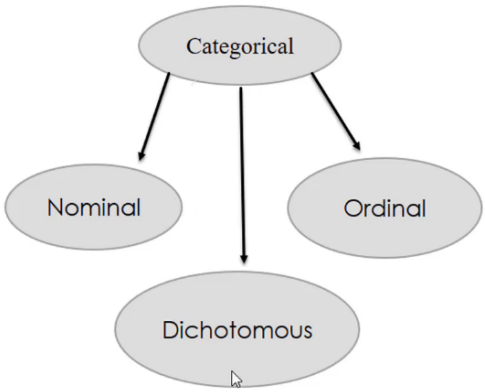
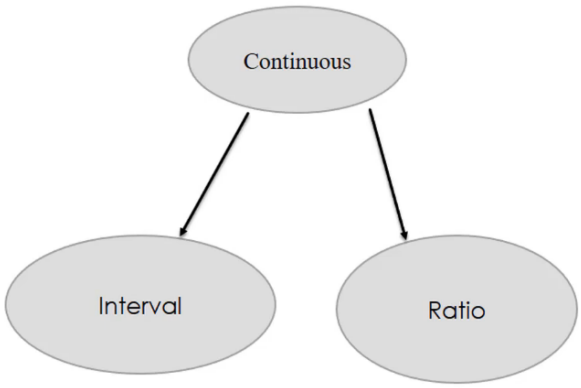
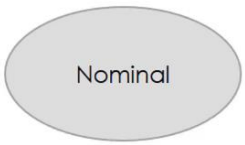
Categorical & Continuous Variable



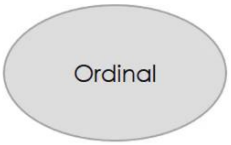


Categorical & Continuous Variable



Colors Names
Location Names
Car Names

Yes, No
Male, Female
Left, Right



Good, Average, Below
High Medium Low
Satisfied Neutral Dissatisfied

Label Encoding

```
from sklearn.preprocessing import LabelEncoder
labelencoder = LabelEncoder()
```

	Car Model	Mileage	Sell Price	Age
0	BMW X5	69000	18000	6
1	BMW X5	35000	34000	3
2	BMW X5	57000	26100	5
3	BMW X5	22500	40000	2
4	BMW X5	46000	31500	4
5	Audi	59000	29400	5
6	Audi	52000	32000	5
7	Audi	72000	19300	6
8	Audi	91000	12000	8
9	Mercedez Benz	67000	22000	6
10	Mercedez Benz	83000	20000	7
11	Mercedez Benz	79000	21000	7
12	Mercedez Benz	59000	33000	5

Car Model	Mileage	Sell Price	Age	Car Model
BMW X5	69000	18000	6	1
BMW X5	35000	34000	3	1
BMW X5	57000	26100	5	1
BMW X5	22500	40000	2	1
BMW X5	46000	31500	4	1
Audi	59000	29400	5	2
Audi	52000	32000	5	2
Audi	72000	19300	6	2
Audi	91000	12000	8	2
Mercedez Benz	67000	22000	6	3
Mercedez Benz	83000	20000	7	3
Mercedez Benz	79000	21000	7	3
Mercedez Benz	59000	33000	5	3

Label Encoding

Problems:

Mercedes Benz = 3
Audi = 2
BMW X5 = 1

Mercedes Benz = Audi + BMW X5

Mercedes Benz - BMW X5 = Audi

Mercedes Benz > Audi > BMW X5

Car Model	Mileage	Sell Price	Age	Car Model
BMW X5	69000	18000	6	1
BMW X5	35000	34000	3	1
BMW X5	57000	26100	5	1
BMW X5	22500	40000	2	1
BMW X5	46000	31500	4	1
Audi	59000	29400	5	2
Audi	52000	32000	5	2
Audi	72000	19300	6	2
Audi	91000	12000	8	2
Mercedez Benz	67000	22000	6	3
Mercedez Benz	83000	20000	7	3
Mercedez Benz	79000	21000	7	3
Mercedez Benz	59000	33000	5	3

One-Hot Encoding

```
from sklearn.preprocessing import OneHotEncoder
onehotencoder = OneHotEncoder(categorical_features = [0])
```

	Car Model	Mileage	Sell Price	Age
0	BMW X5	69000	18000	6
1	BMW X5	35000	34000	3
2	BMW X5	57000	26100	5
3	BMW X5	22500	40000	2
4	BMW X5	46000	31500	4
5	Audi	59000	29400	5
6	Audi	52000	32000	5
7	Audi	72000	19300	6
8	Audi	91000	12000	8
9	Mercedez Benz	67000	22000	6
10	Mercedez Benz	83000	20000	7
11	Mercedez Benz	79000	21000	7
12	Mercedez Benz	59000	33000	5

	Audi	BMW X5	Mercedez Benz
0	0	1	0
1	0	1	0
2	0	1	0
3	0	1	0
4	0	1	0
5	1	0	0
6	1	0	0
7	1	0	0
8	1	0	0
9	0	0	1
10	0	0	1
11	0	0	1
12	0	0	1

One-Hot Encoding

	Car Model	Mileage	Sell Price	Age
0	BMW X5	69000	18000	6
1	BMW X5	35000	34000	3
2	BMW X5	57000	26100	5
3	BMW X5	22500	40000	2
4	BMW X5	46000	31500	4
5	Audi	59000	29400	5
6	Audi	52000	32000	5
7	Audi	72000	19300	6
8	Audi	91000	12000	8
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11	Mercedez Benz	79000	21000	7
12	Mercedez Benz	59000	33000	5

	Audi	BMW X5	Mercedez Benz
0	0	1	0
1	0	1	0
2	0	1	0
3	0	1	0
4	0	1	0
5	1	0	0
6	1	0	0
7	1	0	0
8	1	0	0
9	0	0	1
10	0	0	1
11	0	0	1
12	0	0	1

One-Hot Encoding

	Car Model	Mileage	Sell Price	Age
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12	Mercedez Benz	59000	33000	5

	Car Model	Mileage	Sell Price	Age	Audi	BMW X5	Mercedez Benz
0	BMW X5	69000	18000	6	0	1	0
1	BMW X5	35000	34000	3	0	1	0
2	BMW X5	57000	26100	5	0	1	0
3	BMW X5	22500	40000	2	0	1	0
4	BMW X5	46000	31500	4	0	1	0
5	Audi	59000	29400	5	1	0	0
6	Audi	52000	32000	5	1	0	0
7	Audi	72000	19300	6	1	0	0
8	Audi	91000	12000	8	1	0	0
9	Mercedez Benz	67000	22000	6	0	0	1
10	Mercedez Benz	83000	20000	7	0	0	1
11	Mercedez Benz	79000	21000	7	0	0	1
12	Mercedez Benz	59000	33000	5	0	0	1