Project Proposal

CSE 2100 – Software Development Project-I

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Application to Find the Most Cost and Time Efficient Way of Inter-city Transportation and Plan Travel Itinerary

Introduction: Travelling to distant places is costly and time-consuming task. There might be different routes and modes of transportation to visit a place. But the available tour planners only show the direct route from origin to destination. Even though there might be intervals on hubs and change of the vehicles (such as international flights), it is often skipped on the regular planner apps. The program in the project aims to break down the routes and find out the comparatively cheaper and less time-consuming routes and transportations among them. It intends to save time and money of the user and ease his work on planning.

Objectives:

● To provide an easy-to-use application that displays the details of regular routes and modes of transportation.

● To optimize the tour by finding a cheaper or less time-consuming way or agency.

● Provide alternate routes where direct route between origin and destination is unavailable or banned or temporarily closed.

● Provide flexibility on planning by giving option to add intermediate destination.

● Provide a desktop interface and/or Android phone application.

Target Customers:

● Travelers on Budget – By providing alternate cheaper way, the program intends to help customers on budget.

● Travelers with a destination where direct route is unavailable– The program checks for direct and indirect routes, thus finding alternate routes where direct route is unavailable.

● Travelers wanting to visit secondary destinations in-between the journey – By providing option to add multiple secondary destinations, the program gives flexibility to the user in his/her planning.

Value Proposition: This application fills the need of having a tool that plans and optimizes your schedule and route of the journey. In an imaginary scenario, where Mr. Mir, living in Rajshahi, wants to visit Gaza strip. Since there are no international airports in both Rajshahi and Gaza, Mr. Mir will have to go to

Dhaka first, then to Jordan, to Israel and finally to Gaza strip. Ordinary route planner won't be unable to find a route to Gaza from Rajshahi since there is no direct path available. In a situation like this, the program will come in handy.

Details and Options:

- Origin and Destination
- Start time of the event
- Secondary destinations
- Preferred mode of transportation
- Priority of event on a scale of 1-5
- The time that the user wishes to start and end their 2journey.

In order to calculate the optimal schedule, the application uses predefined information to get distances and travel times between event locations. The application then uses A*/Dijkstra's algorithm to optimize and display schedule to the user, which the user can modify if required. The schedule is then saved to a local file and can be accessed by the user at a later time, with an option to modify it. If at any point in the day, the user cannot meet the schedule, the application tries to determine if the schedule can be recalculated to still accomplish the day's needs. In the case that time is not enough for whole travel itinerary, lower priority destinations are dropped in favor of higher priority.

Tools and Resources:

Software: Sublime Text Editor, CLion/IntelliJ/PyCharm IDE, gnu g++/javac/python3 compiler.

Programming Language: C++/Java/Python;

***Target OS Platform*:** Windows/Android