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Shortest These search Heading Attractions Lubukpakam Using Greedy Algorithm

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Abstract-*In the case of this shortest route search actually has many different types of solutions for path searching, for example the greedy algorithm, dijkstra, floyd-Warshall and bellman-ford but what is commonly used to solve this problem is the Greedy algorithm Because this algorithm is an algorithm that uses a problem solving approach with look for a temporary maximum value at each step. Of all the tourist Attractions such as the Fruit Garden, Deli Serdang Swimming Pool, Deli Serdang Museum, Deli Serdang Regency Government Square, Tengku Raja Muda Field, the writer will look for the shortest path to take the closest route because of the many paths that can be taken to get the optimum path as well as using google maps.*

Keywords : Shortest route, greedy algorithm, google map

1. Pendahuluan

According to the Department of Tourism and Culture of Deli Serdang that Lubukpakam have total tourist visits are increasing every year and of all the tourist attractions such as the Fruit Garden, Swimming Swim Deli Serdang, Museum of Deli Serdang, Alun Alun Regency Deli Serdang, Fields Tengku Raja Muda, writer will find the shortest path to take to one of the tourist attractions Lubukpakam which has the closest because ba nyaknya these paths can be taken to obtain the optimum path. [1]

2. Theory

2.1 Shortest Path Search

The problem of finding the shortest path is the shortest path between two or several nodes are connected. The problem of searching for the shortest path in the graph is one of the optimization problem. This problem is usually represented in the form of graphs. (Alam, 2010).

2.2 Greedy algorithms

Analysis of the system are the steps performed in finding the shortest route on a case study research using Greedy Algorithm to the stages of the following steps:

a. Determine the initial node and the destination nodevisit one point on the graph, Check all sides are connected directly to the initial node, then maximum local search to the next point.
b. Next determine the next shortest route to diminalkan (D) in the following manner:
    1) To search for the next service with the formula D (i) = L1 + final node weights. Explained first distance summed with the next weight. If there are other routes, then do the summing of the route distance to the previous one.
    2) Select D (i) which has the smallest distance, then if there is another route to do comparisons.
c. To search for the next shortest path can be done by using the above method. (S.Saifulloh 2018).

2.3 graph theory

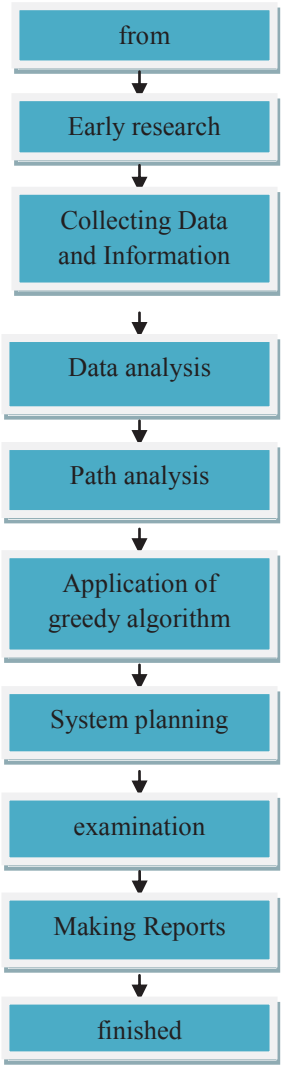
Graf is from the set of multiple objects and called the knot. The nodes are usually connected by arrows and interconnected. Additionally graph can also be presented on the network on the highway with the city modeled as vertices (nodes). Roads that interconnect between cities or daerahdisebut as the side (edge). And the length of the road is the weight or distance is (weight).

3. Research Methods

3.1 Framework Research

a. Description Framework

As for the description or explanation of the framework of the above are:



3.2 Alternative determine Roads

Alternatives in this study is the name of the region towards the museum Deli Serdang Area. The alternative data obtained by directly interviewing village officials, and the local community based on observations on information technology implemented.

