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My senior design project, Smart Travel, is an application for travel agents that helps users plan and reserve whole trips. When users input their vacation budget, dates, and interests, the app will look up potential places, evaluate airfare and lodging alternatives, and produce a comprehensive, bookable itinerary. Because it combines data management, artificial intelligence, and algorithm design with practical applications, this project excites me academically. Using the technical and professional abilities I've acquired, I want to create a system that is effective and easy to use. The breadth of my computer science expertise is evident in this project, which also shows how technology can streamline difficult choices.

I'm well-prepared to take on this endeavor thanks to my coursework. I learned how to create effective schemas and queries in CS 4092: Database Design and Development, which will be crucial for recording travel preferences and itineraries. I was introduced to a variety of paradigms in CS 3003: Programming Languages, which helped me choose the best tools for adaptable system design. I gained knowledge of ideas like heuristic search and intelligent agents in CS 4033: AI Principles and Applications, which are directly applicable to Smart Travel's recommendation engine. These classes improved my ability to solve problems and provided me with useful techniques for creating scalable systems. Together, they served as the basis for the design and execution of the main elements of this project.

I gained useful technical and professional skills from my co-op experiences that complement Smart Travel. I created a Python chatbot with natural language processing at Palni Inc. in Texas, trained it using JSON intents, and invented AI-powered chatbots to enhance the visualization of client data. Using SmartBots Studio, I also expedited analysis, which improved decision-making and decreased interpretation time. I worked on API testing and automation at Midmark Corporation in Ohio, utilizing Python, the Robot Framework, and Microsoft Azure pipelines. Working with cross-functional teams and taking part in sprints and planning allowed me to develop experience with Agile and Scrum. My technical proficiency and my capacity to function well in group settings were both enhanced by these positions.

The potential influence that Smart Travel can have on people's lives is what drives me to work on it. Travel planning frequently necessitates a great deal of comparative shopping and research, which might overwhelm people. I'm excited to build a system that provides accurate and timely individualized travel options. Additionally, the project enables me to integrate my programming, database, and artificial intelligence talents into a single, useful application. I enjoy the challenge of creating a workable and user-friendly solution by striking a balance between technical design and actual user needs. I'm also excited to work with my teammates to produce excellent results by utilizing agile principles.

To find out what travelers need, I will start by collecting requirements and developing user stories. After that, I'll create a solid database schema to hold user preferences and itineraries, and algorithms will match people with available trip possibilities. One significant milestone will

be the integration of external APIs for hotels and flights. I'll concentrate on creating an intuitive interface for simple interaction after it is set up. I anticipate that the finished result will produce precise itineraries within the allocated budget and time frame. I'll assess my contributions by gauging the system's accuracy, effectiveness, and usefulness to make sure it satisfies specifications and testing standards.