Exp2

```
Steps of Candidate Elimination Algorithm 1
['sunny', 'warm', 'normal', 'strong', 'warm', 'same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?',
'?', '?'], ['?', '?', '?', '?', '?', '?']]

Steps of Candidate Elimination Algorithm 2
['sunny', 'warm', 'normal', 'strong', 'warm', 'same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?',
'?', '?'], ['?', '?', '?', '?', '?', '?']]

Steps of Candidate Elimination Algorithm 3
['sunny', 'warm', '?', 'strong', 'warm', 'same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?',
'?', '?'], ['?', '?', '?', '?', '?', '?']]

Steps of Candidate Elimination Algorithm 4
['sunny', 'warm', '?', 'strong', 'warm', 'same']
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?',
'?', '?', '?'], ['?', '?', '?', '?', '?', 'same']]

Steps of Candidate Elimination Algorithm 5
['sunny', 'warm', '?', 'strong', '?', '?']
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?',
'?', '?', '?'], ['?', '?', '?', '?', '?', '?']]

Steps of Candidate Elimination Algorithm 6
['sunny', 'warm', '?', 'strong', '?', '?']
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?',
'?', '?', '?'], ['?', '?', '?', '?', '?', '?']]


Steps of Candidate Elimination Algorithm 7
['sunny', 'warm', '?', 'strong', '?', '?']
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', 'strong', '?', '?'], ['?', '?',
'?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]

Final specific hypothesis:
 ['sunny', 'warm', '?', 'strong', '?', '?']

Final general hypothesis:
 [['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', 'strong', '?', '?']]
```

Exp1

```
[['Sky', 'Temperature', 'Humidity', 'Wind', 'Water', 'Forest', 'Output'], ['sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'yes'], ['sunny', 'war
m', 'high', 'strong', 'warm', 'same', 'yes'], ['rainny', 'cold', 'high', 'strong', 'warm', 'change', 'no'], ['sunny', 'warm', 'high', 'strong', 'cold',
'change', 'yes'], ['rainny', 'warm', 'normal', 'weak', 'cokd', 'change', 'Yes'], ['rainny', 'cold', 'normal', 'weak', 'warm', 'same', 'no']]

 The total number of training instances are :  7

 The initial hypothesis is :
 ['0', '0', '0', '0', '0', '0']

The hypothesis for the training instance 1 is:
 ['0', '0', '0', '0', '0', '0']

 The Maximally specific hypothesis for the training instances is:
 ['0', '0', '0', '0', '0', '0']

The hypothesis for the training instance 2 is:
 ['sunny', 'warm', 'normal', 'strong', 'warm', 'same']

 The Maximally specific hypothesis for the training instances is:
 ['sunny', 'warm', 'normal', 'strong', 'warm', 'same']

The hypothesis for the training instance 3 is:
 ['sunny', 'warm', '?', 'strong', 'warm', 'same']

 The Maximally specific hypothesis for the training instances is:
 ['sunny', 'warm', '?', 'strong', 'warm', 'same']

The hypothesis for the training instance 4 is:
 ['sunny', 'warm', '?', 'strong', 'warm', 'same']
```

```
The Maximally specific hypothesis for the training instances is:
['sunny', 'warm', '?', 'strong', 'warm', 'same']

The hypothesis for the training instance 5 is:
['sunny', 'warm', '?', 'strong', '?', '?']

 The Maximally specific hypothesis for the training instances is:
['sunny', 'warm', '?', 'strong', '?', '?']

The hypothesis for the training instance 6 is:
['sunny', 'warm', '?', 'strong', '?', '?']

 The Maximally specific hypothesis for the training instances is:
['sunny', 'warm', '?', 'strong', '?', '?']

The hypothesis for the training instance 7 is:
['sunny', 'warm', '?', 'strong', '?', '?']

 The Maximally specific hypothesis for the training instances is:
['sunny', 'warm', '?', 'strong', '?', '?']
