CIS 7 Project Documentation Guide

Pasta Boys: Shadoe Stiede, Ivan Perez, Alejandro Perez, Ulises Rojas

For our project we have decided to go with Case 1: Inland Empire Solar Sales Travel. In case 1, we act as a solar marketing specialist who has to travel from Riverside to Moreno Valley, then to Perris and Hemet in order to sell solar packages to homeowners. His trip begins from Riverside and always ends in Riverside as well. In our travels we can take variations of trips to the noted cites in order to market solar products. For our project we are finding solutions for the breadth first search, shortest path, and the most low-cost trips for the marketing specialist. The solutions we are providing are important to the specialist as they are helping determine which routes he is able to take with the breadth first search, the shortest path meaning which one of these paths is going to be the fastest and get home back home the quickest, and the most low-cost path in order for our specialist to save some money in trying to expand his business.

All the possible breadth first searches that the marketing specialist can take if he always starts in Riverside are, go to Moreno Valley then to Perris then Hemet, go to Moreno Valley then Hemet then Perris, go to Hemet then Moreno Valley then Perris, go to Hemet then Perris then Moreno Valley, go to Perris then Moreno Valley then Hemet, and go to Perris then Hemet then Moreno Valley. These are all of the possible paths the Marketing Specialist can take to market his solar packages to homeowners. The shortest path for the Specialist to take is for him to travel from his home in Riverside to Moreno Valley.

We have determined that the most low-cost trip for the Specialist to hit all of the cities, is to leave from Riverside and go to Perris, from there he goes to Hemet and then visit Moreno Valley, and after than he can just head directly home, in total this adds up to 96. Another alternate path that the specialist is able to take that will also add up to 96 is if he goes from Riverside to Moreno Valley, venture towards Hemet, once he’s done there go to Perris and return home afterwards. Both of these paths add up to one less than the standard path he was planning on taking which was 97.

The purpose of this program is for anybody traveling to these same four cities and from Riverside to be able to determine which possible routes exist for them, which path is the shortest path meaning the less time consuming, and also which path will be the most cost efficient. For a specialist traveling to market solar packages to homeowners, this information is extremely useful. The programs purpose is to display representations of the trips, display the low cost of the trips as well as the shortest paths for the trip. This program is also useful to those trying to make efficient use of their time.

Discrete Structures are implemented in this program when trying to determine which routes are the fastest or shortest. When we were trying to figure out which route was going to be the fastest we would have to add them together until we got to the endpoint. We used these results to display the information for which path was the cheapest which in turn becomes the path that is most optimal to take.

Although this program is useful to those trying to be as efficient as possible this program does contain some limitations. A limitation to this program is that it’s only pertinent to those 4 cities and you are only able to start from Riverside as well. This program pertains mainly to those living in the Inland Empire area. A few other limitations that the program does not consider are the different times that there are large amounts of traffic on the road. An example of this can be if in the morning there is no traffic from Hemet to Riverside, but since we decide to leave Hemet during rush hour it can cause us to actually be taking the longer path rather than a shorter path. Same can be said for the different cities, we may unknowingly be actually leaving at the most inconvenient time which in turn can actually us to take the path which takes up the most amount of time.

A way we can prepare for the limitations of the program if we knew what routes were crowded during what time. If we were able to have this information we would be able to better prepare ourselves for choosing which route to take. Another way we could better improve our program is if we were able to choose what path we were picking and then displayed how much that route would be and then compare it with the best ones.