Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
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Project Proposal

Travel Smart Planner

Course Title: Algorithms Lab
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Students Details

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Lab Project Status	
Marks:	**Signature:**
Comments:	**Date:**

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Chapter 1

Introduction

1.1 Overview

The Travel Smart Planner is designed to make travel planning simple and efficient by solving three key problems. It helps users find the shortest route between cities using Graph Algorithms, plan trips within a budget using Greedy Algorithms, and create efficient multi-city travel plans using Divide and Conquer. This project provides smart, algorithm-based solutions to common travel challenges in an easy-to-use way.

1.2 Motivation

We created the Travel Smart Planner because we are passionate about travel and wanted to make trip planning easier and more efficient for everyone. Many existing tools are either too complicated to use or fail to address important challenges like finding the best routes, staying within a budget, or planning an efficient schedule for multi-city trips. These challenges often make travel planning stressful and time-consuming for users.

By building this project, we aim to provide a user-friendly platform that solves these problems using smart algorithms. The system will help users find the shortest routes between cities, plan trips within their budget, and create optimized multi-city travel plans. This project also allows us to combine our love for travel with our skills in problem-solving and algorithm design, creating a practical and effective tool for travelers.

1.3 Problem Definition

1.3.1 Problem Statement

Many travelers find it difficult to plan their trips due to complicated and confusing travel tools. These tools often make it hard to discover suitable tours, read honest reviews, and get the necessary information, leading to frustration and missed opportunities for great experiences.

Our project aims to solve this problem by creating a simple, easy-to-use platform that helps users find and plan their trips. Travel Smart Planner will guide users in selecting the best routes, managing their budget, and organizing multi-city trips efficiently. We want to make travel planning easier, more enjoyable, and accessible for everyone

1.3.2 Complex Engineering Problem

The following Table 1.1 shows the key attributes related to the Travel Smart Planner:

Table 1.1: Summary of the attributes touched by the Travel Smart Planner

Name of the P Attributess	**Explain how to address**
P1: Depth of knowledge required	Java, user-friendly interface, algorithms (Graph, Greedy, Divide and Conquer), backend logic, data structures..
P2: Range of conflicting requirements	User needs (easy navigation, quick info), balancing simplicity with functionality.).
P3: Depth of analysis required	Traveler behavior, problem analysis, route optimization, budget management, algorithm implementation (Dijkstra, Greedy).
P4: Familiarity of issues	Ensuring data security and user privacy within a Java-based application for a safe experience.
P5: Extent of applicable codes	Java, algorithms, backend programming, coding standard.

1.4 Design Goals/Objectives

The main goals and objectives for designing the travel tour website are as follows:

1.User-Friendly Interface: Develop an intuitive and easy-to-use interface for travelers, focusing on seamless navigation and efficient trip planning.

2.Efficient Algorithm Implementation: Implement algorithms (Graph, Greedy, Divide and Conquer) in Java to optimize routes, budgets, and itineraries.

3.Data Security: Ensure that all user data is securely handled and protected using appropriate methods within the Java environment.

4.Performance: Optimize the application's performance to handle large datasets and multiple user queries efficiently, ensuring quick responses.

5.Java-Only Environment: Build the project to run entirely on a Java compiler without any external dependencies, ensuring compatibility and simplicity.

6.Scalability: Design the system to be easily extendable for future features or improvements while maintaining its core functionality.

By achieving these goals, we aim to create a Travel Smart Planner that not only meets user needs but also enhances their overall travel planning experience.

1.5 Application

The Travel Smart Planner helps travelers plan their trips easily and efficiently. Users can find the best travel routes, plan trips within a budget, and create schedules for visiting multiple cities. It provides smart solutions for common travel challenges, making trip planning simple and enjoyable. This tool is useful for anyone looking to organize their travel plans quickly and effectively.