```
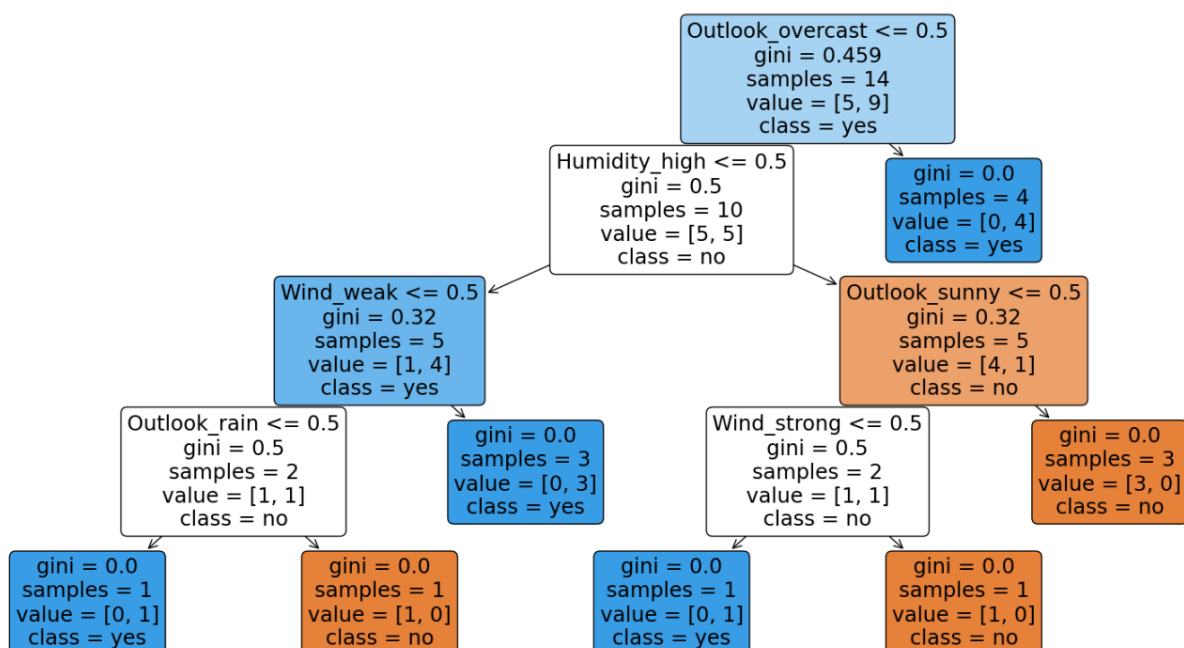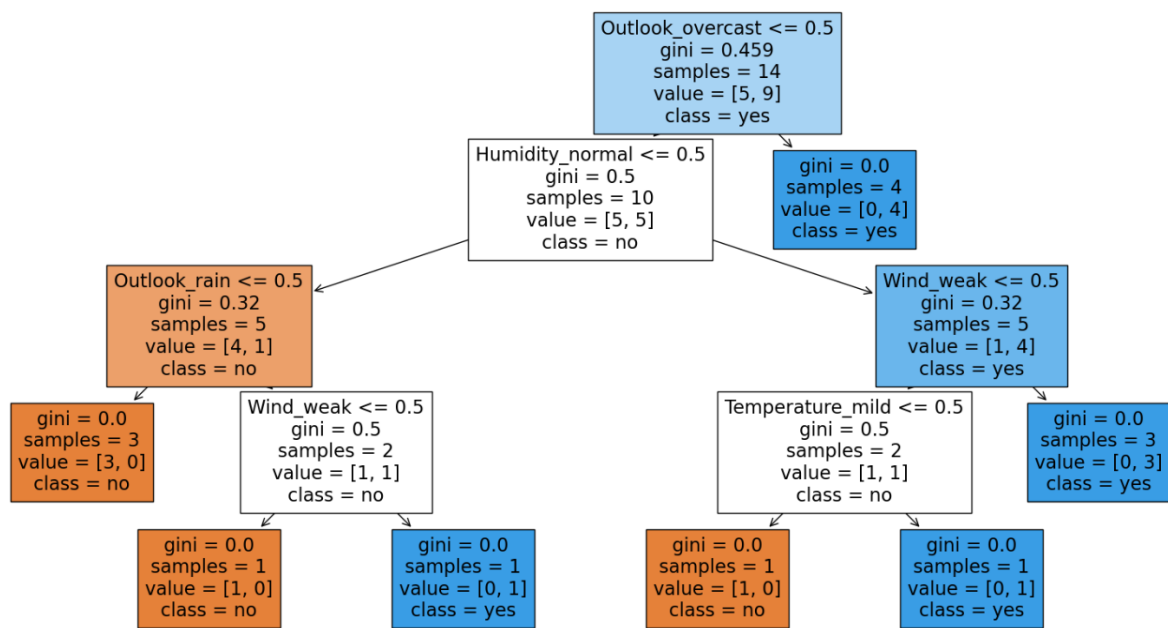
Exp5

```
Outlook_overcast <= 0.5
gini = 0.459
samples = 14
value = [5, 9]
class = yes
```

```
Humidity_normal <= 0.5
gini = 0.5
samples = 10
value = [5, 5]
class = no
```

```
gini = 0.0
samples = 4
value = [0, 4]
class = yes
```

```
Outlook_rain <= 0.5
gini = 0.32
samples = 5
value = [4, 1]
class = no
```

```
Wind_weak <= 0.5
gini = 0.32
samples = 5
value = [1, 4]
class = yes
```

```
gini = 0.0
samples = 3
value = [3, 0]
class = no
```

```
Wind_weak <= 0.5
gini = 0.5
samples = 2
value = [1, 1]
class = no
```

```
Temperature_mild <= 0.5
gini = 0.5
samples = 2
value = [1, 1]
class = no
```

```
gini = 0.0
samples = 3
value = [0, 3]
class = yes
```

```
gini = 0.0
samples = 1
value = [1, 0]
class = no
```

```
gini = 0.0
samples = 1
value = [0, 1]
class = yes
```

```
gini = 0.0
