SS OUTPUT PROGRAM

Nama : Goldi Firmansyah

NIM : 19360010

- SS Output Program KmeansClustering

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D:\Tugass\Pembelajaran Mesin\Goldi Firmansyah (19360010)_Iris K-means Clustering>python -u "d:\Tugass\Pembelajaran Mesin\Goldi Firmansyah (19360010)_Iris K-means Clustering\Kmea
nsClustering.py"
Data awal iris :
     sepal length (cm)  sepal width (cm)  petal length (cm)  petal width (cm)  species
0                  5.1               3.5                1.4               0.2      0.0
1                  4.9               3.0                1.4               0.2      0.0
2                  4.7               3.2                1.3               0.2      0.0
3                  4.6               3.1                1.5               0.2      0.0
4                  5.0               3.6                1.4               0.2      0.0
..                 ...               ...                ...               ...      ...
145                6.7               3.0                5.2               2.3      2.0
146                6.3               2.5                5.0               1.9      2.0
147                6.5               3.0                5.2               2.0      2.0
148                6.2               3.4                5.4               2.3      2.0
149                5.9               3.0                5.1               1.8      2.0

[150 rows x 5 columns]
label hasil clustering KMeans adalah :
[1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
 1 1 1 1 0 1 1 1 1 1 1 1 1 2 2 2 0 2 0 2 0 2 0 0 0 0 0 2 0 0 0 0 2 0 0 0
 2 2 2 2 0 0 0 0 0 0 0 2 2 0 0 0 0 2 0 0 0 0 0 0 0 0 2 0 2 2 2 2 0 2 2 2 2
 2 2 0 0 2 2 2 2 0 2 0 2 0 2 2 0 2 2 2 2 2 2 2 0 2 2 2 0 2 2 2 0 2 2 2 0 2
 2 0]
Accuracy : 0.8666666666666666
Classification report :              precision    recall  f1-score   support

         0.0       1.00      0.98      0.99        50
         1.0       0.71      0.70      0.71        50
         2.0       0.71      0.74      0.73        50

    accuracy                           0.81       150
   macro avg       0.81      0.81      0.81       150
weighted avg       0.81      0.81      0.81       150

