TUGAS

MACHINE LEARNING

Disusun oleh :

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BANDUNG

Tugas Petermuan 3

1. Praktek 1

- Persiapan dataset: Iris Dataset

```
[1]: from sklearn.datasets import load_iris

X, y = load_iris(return_X_y=True)

print('Ichsan Haryadi Putra')
print(f'Dimensi Feature: {X.shape}')
print(f'Class: {set(y)}')
```

```
Ichsan Haryadi Putra
Dimensi Feature: (150, 4)
Class: {np.int64(0), np.int64(1), np.int64(2)}
```

```
[3]: from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X,
                                                    y,
                                                    test_size=0.3,
                                                    random_state=0)
```

- Training model Decision Tree Classifier

```
[4]: from sklearn.tree import DecisionTreeClassifier

model = DecisionTreeClassifier(max_depth=4)

print('Ichsan Haryadi Putra')
model.fit(X_train, y_train)
```
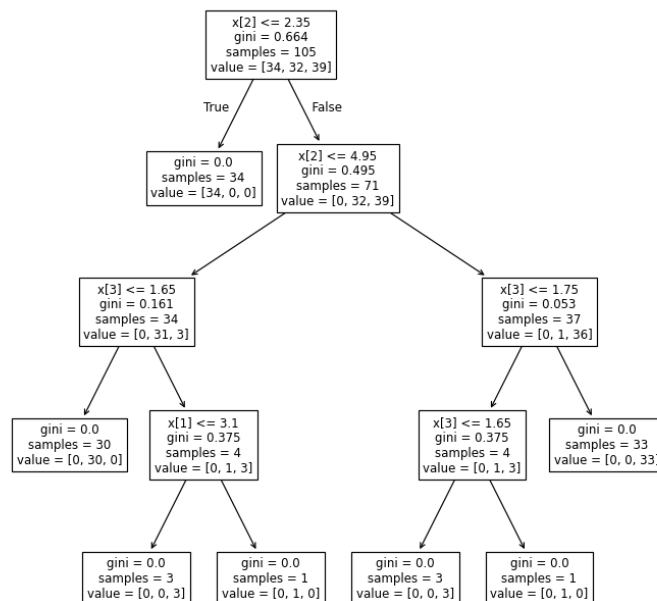
```
Ichsan Haryadi Putra
```

```
[4]:        DecisionTreeClassifier

DecisionTreeClassifier(max_depth=4)
```

- Visualisasi model Decision Tree

```
[5]: import matplotlib.pyplot as plt
from sklearn import tree

print('Ichsan Haryadi Putra')
plt.rcParams['figure.dpi'] = 85
plt.subplots(figsize=(10, 10))
tree.plot_tree(model, fontsize=10)
plt.show()
```

```
Ichsan Haryadi Putra
```

- Evaluasi model Decision Tree

```
[6]: from sklearn.metrics import classification_report

y_pred = model.predict(X_test)

print('Ichsan Haryadi Putra')
print(classification_report(y_test, y_pred))

Ichsan Haryadi Putra
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        16
           1       1.00      0.94      0.97        18
           2       0.92      1.00      0.96        11

    accuracy                           0.98        45
   macro avg       0.97      0.98      0.98        45
weighted avg       0.98      0.98      0.98        45
```

2. Praktek 2

- Persiapan dataset | Iris Flower Dataset

```
[2]: from sklearn.datasets import load_iris

X,y = load_iris(return_X_y=True)

print('Ichsan Haryadi Putra')
print(f'Dimensi Feature: {X.shape}')
print(f'Class: {set(y)}')

Ichsan Haryadi Putra
Dimensi Feature: (150, 4)
Class: {np.int64(0), np.int64(1), np.int64(2)}
```

```
[3]: from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X,
                                                    y,
                                                    test_size=0.3,
                                                    random_state=0)
```

- Implementasi Random Forest Classifier dengan Scikit Learn

```
[5]: from sklearn.ensemble import RandomForestClassifier

model = RandomForestClassifier(n_estimators=100,
                               random_state=0)

print('Ichsan Haryadi Putra')
model.fit(X_train, y_train)

Ichsan Haryadi Putra
```

```
[5]:        RandomForestClassifier
    RandomForestClassifier(random_state=0)
```

- Evaluasi model dengan Classification Report

```
[6]: from sklearn.metrics import classification_report

y_pred = model.predict(X_test)

print('Ichsan Haryadi Putra')
print(classification_report(y_test, y_pred))

Ichsan Haryadi Putra
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        16
           1       1.00      0.94      0.97        18
           2       0.92      1.00      0.96        11

    accuracy                           0.98        45
   macro avg       0.97      0.98      0.98        45
weighted avg       0.98      0.98      0.98        45
```