**Introduction**

**Group 4: *Code Warriors*, a dynamic and innovative team committed to revolutionizing travel planning with our project, *Travel Smart*. Composed of dedicated developers, designers, and strategists, our team brings together diverse skills and perspectives to tackle the complexities of modern travel needs. With a clear vision for enhancing user experiences, *Code Warriors* focuses on delivering an intuitive, user-centered platform that streamlines travel planning by providing comprehensive information on destinations, accommodations, and transportation options. Our project, *Travel Smart*, leverages cutting-edge technology to create a seamless, responsive, and personalized travel tool designed for today’s fast-paced, mobile-driven world.**

**The *Code Warriors* team has skillfully integrated advanced technology to make *Travel Smart* a standout project. Utilizing React for dynamic user interfaces, CSS with PAM (Progressive Advancement Methodology) for sleek, responsive design, the team ensures that the platform is both visually appealing and accessible on any device. Each feature of *Travel Smart* is meticulously crafted, allowing users to seamlessly explore destinations, book accommodations, and manage their itineraries with ease. Through a step-by-step, 100% dedicated approach, *Code Warriors* bring together technical expertise and a commitment to creating a user-centered, high-performance travel platform.**

**Abtract**

This study develops *Travel Smart*, a responsive, Single Page Application (SPA) travel platform offering detailed information on destinations, accommodations, and transport options. Usability tests focused on navigation and satisfaction, identifying areas for improvement. Built with React, the platform uses component-based design to optimize user experience across devices.

**Keywords:** Travel platform, usability, responsive design, SPA, UI.

**Introduction**

The rapid rise of internet and mobile technology has reshaped the travel industry, with travelers increasingly depending on mobile devices for real-time information, bookings, and navigation. *Travel Smart* is designed as a responsive Single Page Application (SPA) to meet these needs, offering a seamless user experience across devices. It provides essential details on destinations, accommodations, and transportation, making travel planning simpler and more accessible. The platform’s user-friendly design and intuitive navigation aim to help travelers make informed decisions, positioning *Travel Smart* as a vital tool for today’s on-the-go users.

**Overview**

*Travel Smart* is a travel platform designed to enhance user experience by offering a centralized hub for trip planning, booking, and management. Key features include personalized recommendations, itinerary management, and access to special deals, all supported by real-time updates on costs, transport schedules, and accommodation availability. Users benefit from timely notifications, reviews, and feedback options, making informed travel decisions easier. With its focus on convenience, personalization, and efficiency, *Travel Smart* provides a comprehensive travel solution for today’s travelers.

**Mobile Devices Usability**

*Travel Smart* prioritizes usability across mobile devices, ensuring a smooth experience on various screen sizes and operating systems. The responsive design keeps essential features like destination search, booking, and itinerary planning accessible, even on smaller screens. Optimized for quick loading, the platform reduces scrolling and enhances user experience, while integrated security features protect personal data. Compatibility with both Android and iOS provides users with consistent functionality and supports add-ons like notifications and special offers to enrich the travel experience.

**Research Focus**

The focus of this research is developing *Travel Smart*, a platform designed to simplify travel planning and booking by providing users with quick access to destinations, accommodations, tours, and transport options. Offering personalized recommendations, the platform is optimized for desktop and mobile, ensuring a seamless experience. Usability tests evaluated the user interface, task efficiency, and real-time updates on costs and availability, aiming to address travel planning challenges and enhance user convenience and accessibility.

**The Proposed System**

The proposed *Travel Smart* platform offers a one-stop solution for travelers, integrating essential services like destinations, accommodations, transport, and tours. Users can register to access personalized features, manage itineraries, book accommodations, and receive confirmation codes for reservations. The platform includes a "Dashboard" for booking history, a "Wishlist" for travel tips, special offers, and a "Contact" link for customer service. This system is designed to streamline and simplify the travel experience, making it more efficient for users to manage trips end-to-end.

**Implementation Details**

• ReactJS: Chosen for its component-based architecture, allowing for reusable UI elements and easy scalability.

• Bootstrap: Used for responsive and mobile-first design, ensuring a consistent layout across different devices.

• Firebase API Integration: Integrated to handle user authentication, real-time data management, and hosting of dynamic content.

• SCSS/BEM/HTML/XML: SCSS with the BEM methodology was employed to maintain clean, organized, and scalable CSS, while HTML and XML were used for content structure and external data integration.

**RESEARCH QUESTION What are the main usability challenges that affect user experience with regards to travel planning and booking on the Travel Smart platform?**

**EXPERIMENTAL DESIGN**

The *Travel Smart* usability experiment involved 9 participants performing typical travel planning tasks, such as booking accommodations and creating itineraries, on both desktop and mobile devices. The goal was to evaluate navigation, booking efficiency, and access to travel information. Participants used high-quality, responsive devices in a controlled environment, and the experiment was recorded to identify usability issues affecting user performance and satisfaction. This approach ensured realistic testing conditions, particularly for mobile interactions, to assess the platform’s overall usability across devices.

**Interface Design**

The *Travel Smart* interface design prioritizes intuitive and responsive navigation, especially on mobile devices with limited screen space. Usability tests involved tasks that mirror real-world travel planning, including logging in, searching for destinations, booking accommodations, confirming bookings, exploring tours, reviewing transport options, and accessing travel guides and customer support details. These tasks evaluated navigation ease, task efficiency, and visual clarity, revealing areas for design enhancement to ensure a seamless user experience across devices.

**The Experiment**

The *Travel Smart* usability experiment simulated real-world travel planning, with recordings of participants’ facial expressions and screen interactions to capture their experience. Participants completed tasks after a pre-test overview, while thinking aloud, and two observers noted their progress. Usability was measured by:

* Effectiveness: Task completion success.
* Efficiency: Time and clicks per task, with participants encouraged to work at a comfortable pace.
* User Satisfaction: Post-test questionnaires on comfort and acceptability, based on ISO 92401-11 standards.

This approach provided detailed quantitative and qualitative insights, offering a comprehensive usability assessment.

**RESULTS SUMMARY**  
*Travel Smart* usability testing analyzed task performance across effectiveness, efficiency, and user satisfaction. Nine participants performed tasks like logging in, booking accommodations, and navigating itineraries on desktop and mobile. While tasks like booking were mostly successful, challenges arose with navigation and returning to the platform from external links. Key findings included:

* **Effectiveness:** 8 out of 10 tasks were completed on average, with difficulty in filtering tours.
* **Efficiency:** Task times averaged 9 minutes, with mobile scrolling impacting speed.
* **User Satisfaction:** High ratings for usefulness (4.47) and ease of learning (4.68), with moderate scores for error recovery (3.85) indicating improvement areas.

**CONCLUSION**  
*Travel Smart* is promising but needs mobile-specific refinements, such as:

* Enhanced in-page search and bookmark features.
* Offline viewing for itineraries and guides.
* Clearer button labels, layout modes, and feedback mechanisms to improve navigation.

Overall, *Travel Smart* is well-received, yet optimizing for mobile flexibility and navigation will enhance its usability across devices.