

APPENDIX

IMPORT LIBRARY

```
1. import os
2. import numpy as np
3. import cv2
4. import matplotlib.pyplot as plt
5. import pickle
6. import random
7. import csv
8. from sklearn.model_selection import train_test_split
9. from sklearn.svm import SVC
10. from sklearn.metrics import confusion_matrix
```

READ DATASET

```
11. dir = 'C:\\Users\\Joseph-PC\\Downloads\\Compressed\\Dataset\\leaf-
edge\\leaf dataset\\Test'
```

DECLARING CLASS / CATEGORIES

```
12. categories = ['Daun Ara Suci','Daun Bayam Hijau','Daun Bayam
Malabar','Daun Buah Samarinda','Daun Cendana','Daun Delima', 'Daun Ficus
Auriculata','Daun Jamblang','Daun Jambu Biji','Daun Jambu Mawar', 'Daun
Jeruk Sitrun', 'Daun Jintan', 'Daun Kelabat', 'Daun Kelor', 'Daun Kembang
Sepatu', 'Daun Kersen', 'Daun Lengkuas', 'Daun Malapari', 'Daun Mangga',
'Daun Melati', 'Daun Mimba', 'Daun Mint', 'Daun Mondokaki', 'Daun Nangka',
'Daun Oleander', 'Daun Ruku-Ruku', 'Daun Salam Koja', 'Daun Sesawi India',
'Daun Sirih', 'Daun Srigading']
13.
14. data = []
15.
```

PROCESSING IMAGE & SEGMENTATION

```
16. for category in categories1:
17.     path = os.path.join(dir,category)
18.     label = categories1.index(category)
19.
20.     for img in os.listdir(path):
21.         imgpath = os.path.join(path,img)
22.         leaf_img=cv2.imread(imgpath, cv2.IMREAD_GRAYSCALE)
23.         try:
24.             resize = cv2.resize(leaf_img, (200,200))
25.             edged = cv2.Canny(resize, 400, 400)
26.             img = np.array(edged).flatten()
27.             data.append([img,label])
28.         except Exception as e:
29.             pass
```

RANDOMIZE DATA

```
30. random.shuffle(data)
```

SAVING DATA

```
31. pick_in = open('data1.pickle', 'wb')
32. pickle.dump(data, pick_in)
33. pick_in.close()
```

LOADED DATA

```
34. pick_in = open('data1.pickle', 'rb')
35. data = pickle.load(pick_in)
36. pick_in.close()
```

SPLITTING CLASS AND FEATURES

```
37. features = []
38. labels = []
39.
40. for feature, label in data:
41.     features.append(feature)
42.     labels.append(label)
```

SPLITTING TRAIN DATA AND TEST DATA

```
43. xtrain, xtest, ytrain, ytest = train_test_split(features, labels,
test_size=0.25)
```

BUILD & TRAIN MODEL

```
44. model = SVC(C=100, kernel='rbf')
45. model.fit(xtrain, ytrain)
```

SAVING MODEL

```
46. pick = open('modell1.sav', 'wb')
47. pickle.dump(model, pick)
48. pick.close()
```

LOADED MODEL

```
49. pick = open('modell1.sav', 'rb')
50. model = pickle.load(pick)
51. pick.close()
```

TEST MODEL

```
52. prediction = model.predict(xtest)
53. accuracy = model.score(xtest, ytest)
54.
55. print(f'Akurasi: {accuracy*100}%')
56. print('Prediksi: ', categories1[prediction[0]])
```

```
57.  
58. leaf = xtest[0].reshape(200,200)  
59. plt.imshow(leaf,cmap='gray')  
60. plt.show()
```



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