MACHINE LEARNING

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TEKNIK INFORMATIKA

FAKULTAS TEKNIK

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Persiapan dataset: Iris Dataset

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

     X, y = load_iris(return_X_y=True)

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

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

```
[5]: 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)
```

```
[ ]:
```

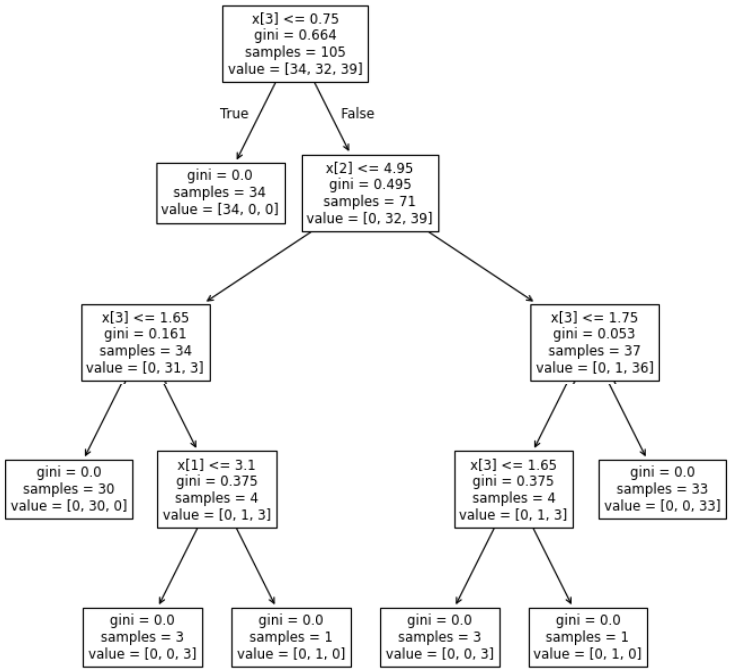
Classification dengan DecisionTreeClassifier

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

     model = DecisionTreeClassifier(max_depth=4)

     model.fit(X_train, y_train)
```

```
[6]: DecisionTreeClassifier
DecisionTreeClassifier(max_depth=4)
```

Visualisasi model Decision Tree

```
import matplotlib.pyplot as plt
from sklearn import tree

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



Evaluasi model Decision Tree

[13]:
```
from sklearn.metrics import classification_report

y_pred = model.predict(X_test)

print(classification_report(y_test, y_pred))
```

```
              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
```

Persiapan dataset | Iris Flower Dataset

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

X, y = load_iris(return_X_y=True)

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

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

[2]:
```
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)
```

[ ]:

Classification dengan RandomForestClassifier

[8]:
```
from sklearn.ensemble import RandomForestClassifier

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

model.fit(X_train, y_train)
```

[8]:
```
RandomForestClassifier(random_state=0)
```

Evaluasi model dengan Classification Repot

[10]:
```
from sklearn.metrics import classification_report

y_pred = model.predict(X_test)

print(classification_report(y_test, y_pred))
```

```
              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
```