swipeIn 1s ease;
}

@keyframes swipeIn {
    0% {
        opacity: 0;
        top: 100px;
    }

    100% {
        opacity: 1;
        top: 0;
    }
}
```

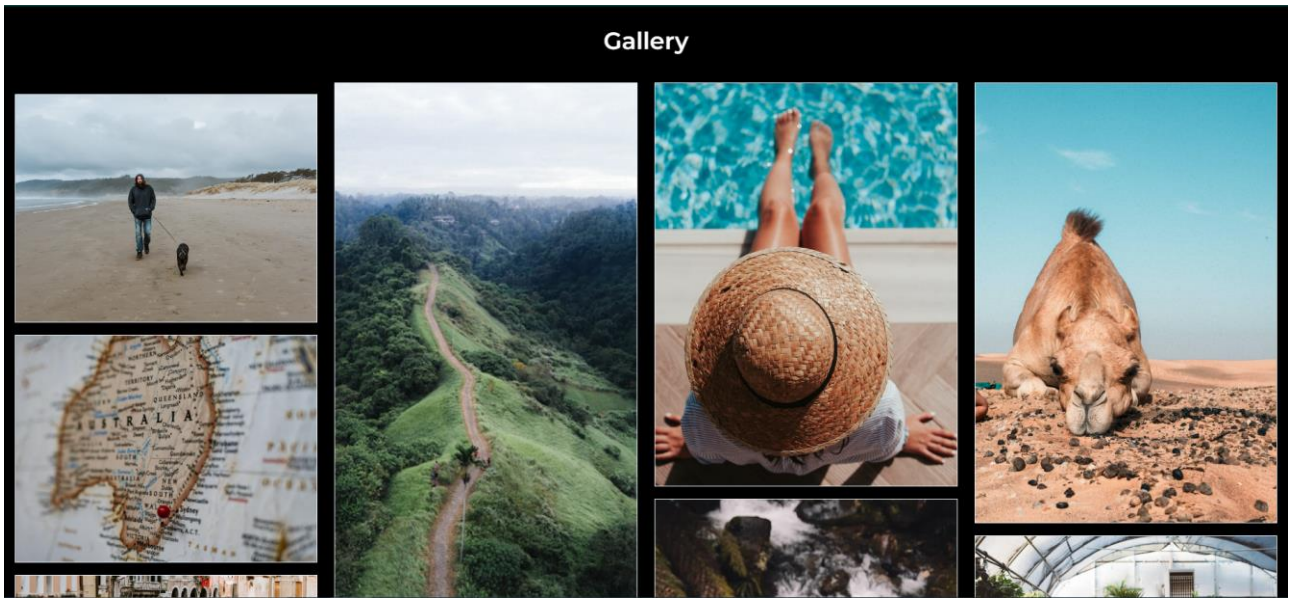
7. Output

Navbar and Hero Section

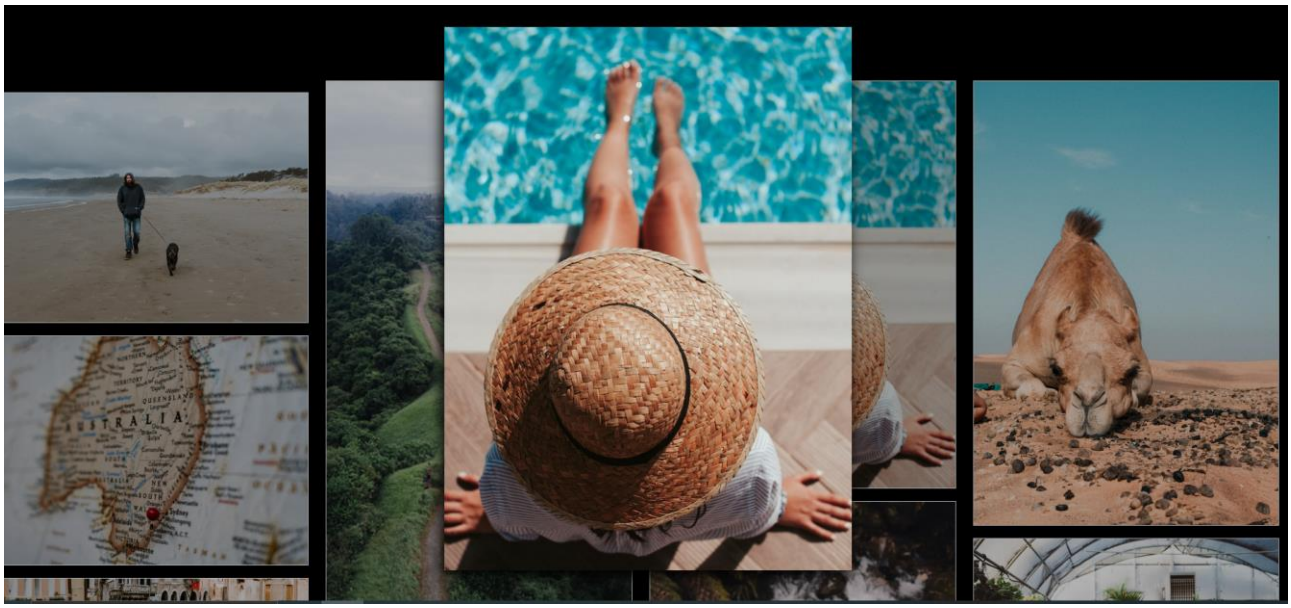
Travel Packages Section



Gallery Section



Gallery Section in Full Screen



8. Validation

Responsiveness

The website is made responsive to different screen sizes using bootstrap and some custom CSS. A responsive website design offers a crucial advantage by adapting seamlessly to various screen sizes, ensuring an optimal user experience across devices.

Hover and Click Feedback

When the cursor is hovering or clicking any interactive element, I have added ‘hover’ and ‘active’ effects so that the user can get a better experience and visual feedback.

Social Media Preview Card

Upon sharing the website link on social media like Facebook, Twitter, Instagram etc, it shows a polished preview there. Made possible using meta tags and open-graph definitions. Optimizing your website for social media previews enhances its visual appeal and ensures that shared links display compelling images and relevant information, increasing click-through rates. A well-optimized preview provides a polished first impression, enticing users to explore your content and fostering greater engagement across social platforms. This strategic approach not only elevates your online presence but also maximizes the potential for organic reach and audience interaction.

Optimized Images

Optimized images for a website contribute to faster page loading times, enhancing the overall user experience and reducing bounce rates. By minimizing image file sizes without compromising quality, optimized images help conserve bandwidth, making your site more accessible across various devices and network conditions. Additionally, improved loading speeds positively impact search engine rankings, boosting your website's visibility and performance in search results.