homogeneity score :  0.6106747330128823
homogeneity, completeness, v-measure :  (0.6106747330128823, 0.6108957183019723, 0.610785205669019)
Cetak data iris dengan full rows:
     sepallength(cm)  sepalwidth(cm)  petallength(cm)  petalwidth(cm)  species  pred_species
0                5.1             3.5              1.4             0.2      0.0             0
1                4.9             3.0              1.4             0.2      0.0             0
2                4.7             3.2              1.3             0.2      0.0             0
3                4.6             3.1              1.5             0.2      0.0             0
4                5.0             3.6              1.4             0.2      0.0             0
5                5.4             3.9              1.7             0.4      0.0             0
6                4.6             3.4              1.4             0.3      0.0             0
7                5.0             3.4              1.5             0.2      0.0             0
8                4.4             2.9              1.4             0.2      0.0             0
9                4.9             3.1              1.5             0.1      0.0             0
10               5.4             3.7              1.5             0.2      0.0             0
11               4.8             3.4              1.6             0.2      0.0             0
12               4.8             3.0              1.4             0.1      0.0             0
13               4.3             3.0              1.1             0.1      0.0             0
14               5.8             4.0              1.2             0.2      0.0             0
15               5.7             4.4              1.5             0.4      0.0             0
16               5.4             3.9              1.3             0.4      0.0             0
17               5.1             3.5              1.4             0.3      0.0             0
18               5.7             3.8              1.7             0.3      0.0             0
19               5.1             3.8              1.5             0.3      0.0             0
20               5.4             3.4              1.7             0.2      0.0             0
21               5.1             3.7              1.5             0.4      0.0             0
22               4.6             3.6              1.0             0.2      0.0             0
23               5.1             3.3              1.7             0.5      0.0             0
24               4.8             3.4              1.9             0.2      0.0             0
25               5.0             3.0              1.6             0.2      0.0             0
26               5.0             3.4              1.6             0.4      0.0             0
27               5.2             3.5              1.5             0.2      0.0             0
28               5.2             3.4              1.4             0.2      0.0             0
29               4.7             3.2              1.6             0.2      0.0             0
30               4.8             3.1              1.6             0.2      0.0             0
31               5.4             3.4              1.5             0.4      0.0             0
32               5.2             4.1              1.5             0.1      0.0             0
33               5.5             4.2              1.4             0.2      0.0             0
34               4.9             3.1              1.5             0.2      0.0             0
35               5.0             3.2              1.2             0.2      0.0             0
36               5.5             3.5              1.3             0.2      0.0             0
37               4.9             3.6              1.4             0.1      0.0             0
38               4.4             3.0              1.3             0.2      0.0             0
