ABSTRACT

The delivery of goods to customers is closely associated with transport. Transportation is a series of moving or transporting the goods from the producer to the consumer by using one or more modes of transportation , which can include transportation mode of land, sea / river , or air .

XYZ is a company engaged in trade with its core activities as a distributor of imported fruit ingredients . Existing systems in the company does not have a specific calculation to determine the delivery route . This resulted in a lot of empty space inside the truck there and the use of vehicles that are not optimal and does not know the total distance for a one-way delivery and absence of a one-way fee calculation the distribution of goods .

Development of this application aims to provide an optimal route by taking into account the distance and minimum cost so that the use of the vehicle can be maximal . Constraints on the development of this application is the case where the total combined demand of customers should not exceed the existing truck capacity. K-Nearest Neighbor algorithm is used as the search method of the objective function .

In this application, the data used is in the form of the volume of data items , the data in the form of coordinates and data outlets in the form of trucks truck , truck volume , and cost for each type of truck .

The main process in this application is a user input request form for each outlet . After the request entered the application will calculate the total volume compared to the volume of requests and the truck to obtain the number of vehicles that will be used . These results will be processed for optimal route search using K-Nearest Neighbor algorithm by comparing the minimum distance between the outlet and the total cost comparison between the distribution of truck types .

Keywords : K-Nearest Neighbor Algorithm, VRP with Heterogeneus Fleet of Vehicle, Distibution Application