samples = 1
value = [1, 0]
class = no
```

```
gini = 0.0
samples = 1
value = [0, 1]
class = yes
```

Prediction for sample: ['yes']

exp3

```
                        product
0          Milk,Egg,Bread,Butter
1        Milk,Butter,Egg,Ketchup
2            Bread,Butter,Ketchup
3              Milk,Bread,Butter
4           Bread,Butter,Cookies
5      Milk,Bread,Butter,Cookies
6                   Milk,Cookies
7              Milk,Bread,Butter
8        Bread,Butter,Egg,Cookies
9              Milk,Butter,Bread
10             Milk,Bread,Butter
11   Milk,Bread,Cookies,Ketchup
```

```
Milk                  9
Bread                 10
Butter                10
Cookies               5
Bread,Butter          9
Bread,Cookies         4
Bread,Milk            7
Butter,Milk           7
Bread,Butter,Milk     6
```

| Antecedent (lhs)	Consequent (rhs)	Support	Confidence	Lift
('Butter',)	==> ('Bread',)	0.7500	0.9000	1.0800
('Bread',)	==> ('Butter',)	0.7500	0.9000	1.0800
('Cookies',)	==> ('Bread',)	0.3333	0.8000	0.9600
('Milk',)	==> ('Bread',)	0.5833	0.7778	0.9333
('Bread',)	==> ('Milk',)	0.5833	0.7000	0.9333
('Milk',)	==> ('Butter',)	0.5833	0.7778	0.9333
('Butter',)	==> ('Milk',)	0.5833	0.7000	0.9333
('Butter', 'Milk')	==> ('Bread',)	0.5000	0.8571	1.0286
('Bread', 'Milk')	==> ('Butter',)	0.5000	0.8571	1.0286
('Bread', 'Butter')	==> ('Milk',)	0.5000	0.6667	0.8889
('Milk',)	==> ('Bread', 'Butter')	0.5000	0.6667	0.8889
('Butter',)	==> ('Bread', 'Milk')	0.5000	0.6000	1.0286
('Bread',)	==> ('Butter', 'Milk')	0.5000	0.6000	1.0286

exp4lin

```
Slope: [[2.93655106]]
Intercept: [2.55808002]
Root mean squared error:  0.07623324582875007
R2 score:  0.9038655568672764
```
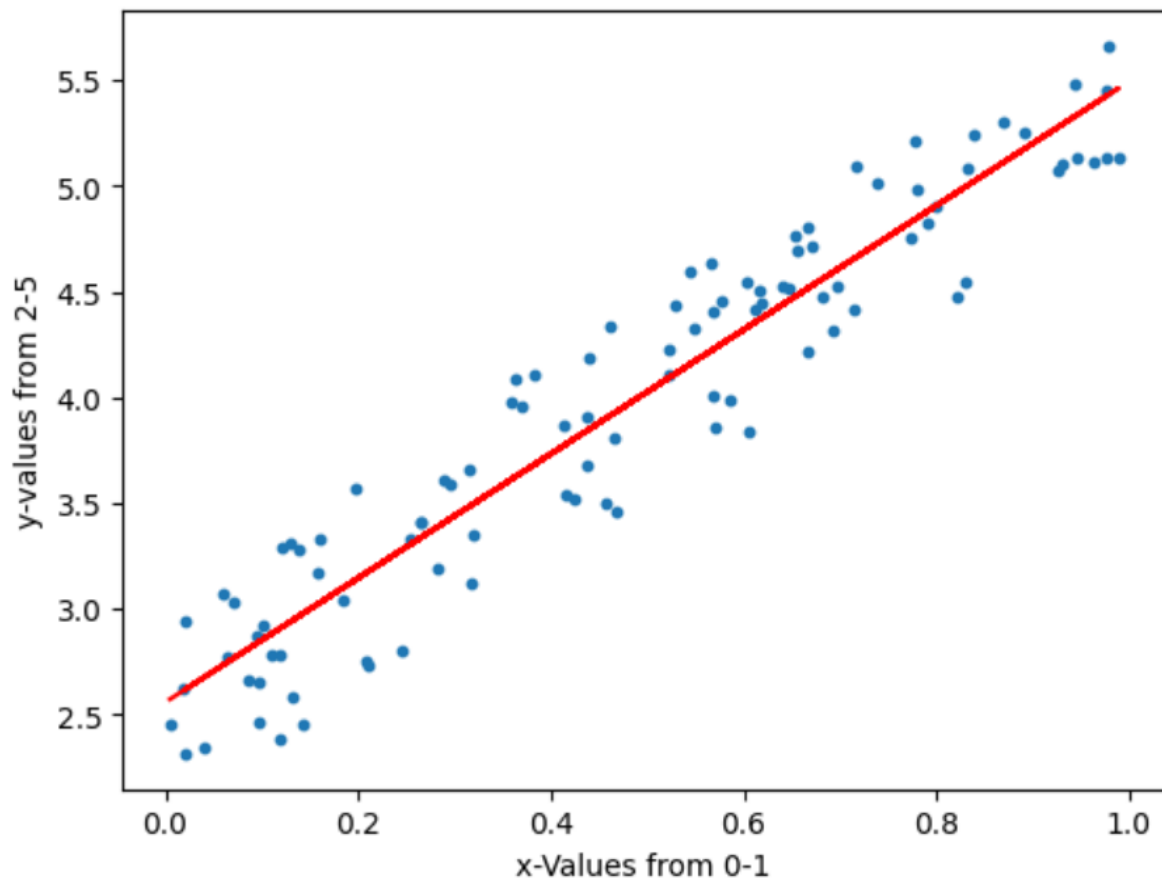

4log

```
[0]
The Accuracy for Training Set is 91.66666666666666
```