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## **Assignment - 4**

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
dataset = np.array(
[['Asset Flip', 100, 1000],
['Text Based', 500, 3000],
['Visual Novel', 1500, 5000],
['2D Pixel Art', 3500, 8000],
['2D Vector Art', 5000, 6500],
['Strategy', 6000, 7000],
['First Person Shooter', 8000, 15000],
['Simulator', 9500, 20000],
['Racing', 12000, 21000],
['RPG', 14000, 25000],
['Sandbox', 15500, 27000],
['Open-World', 16500, 30000],
['MMOFPS', 25000, 52000],
['MMORPG', 30000, 80000]
])
print(dataset)
X = dataset[:, 1:2].astype(int)
print(X)
y = dataset[:, 2].astype(int)
print(y)
from sklearn.tree import DecisionTreeRegressor
regressor = DecisionTreeRegressor(random_state = 0)
regressor.fit(X, y)
y_pred = regressor.predict(np.array(1000).reshape(-1,1))
print("Predicted price: % d\n"% y_pred)
X_grid = np.arange(min(X), max(X), 0.01)
X_grid = X_grid.reshape((len(X_grid), 1))
plt.scatter(X, y, color = 'red')
plt.plot(X_grid, regressor.predict(X_grid), color = 'blue')
plt.title('Profit to Production Cost (Decision Tree Regression)')
plt.xlabel('Production Cost')
plt.ylabel('Profit')
plt.show()
from sklearn.tree import plot_tree
plt.figure(figsize=(16,8))
plot_tree(regressor)
plt.savefig('tree.jpg')
plt.show()
```

## Output

```
[['Asset Flip' '100' '1000']  
['Text Based' '500' '3000']  
['Visual Novel' '1500' '5000']  
['2D Pixel Art' '3500' '8000']  
['2D Vector Art' '5000' '6500']  
['Strategy' '6000' '7000']  
['First Person Shooter' '8000' '15000']  
['Simulator' '9500' '20000']  
['Racing' '12000' '21000']  
['RPG' '14000' '25000']  
['Sandbox' '15500' '27000']  
['Open-World' '16500' '30000']  
['MMOFPS' '25000' '52000']  
['MMORPG' '30000' '80000']]  
[[ 100]  
[ 500]  
[ 1500]  
[ 3500]  
[ 5000]  
[ 6000]  
[ 8000]  
[ 9500]  
[12000]  
[14000]  
[15500]  
[16500]  
[25000]  
[30000]]  
[ 1000 3000 5000 8000 6500 7000 15000 20000 21000 25000 27000 30000  
 52000 80000]  
Predicted price: 3000
```



