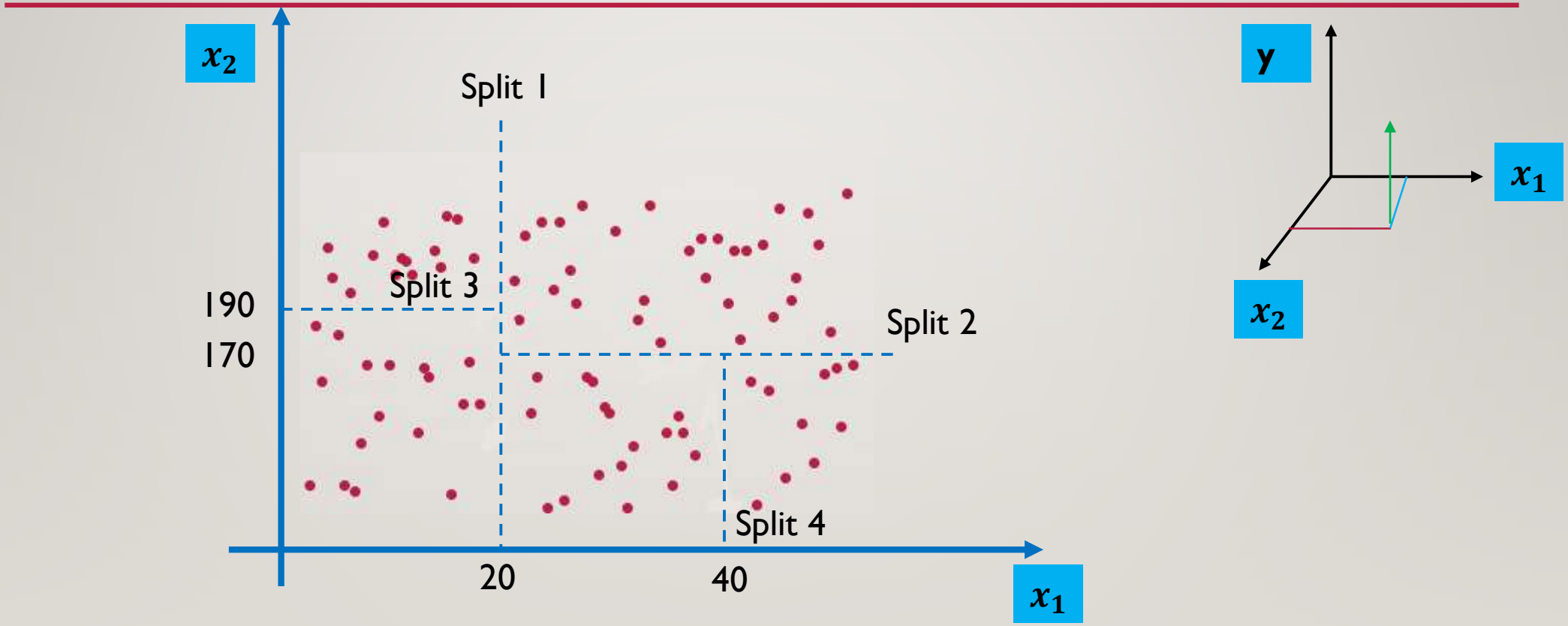
DECISION TREE

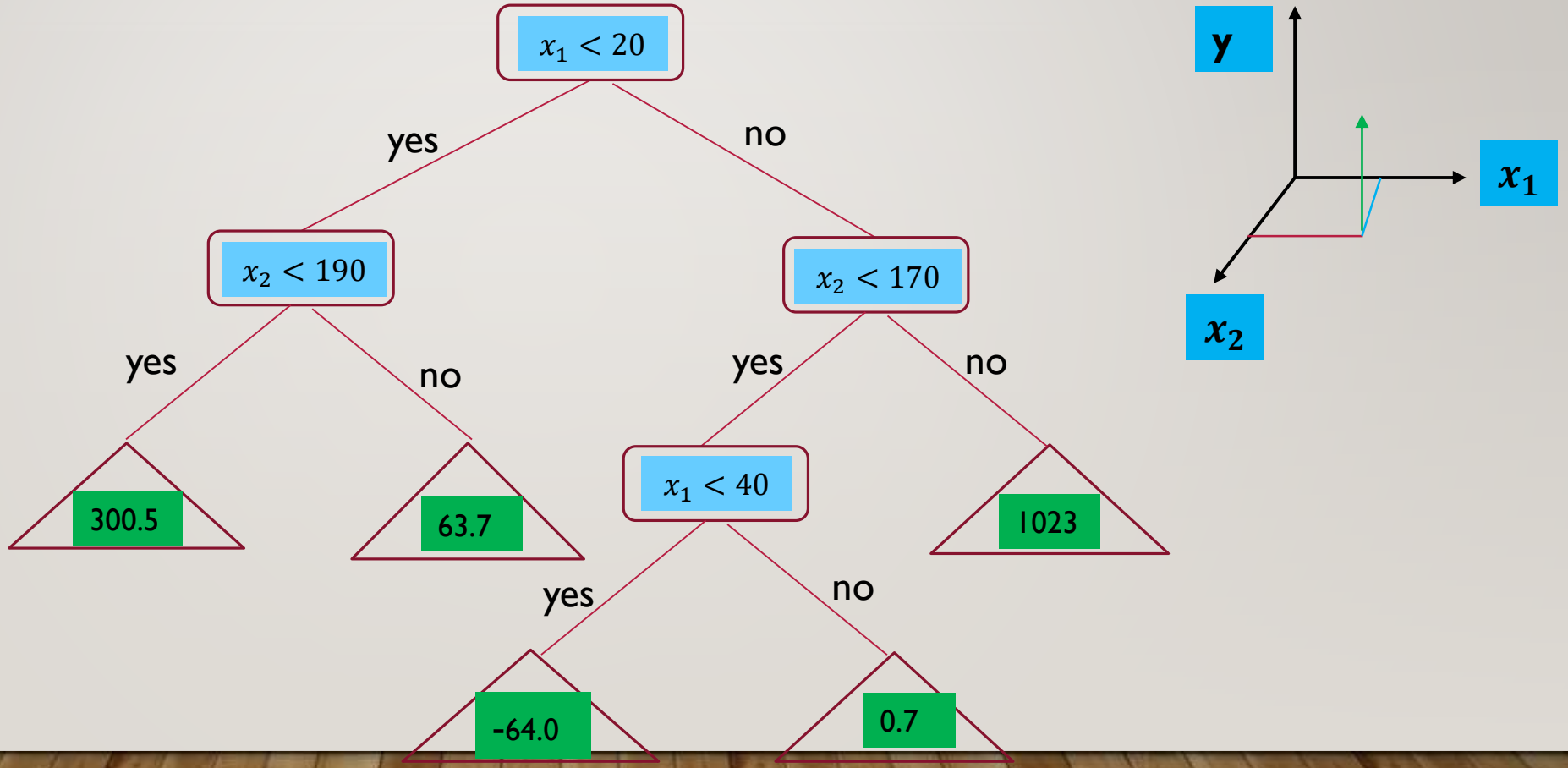
DEFINITION

- A decision tree is a flowchart-like structure in which each internal node represents a "test" on an attribute , each branch represents the outcome of the test, and each leaf node represents a class label.
- A decision tree consists of three types of nodes:
  - Decision nodes – typically represented by squares
  - Chance nodes – typically represented by circles
  - End nodes – typically represented by triangles

DECISION TREE INTUITION(1/2)



DECISION TREE INTUITION(2/2)



