```
import os
for dirname, _, filenames in os.walk('/kaggle/input/titanic'):
    for filename in filenames:
        print(os.path.join(dirname, filename))
```

```
/kaggle/input/titanic/train.csv
/kaggle/input/titanic/test.csv
/kaggle/input/titanic/gender_submission.csv
```

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn.tree import DecisionTreeClassifier
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score, classification_report, confusion_matrix
from sklearn import tree
from sklearn.tree import plot_tree


# 2. Load Dataset
df = pd.read_csv('../input/titanic/train.csv')
df.head()
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN	S

```
print(df.columns.values)
```

```
['PassengerId' 'Survived' 'Pclass' 'Name' 'Sex' 'Age' 'SibSp' 'Parch'
 'Ticket' 'Fare' 'Cabin' 'Embarked']
```

```
# 3. Preprocessing Data
# Drop kolom yang tidak relevan dengan aman
df = df.drop(['PassengerId', 'Name', 'Ticket', 'Cabin'], axis=1, errors='ignore')

# Isi missing value
df['Age'].fillna(df['Age'].median(), inplace=True)
df['Embarked'].fillna(df['Embarked'].mode()[0], inplace=True)

# Encode kolom kategorikal
df['Sex'] = df['Sex'].map({'male': 0, 'female': 1})
df['Embarked'] = df['Embarked'].map({'S': 0, 'C': 1, 'Q': 2})

print(df.head())
```

```
   Survived  Pclass  Sex   Age  SibSp  Parch     Fare  Embarked
0         0       3    0  22.0      1      0   7.2500         0
1         1       1    1  38.0      1      0  71.2833         1
2         1       3    1  26.0      0      0   7.9250         0
3         1       1    1  35.0      1      0  53.1000         0
4         0       3    0  35.0      0      0   8.0500         0
```

```
# 4. Split Data
X = df.drop("Survived", axis=1)
y = df["Survived"]

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)


# 5. Training Model Decision Tree
model = DecisionTreeClassifier(random_state=42)
model.fit(X_train, y_train)
```

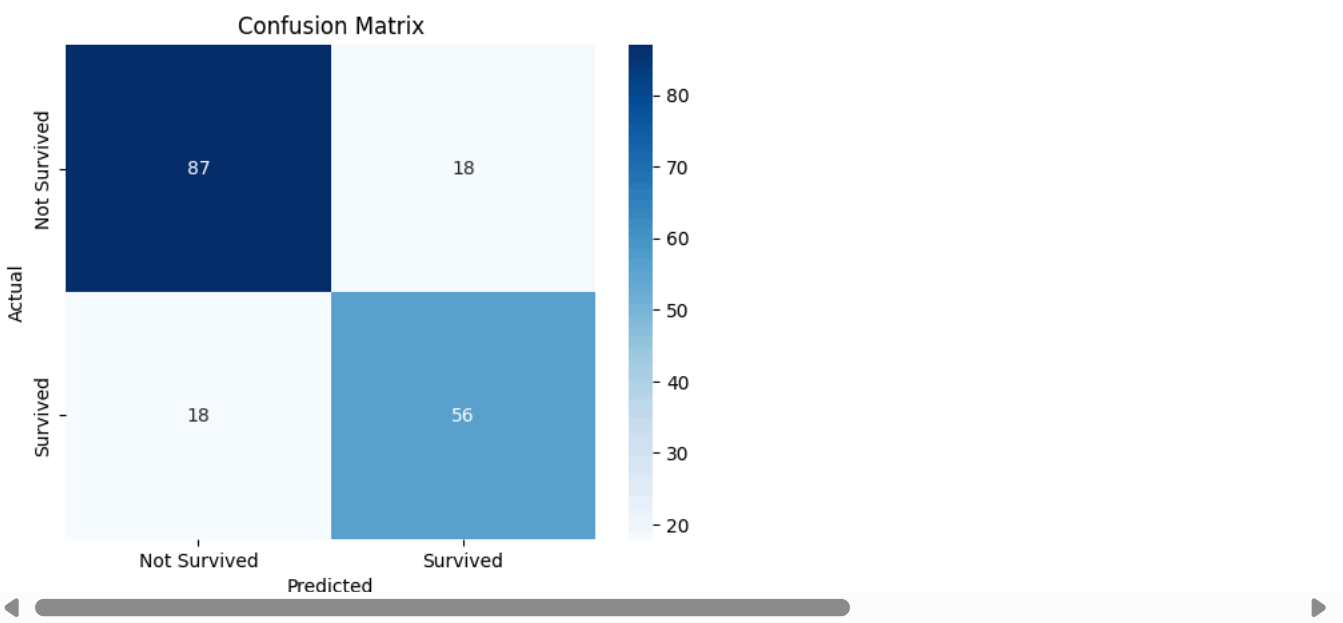
```
DecisionTreeClassifier(random_state=42)
```

```
# 6. Evaluasi Model
y_pred = model.predict(X_test)
accuracy = accuracy_score(y_test, y_pred)
```