Table 1.
Street

node	**Street name**
A	Jl.Rotan, Bangun Sari
B	Jl.Bandara Kualanamu
C	Gg.Subur, Bangun Sari
D	Jl.Sultan Serdang
E	Jl.Bandara Kualanamu
F	Jl.Bakaran Stone
G	Jl.Hos Tjokroaminoto, Tanjung Garbus
H	Jl.Tengku Fachrudin, Tanjung Garbus
I	Downstream Blumai Jl.Sei
J	Jl.Mesjid, Dead-end Bedimbar
K	Jl.Blk I, Tanjung Morawa
L	Jl.Tanjung Morawa
M	Museum Deli Serdang, Lubukpakam

a. Check all sides directly bersisiandengan node A

Graf from node A to node M and the weight of each side (weights stated distance in kilometers of each node one node to another). As shown in Figure 2 below:

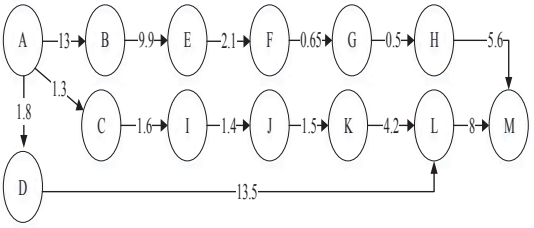


Figure 2. Route from node A to node M

b. Determine the shortest path first

The first track to be chosen from node A to node B (the AB) with a weight of 13 and A to node C (AC side) with a weight of 1.3 and A to node D (Side AD) with a weight of 1.8 shown in the settlement below and on Figure 3 below:

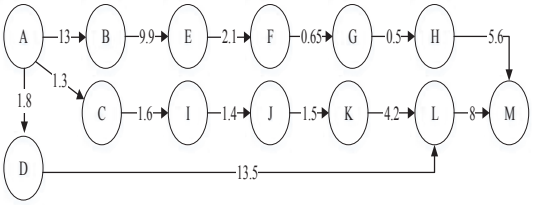


Figure 3. These darinode A to node B, C and D

Furthermore, pick a side adjacent to the side AB, AC and AD to seek BE smallest weight with the weight of CI with weights 9.9 and 1.6 and the DL with a weight of 13.5. Then the weight of the smallest node is the path to weight CI 1.6 to a total weight of 2.9, while the side adjacent to the AB is BE with a total weight of 22.9 and the adjacent side with AD is DL with a total of 15, as in the settlement and Figure 4 below:

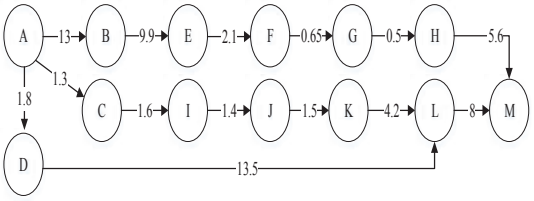


Figure 4. Graf route selected from node B to node E, from C to the node I and node D kenode L

Di = bobotL1 + bobotLi	Di = bobotL2+ bobotLi	Di = bobotL3+ bobot
Di = AD + BE	Di = AC+ CI	Di = AD + DL
Di (BE) = 13 + 9.9	Di (CI) = 1.3 + 1.6	Di (DL) = 1.8 + 13.5
Di (BE) = 22.9	Di (CI) = 2.9	Di (DL) = 15.3

Furthermore, pick a side adjacent to the side BE, CI and DL is the EF by weight of the total weight of 2.1 to 25 and IJ with a weight of 1.4 to 4.3 and the total weight of LM weighs 8 the total weight became 23.3. So choose the side of the IJ because it has the smallest weight, .5 dangambar shown in the completion of the following:

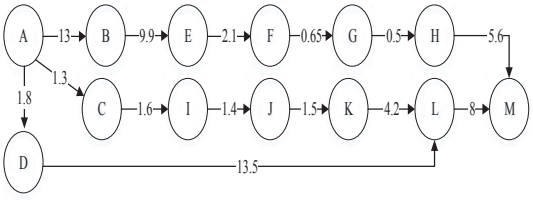


Figure 5. Graf route selected from node E to node F or node I to J and L to the node M

Di = bobotL1+ bobotLi	Di = bobotL2+ bobotLi	Di = bobotL3+ bobot
Di = BE + EF	Di = CI + IJ	Di = DL + LM
Di(EF) = 22.9 + 2.1	D(IJ) = 2.9 + 1.4	D(IJ) = 13.5 + 8
Di(EF) = 25	D(IJ) = 4.3	D(IJ) = 23.3

So the results of the second shortest path (L2) is (IJ) = 4.3