In [1]:

```
# import numpy package for arrays and stuff
import numpy as np

# import matplotlib.pyplot for plotting our result
import matplotlib.pyplot as plt

# import pandas for importing csv files
import pandas as pd
```

In [2]:

```
# import dataset
# dataset = pd.read_csv('Data.csv')
# alternatively open up .csv file to read data

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 the dataset
print(dataset)
```

```
[['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']]
```

In [3]:

```
# select all rows by : and column 1
# by 1:2 representing features
X = dataset[:, 1:2].astype(int)

# print X
print(X)
```

```
[[  100]
 [  500]
 [ 1500]
 [ 3500]
 [ 5000]
 [ 6000]
 [ 8000]
 [ 9500]
 [12000]
 [14000]
 [15500]
 [16500]
 [25000]
 [30000]]
```

In [4]:

```
# select all rows by : and column 2
# by 2 to Y representing labels
y = dataset[:, 2].astype(int)

# print y
print(y)
```

```
[ 1000  3000  5000  8000  6500  7000 15000 20000 21000 25000 27000 30000
 52000 80000]
```

In [6]:

```
# import the regressor
from sklearn.tree import DecisionTreeRegressor

# create a regressor object
regressor = DecisionTreeRegressor(random_state = 0)

# fit the regressor with X and Y data
regressor.fit(X, y)
```

Out[6]:

```
DecisionTreeRegressor(random_state=0)
```

In [19]:

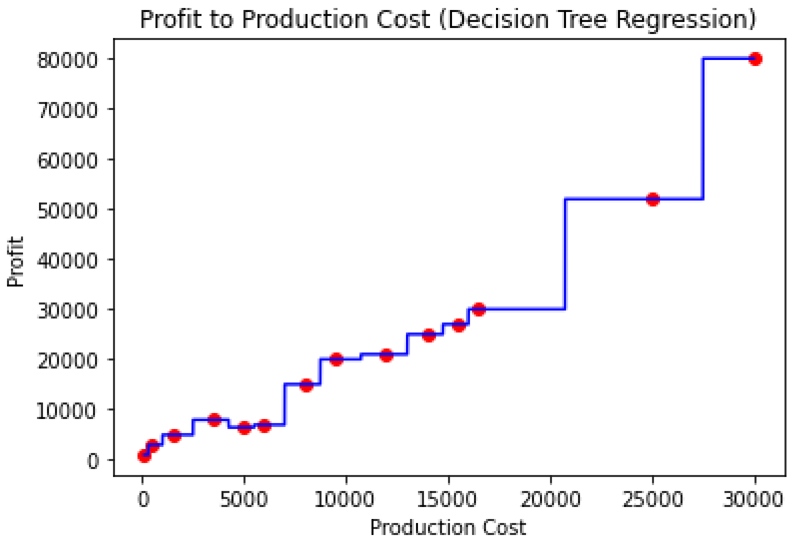
```
# predicting a new value

# test the output by changing values, like 3750
arr1 = [[3750],]
y_pred = regressor.predict(arr1)
y_pred
```

Out[19]:

```
array([8000.])
```

In [20]:

```
# arange for creating a range of values
# from min value of X to max value of X
# with a difference of 0.01 between two
# consecutive values
X_grid = np.arange(min(X), max(X), 0.01)

# reshape for reshaping the data into
# a len(X_grid)*1 array, i.e. to make
# a column out of the X_grid values
X_grid = X_grid.reshape((len(X_grid), 1))

# scatter plot for original data
plt.scatter(X, y, color = 'red')

# plot predicted data
plt.plot(X_grid, regressor.predict(X_grid), color = 'blue')

# specify title
plt.title('Profit to Production Cost (Decision Tree Regression)')

# specify X axis label
plt.xlabel('Production Cost')

# specify Y axis label
plt.ylabel('Profit')

# show the plot
plt.show()
```



In [24]:

```
# import export_graphviz
from sklearn.tree import export_graphviz

# export the decision tree to a tree.dot file
# for visualizing the plot easily anywhere
export_graphviz(regressor, out_file ='D:/tree.dot',
               feature_names =['Production Cost'])

#http://www.webgraphviz.com/
#open the file & paste teh code into
#http://www.webgraphviz.com/ and run to get the tree
```