9. Conclusion

To evaluate the success of the website project, we can look at metrics like whether it meets the original requirements, if users find it easy to navigate and use, and if it conveys the information that we intended effectively.

Some examples of success criteria could be:

- Achieving the original goals and requirements of the project
- Positive feedback from users on design, usability and usefulness
- Increased traffic and engagement over time

To build on the success for future optimization, some areas we could improve are:

- Enhancing website speed and performance through technical upgrades
- Adding more informative and engaging content based on user feedback
- Improving navigation and on-site search to help users find information more easily
- Expanding marketing efforts to increase visitors and promote key site content

Conducting post-launch user testing and gathering feedback is crucial for identifying issues and planning meaningful improvements over time. Overall, we can keep focusing on meeting user needs even better to take the website to the next level.

Here are the key takeaways and results of front-end development projects:

1. Learning Outcomes: One key takeaway from front-end development projects is learning how to write reusable JavaScript code to verify the validity of various form fields.

2. CSS and Layout: Another major takeaway from front-end development projects is related to CSS and layout. These projects can help improve your coding skills in these areas.

3. Best Practices: Mastering front-end development best practices involves defining the role of UX and UI, streamlining design-to-development processes, and ensuring application performance and security.

4. Open Graph: Social media previews enhances its visual appeal and ensures that shared links display compelling images and relevant information.

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