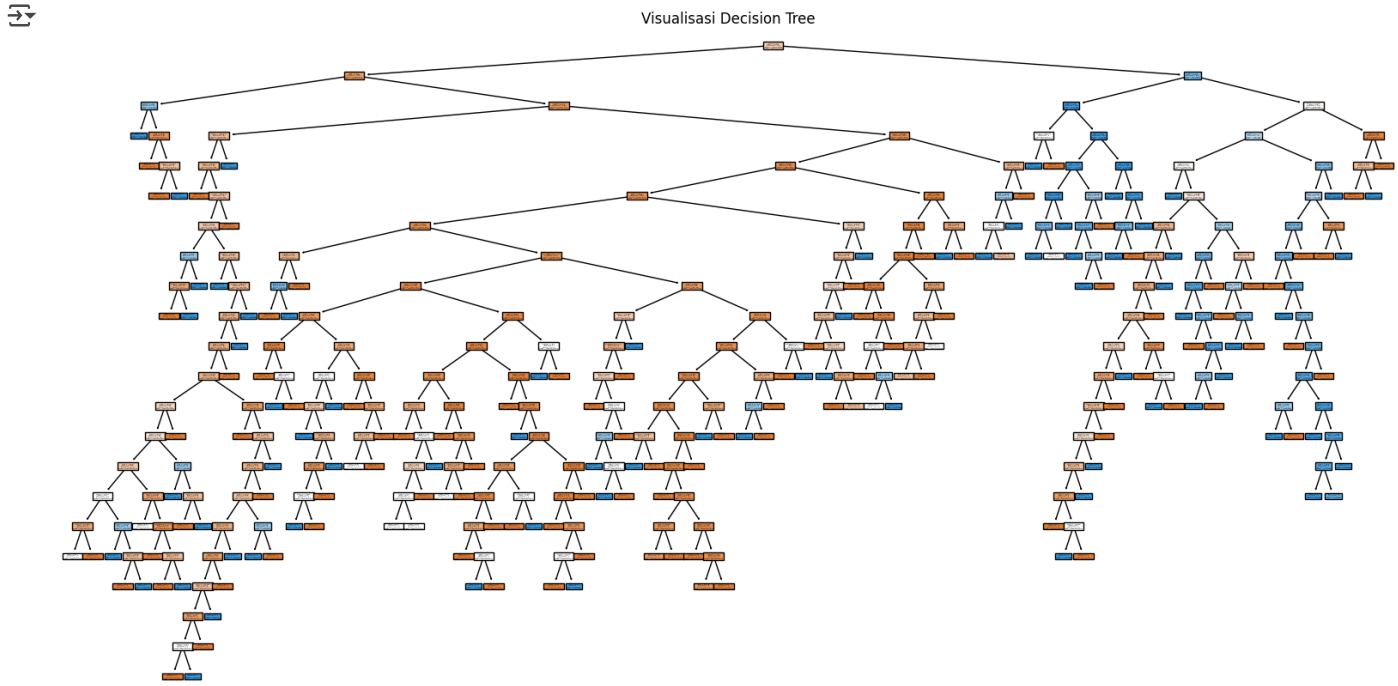
```
print(f"Akurasi Decision Tree: {accuracy:.2%}")

# Classification report
print("Classification Report:\n", classification_report(y_test, y_pred))
```

```
Akurasi Decision Tree: 79.89%
Classification Report:
                precision    recall  f1-score   support

             0       0.83      0.83      0.83       105
             1       0.76      0.76      0.76        74

      accuracy                           0.80       179
     macro avg       0.79      0.79      0.79       179
  weighted avg       0.80      0.80      0.80       179
```

```
# Confusion matrix
cm = confusion_matrix(y_test, y_pred)

# Visualisasi Confusion Matrix
sns.heatmap(cm, annot=True, fmt='d', cmap='Blues',
            xticklabels=['Not Survived', 'Survived'],
            yticklabels=['Not Survived', 'Survived'])
plt.xlabel('Predicted')
plt.ylabel('Actual')
plt.title('Confusion Matrix')
plt.show()
```




```
# 7. Visualisasi pohon keputusan
plt.figure(figsize=(20, 10))
plot_tree(model, feature_names=X.columns, class_names=["Not Survived", "Survived"], filled=True)
plt.title("Visualisasi Decision Tree")
plt.show()
```


Visualisasi Decision Tree