STEPS INVOLVED

- Importing the basic libraries

```
# importing initial libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

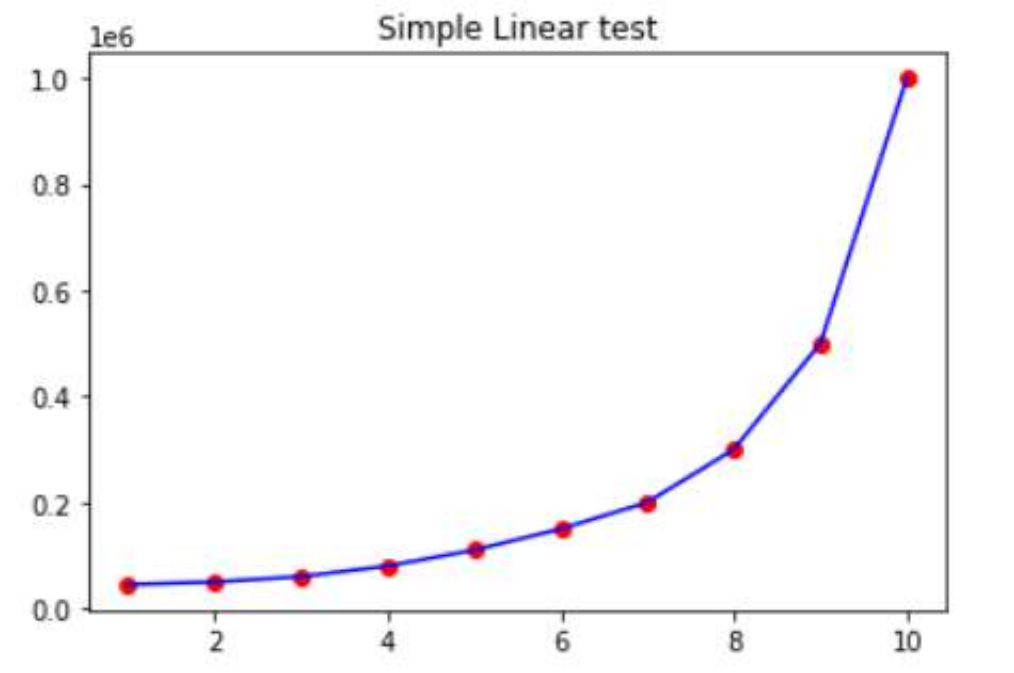
IMPORTING DATA AND SPLITTING THE X AND Y VARIABLES

x	DecisionTreeR...	ABCMeta	1472		
x	dataset	DataFrame	368	(10, 3)	Position Level Salary ...
x	regressor	DecisionTreeR...	48		DecisionTreeRegressor(ccp_alpha=0.0, ...
x	x	ndarray	80	(10, 1)	[[1] [2] [3] [4] [5] [6] ...
x	x_grid	ndarray	7200	(900, 1)	[[1.] [1.01] [1.02] [1.03] [1.0...
x	y	ndarray	80	(10, 1)	[[45000] [50000] [60000] [...
x	y_pred	ndarray	8	(1,)	[150000.]

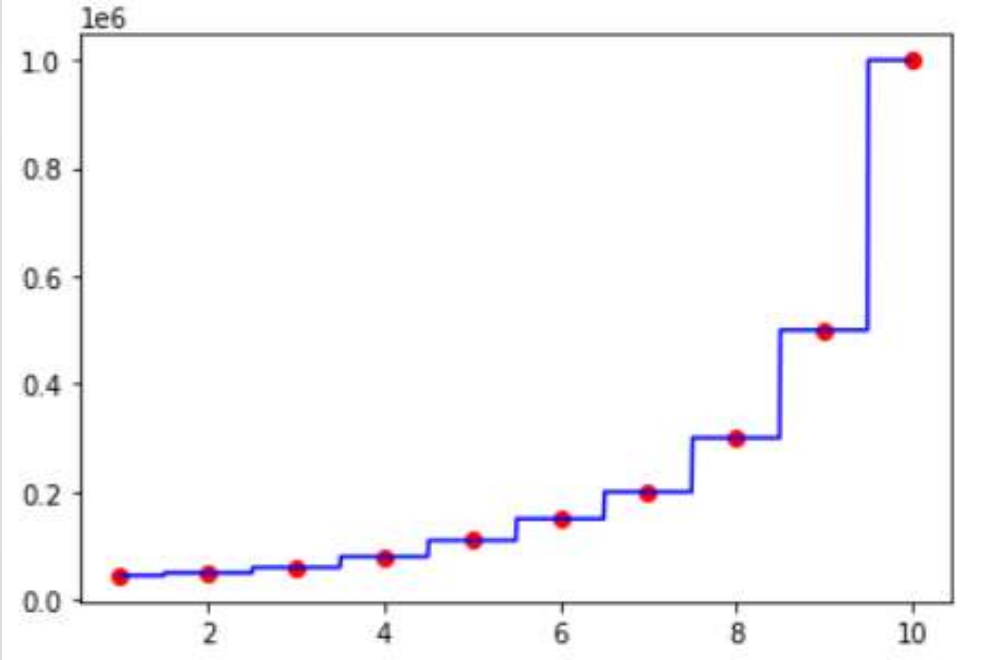
FITTING THE DECISION TREE MODEL

```
DecisionTreeRegressor(ccp_alpha=0.0, criterion='mse', max_depth=None,
                      max_features=None, max_leaf_nodes=None,
                      min_impurity_decrease=0.0, min_impurity_split=None,
                      min_samples_leaf=1, min_samples_split=2,
                      min_weight_fraction_leaf=0.0, presort='deprecated',
                      random_state=0, splitter='best')
```

PREDICTING AND REPRESENTING DATA



PRECISE REPRESENTATION



THANK YOU