39               5.1             3.4              1.5             0.2      0.0             0
40               5.0             3.5              1.3             0.3      0.0             0
41               4.5             2.3              1.3             0.3      0.0             1
42               4.4             3.2              1.3             0.2      0.0             0
43               5.0             3.5              1.6             0.6      0.0             0
44               5.1             3.8              1.9             0.4      0.0             0
45               4.8             3.0              1.4             0.3      0.0             0
46               5.1             3.8              1.6             0.2      0.0             0
47               4.6             3.2              1.4             0.2      0.0             0
48               5.3             3.7              1.5             0.2      0.0             0
49               5.0             3.3              1.4             0.2      0.0             0
50               7.0             3.2              4.7             1.4      1.0             2
51               6.4             3.2              4.5             1.5      1.0             2
52               6.9             3.1              4.9             1.5      1.0             2
53               5.5             2.3              4.0             1.3      1.0             1
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54	6.5	2.8	4.6	1.5	1.0	2
55	5.7	2.8	4.5	1.3	1.0	1
56	6.3	3.3	4.7	1.6	1.0	2
57	4.9	2.4	3.3	1.0	1.0	1
58	6.6	2.9	4.6	1.3	1.0	2
59	5.2	2.7	3.9	1.4	1.0	1
60	5.0	2.0	3.5	1.0	1.0	1
61	5.9	3.0	4.2	1.5	1.0	1
62	6.0	2.2	4.0	1.0	1.0	1
63	6.1	2.9	4.7	1.4	1.0	1
64	5.6	2.9	3.6	1.3	1.0	1
65	6.7	3.1	4.4	1.4	1.0	2
66	5.6	3.0	4.5	1.5	1.0	1
67	5.8	2.7	4.1	1.0	1.0	1
68	6.2	2.2	4.5	1.5	1.0	1
69	5.6	2.5	3.9	1.1	1.0	1
70	5.9	3.2	4.8	1.8	1.0	2
71	6.1	2.8	4.0	1.3	1.0	1
72	6.3	2.5	4.9	1.5	1.0	1
73	6.1	2.8	4.7	1.2	1.0	1
74	6.4	2.9	4.3	1.3	1.0	2
75	6.6	3.0	4.4	1.4	1.0	2
76	6.8	2.8	4.8	1.4	1.0	2
77	6.7	3.0	5.0	1.7	1.0	2
78	6.0	2.9	4.5	1.5	1.0	1
79	5.7	2.6	3.5	1.0	1.0	1
80	5.5	2.4	3.8	1.1	1.0	1
81	5.5	2.4	3.7	1.0	1.0	1
82	5.8	2.7	3.9	1.2	1.0	1
83	6.0	2.7	5.1	1.6	1.0	1
84	5.4	3.0	4.5	1.5	1.0	1
85	6.0	3.4	4.5	1.6	1.0	2
86	6.7	3.1	4.7	1.5	1.0	2
87	6.3	2.3	4.4	1.3	1.0	1
88	5.6	3.0	4.1	1.3	1.0	1
89	5.5	2.5	4.0	1.3	1.0	1
90	5.5	2.6	4.4	1.2	1.0	1
91	6.1	3.0	4.6	1.4	1.0	2
92	5.8	2.6	4.0	1.2	1.0	1
93	5.0	2.3	3.3	1.0	1.0	1
94	5.6	2.7	4.2	1.3	1.0	1
95	5.7	3.0	4.2	1.2	1.0	1
96	5.7	2.9	4.2	1.3	1.0	1
97	6.2	2.9	4.3	1.3	1.0	1
98	5.1	2.5	3.0	1.1	1.0	1
99	5.7	2.8	4.1	1.3	1.0	1
100	6.3	3.3	6.0	2.5	2.0	2
101	5.8	2.7	5.1	1.9	2.0	1
102	7.1	3.0	5.9	2.1	2.0	2
103	6.3	2.9	5.6	1.8	2.0	2
104	6.5	3.0	5.8	2.2	2.0	2
105	7.6	3.0	6.6	2.1	2.0	2
106	4.9	2.5	4.5	1.7	2.0	1
107	7.3	2.9	6.3	1.8	2.0	2
108	6.7	2.5	5.8	1.8	2.0	2
109	7.2	3.6	6.1	2.5	2.0	2
110	6.5	3.2	5.1	2.0	2.0	2
111	6.4	2.7	5.3	1.9	2.0	2
112	6.8	3.0	5.5	2.1	2.0	2
113	5.7	2.5	5.0	2.0	2.0	1
114	5.8	2.8	5.1	2.4	2.0	1
115	6.4	3.2	5.3	2.3	2.0	2
116	6.5	3.0	5.5	1.8	2.0	2
117	7.7	3.8	6.7	2.2	2.0	2
118	7.7	2.6	6.9	2.3	2.0	2
119	6.0	2.2	5.0	1.5	2.0	1
120	6.9	3.2	5.7	2.3	2.0	2
121	5.6	2.8	4.9	2.0	2.0	1
122	7.7	2.8	6.7	2.0	2.0	2
123	6.3	2.7	4.9	1.8	2.0	1
124	6.7	3.3	5.7	2.1	2.0	2
125	7.2	3.2	6.0	1.8	2.0	2
126	6.2	2.8	4.8	1.8	2.0	1
127	6.1	3.0	4.9	1.8	2.0	2
128	6.4	2.8	5.6	2.1	2.0	2
129	7.2	3.0	5.8	1.6	2.0	2
130	7.4	2.8	6.1	1.9	2.0	2
131	7.9	3.8	6.4	2.0	2.0	2
132	6.4	2.8	5.6	2.2	2.0	2
133	6.3	2.8	5.1	1.5	2.0	2
134	6.1	2.6	5.6	1.4	2.0	1
135	7.7	3.0	6.1	2.3	2.0	2
136	6.3	3.4	5.6	2.4	2.0	2
137	6.4	3.1	5.5	1.8	2.0	2
138	6.0	3.0	4.8	1.8	2.0	1
139	6.9	3.1	5.4	2.1	2.0	2
140	6.7	3.1	5.6	2.4	2.0	2
141	6.9	3.1	5.1	2.3	2.0	2
142	5.8	2.7	5.1	1.9	2.0	1
143	6.8	3.2	5.9	2.3	2.0	2
144	6.7	3.3	5.7	2.5	2.0	2
145	6.7	3.0	5.2	2.3	2.0	2
146	6.3	2.5	5.0	1.9	2.0	1
147	6.5	3.0	5.2	2.0	2.0	2

