

APPENDIX

CREATE NEW CENTROID

```
1. #include <stdio.h>
2. #include <stdlib.h>
3.
4. int get_index(char a, char titik[], int b)
5. {
6.     int i;
7.     int indeks = 0;
8.     for(i=0; i<b; i++)
9.     {
10.         if(a==titiks[i])
11.         {
12.             indeks = i;
13.             break;
14.         }
15.     }
16.     return indeks;
17. }
18.
19. int find(int data, int parent[], int parent_size)
20. {
21.     while(parent[data] < parent_size)
22.     {
23.         data=parent[data];
24.     }
25.     return data;
26. }
27.
28. int uni(int i,int j, int parent[])
29. {
30.     if(i!=j)
31.     {
32.         parent[j]=i;
33.         return 1;
34.     }
35.     return 0;
36. }
37.
38.
39. int main()
40. {
41.     int jumlah_titik=12;
42.     char titik[12] = "abcdefghijkl";
43.     int parent[jumlah_titik];
44.     int i,cc, jumlah_data;
45.     char aa,bb;
46.     for(i=0; i<jumlah_titik; i++)
47.     {
48.         parent[i] = jumlah_titik;
49.         printf("%c ",titik[i]);
50.     }
```

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51.         printf("\n");
52.
53.     FILE *in2=fopen("data.csv","r");
54.         jumlah_data=0;
55.         while(!feof(in2))
56.         {
57.             fscanf(in2,"%c,%c,%d\n", &aa, &bb, &cc);
58.             jumlah_data=jumlah_data+1;
59.         }
60.         fclose(in2);
61.
62.     int b = jumlah_data;
63.     char start[jumlah_data];
64.     char end[jumlah_data];
65.     int distance[jumlah_data];
66.
67.     FILE *in=fopen("data.csv","r");
68.     i=0;
69.     while(!feof(in))
70.     {
71.         fscanf(in,"%c,%c,%d\n",          &start[i],
&end[i], &distance[i]);
72.         i=i+1;
73.     }
74.     printf("\n\njumlah data = %d\n\n",jumlah_data);
75.     fclose(in);
76.
77.     for(i=0; i<b; i++)
78.     {
79.         printf("[%d] START %c -> END %c = %d\n",i
,start[i], end[i], distance[i]);
80.     }
81.
82.     int c=1;
83.     while(c == 1)
84.     {
85.         c=0;
86.         for(i=0; i<b-1; i++)
87.         {
88.             char tempstart;
89.             char tempend;
90.             int tempdistance;
91.
92.             if(distance[i] > distance[i+1])
93.             {
94.                 tempstart = start[i];
95.                 tempend = end[i];
96.                 tempdistance = distance[i];
97.
98.                 start[i] = start[i+1];
99.                 end[i] = end[i+1];
100.                distance[i] = distance[i+1];
101.
102.                start[i+1] = tempstart;

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103.             end[i+1] = tempend;
104.             distance[i+1] = tempdistance;
105.         }
106.     }
107.
108.     for(i=0; i<b-1; i++)
109.     {
110.         if(distance[i] > distance[i+1])
111.         {
112.             c=1;
113.             i=b-1;
114.         }
115.     }
116. }
117.
118. printf("\n\n\n");
119.
120. for(i=0; i<b; i++)
121. {
122.     printf("[%d] START %c -> END %c = %d\n",i ,start[i],
123.     end[i], distance[i]);
124. }
125.
126.     int index_start, index_end;
127.     int find_start, find_end, total;
128.     char start_hasil[b];
129.     char end_hasil[b];
130.     int distance_hasil[b], count;
131.     count =0;
132.     total=0;
133.     for(i=0; i<b; i++)
134.     {
135.         index_start = get_index(start[i], titik,
136.         jumlah_titik);
137.         index_end = get_index(end[i], titik,
138.         jumlah_titik);
139.         find_start=find(index_start, parent,
140.         jumlah_titik);
141.         find_end=find(index_end, parent, jumlah_titik);
142.
143.         //printf("%d, %d\n", find_start, find_end);
144.
145.         if(uni(find_start, find_end, parent))
146.         {
147.             start_hasil[count]=start[i];
148.             end_hasil[count]=end[i];
149.             distance_hasil[count]=distance[i];
150.             count++;
151.             total += distance[i];
152.         }

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```
153.         printf("\n\n\n");
154.
155.         for(i=0; i<count; i++)
156.         {
157.             printf("[%d] START %c -> END %c, DISTANCE %d
\n",i,start_hasil[i],end_hasil[i],distance_hasil[i]);
158.         }
159.
160.         printf("\ntotal distance = %d\n",total);
161.
162.
163.         return 0;
164.     }
```



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