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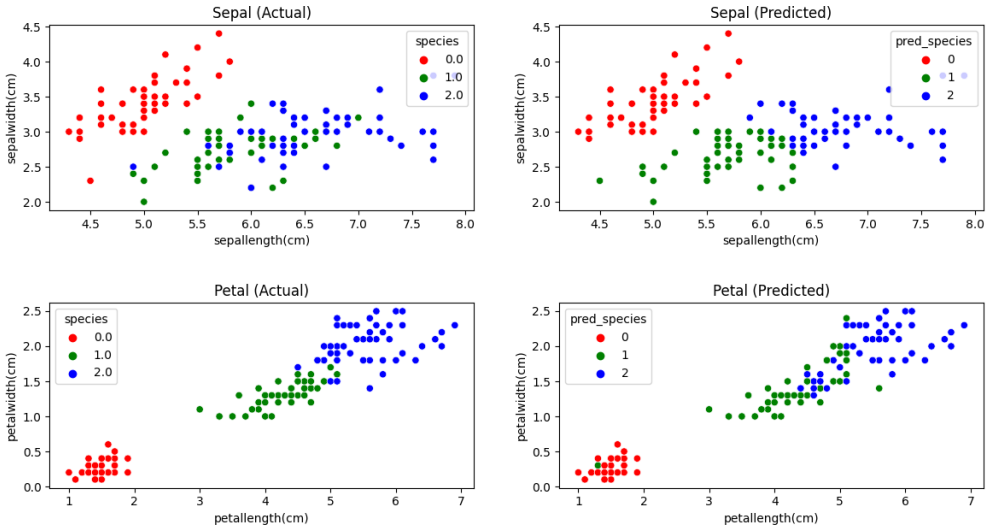
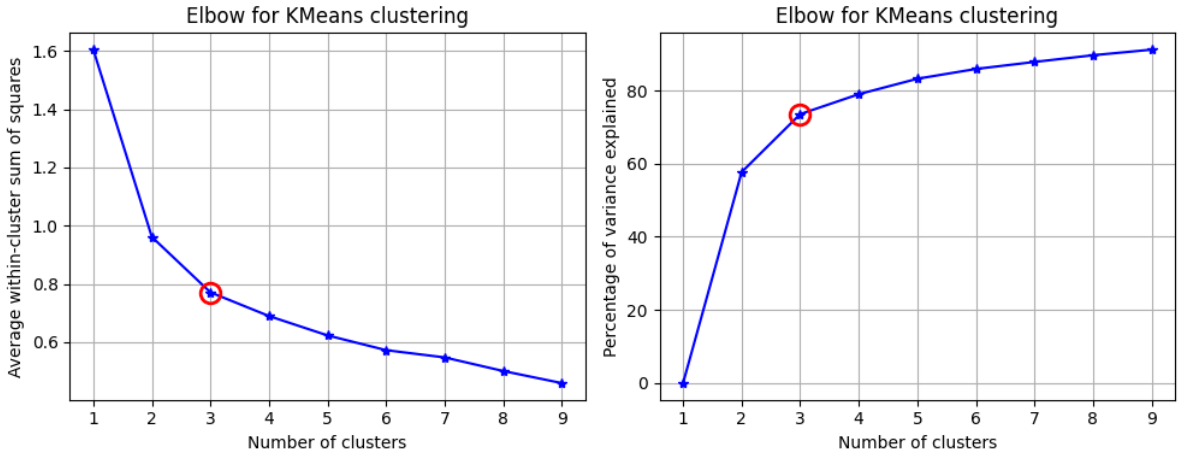
147            6.5           3.0            5.2           2.0     2.0           2
148            6.2           3.4            5.4           2.3     2.0           2
149            5.9           3.0            5.1           1.8     2.0           1
Cetak data iris dengan sampel acak sebesar 0,3 :
     sepallength(cm)  sepalwidth(cm)  petallength(cm)  petalwidth(cm)  species  pred_species
3              4.6           3.1            1.5           0.2     0.0           0
25             5.0           3.0            1.6           0.2     0.0           0
8              4.4           2.9            1.4           0.2     0.0           0
129            7.2           3.0            5.8           1.6     2.0           2
45             4.8           3.0            1.4           0.3     0.0           0
118            7.7           2.6            6.9           2.3     2.0           2
130            7.4           2.8            6.1           1.9     2.0           2
58             6.6           2.9            4.6           1.3     1.0           2
102            7.1           3.0            5.9           2.1     2.0           2
69             5.6           2.5            3.9           1.1     1.0           1
104            6.5           3.0            5.8           2.2     2.0           2
90             5.5           2.6            4.4           1.2     1.0           1
94             5.6           2.7            4.2           1.3     1.0           1
28             5.2           3.4            1.4           0.2     0.0           0
77             6.7           3.0            5.0           1.7     1.0           2
29             4.7           3.2            1.6           0.2     0.0           0
43             5.0           3.5            1.6           0.6     0.0           0
19             5.1           3.8            1.5           0.3     0.0           0
89             5.5           2.5            4.0           1.3     1.0           1
59             5.2           2.7            3.9           1.4     1.0           1
106            4.9           2.5            4.5           1.7     2.0           1
112            6.8           3.0            5.5           2.1     2.0           2
49             5.0           3.3            1.4           0.2     0.0           0
14             5.8           4.0            1.2           0.2     0.0           0
30             4.8           3.1            1.6           0.2     0.0           0
108            6.7           2.5            5.8           1.8     2.0           2
135            7.7           3.0            6.1           2.3     2.0           2
48             5.3           3.7            1.5           0.2     0.0           0
113            5.7           2.5            5.0           2.0     2.0           1
92             5.8           2.6            4.0           1.2     1.0           1
124            6.7           3.3            5.7           2.1     2.0           2
53             5.5           2.3            4.0           1.3     1.0           1
60             5.0           2.0            3.5           1.0     1.0           1
96             5.7           2.9            4.2           1.3     1.0           1
50             7.0           3.2            4.7           1.4     1.0           2
88             5.6           3.0            4.1           1.3     1.0           1
111            6.4           2.7            5.3           1.9     2.0           2
56             6.3           3.3            4.7           1.6     1.0           2
119            6.0           2.2            5.0           1.5     2.0           1
143            6.8           3.2            5.9           2.3     2.0           2
74             6.4           2.9            4.3           1.3     1.0           2
21             5.1           3.7            1.5           0.4     0.0           0
73             6.1           2.8            4.7           1.2     1.0           1
87             6.3           2.3            4.4           1.3     1.0           1
127            6.1           3.0            4.9           1.8     2.0           2
```

- SS Output KmeansClusteringPloting



- SS Output MethodElbowDetermineK



- SS Output MethodSiluetAvgDetermineK