Postive hypothesis:
[['sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'yes'], ['sunny', 'warm', 'high', 'strong', 'warm', 'same', 'yes'], ['sunny', 'warm', 'high', 'strong', 'cool', 'change', 'yes']]
Negative hypothesis:
[['rainy', 'cold', 'high', 'strong', 'warm', 'change', 'no']]
Maximlly Specific hypothesis:
['sunny', 'warm', '?', 'strong', '?', '?']

Concepts:
[['sunny' 'warm' 'normal' 'strong' 'warm' 'same']
['sunny' 'warm' 'high' 'strong' 'warm' 'same']
['rainy' 'cold' 'high' 'strong' 'warm' 'change']
['sunny' 'warm' 'high' 'strong' 'cool' 'change']]
Target:
['yes' 'yes' 'no' 'yes']
Initialization of specific_h and general_h
Specific_h: ['sunny' 'warm' 'normal' 'strong' 'warm' 'same']
General_h: [['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]
Specific_h after instance 1: ['sunny' 'warm' 'normal' 'strong' 'warm' 'same']
Specific_h after instance 2: ['sunny' 'warm' '?' 'strong' 'warm' 'same']
General_h after instance 3: [['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', 'same']]
Specific_h after instance 4: ['sunny' 'warm' '?' 'strong' '?' '?']
Final Specific_h:
['sunny' 'warm' '?' 'strong' '?' '?']
Final General_h:
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?']]

Prediction: No
Accuracy: 0.6

The words or Tokens in the text documents

['about' 'am' 'an' 'awesome' 'bad' 'beers' 'boss' 'can' 'dance' 'deal'
'do' 'enemy' 'feel' 'fun' 'good' 'great' 'have' 'holiday' 'horrible'
'house' 'is' 'juice' 'like' 'locality' 'love' 'my' 'not' 'of' 'place'
'stay' 'stuff' 'taste' 'that' 'the' 'these' 'this' 'tired' 'to' 'today'
'tomorrow' 'very' 'view' 'we' 'went' 'what' 'will' 'with']

Accuracy of the classifier is 0.8333333333333334

Confusion matrix
[[3 0]
[1 2]]

The value of Precision 1.0

The value of Recall 0.6666666666666666

	Name	Age	Gender	Grade	GPA
0	Ethan	20.0	male	A	8.0
1	Liam	21.0	male	A	8.1
2	Liam	20.0	male	B	6.0
3	Grace	21.0	female	A	9.0
4	Wilson	20.0	male	A	9.1
5	Emily	NaN	female	A	8.3
6	Mitchell	22.0	male	NaN	7.7
7	Benjamin	20.0	male	B	NaN
8	Olivia	NaN	female	A	8.0
9	Sophia	18.0	female	A	8.1
10	Jackson	19.0	male	B	7.5
11	Wilson	21.0	male	A	8.9
12	Lucas	NaN	male	B	7.0
13	Ava	21.0	female	A	8.4

	Name	Age	Gender	Grade	GPA
0	Ethan	20.0	male	A	8.0
1	Liam	21.0	male	A	8.1
3	Grace	21.0	female	A	9.0
4	Wilson	20.0	male	A	9.1
9	Sophia	18.0	female	A	8.1
10	Jackson	19.0	male	B	7.5
13	Ava	21.0	female	A	8.4

	Name	Age	Gender	Grade	GPA	Student_Info
0	Ethan	0.666667	male	A	0.3125	Ethan(A)
1	Liam	1.000000	male	A	0.3750	Liam(A)
3	Grace	1.000000	female	A	0.9375	Grace(A)
4	Wilson	0.666667	male	A	1.0000	Wilson(A)
9	Sophia	0.000000	female	A	0.3750	Sophia(A)

The total number of Training Data: (514, 1)

The total number of Test Data: (254, 1)

Confusion matrix

```
[[143  24]
 [ 28  59]]
```

Accuracy of the classifier is 0.7952755905511811

The value of Precision 0.7108433734939759

The value of Recall 0.6781609195402298
Predicted Value for individual Test Data: [1]

Learning CPD using Maximum likelihood estimators

Inferencing with Bayesian Network:

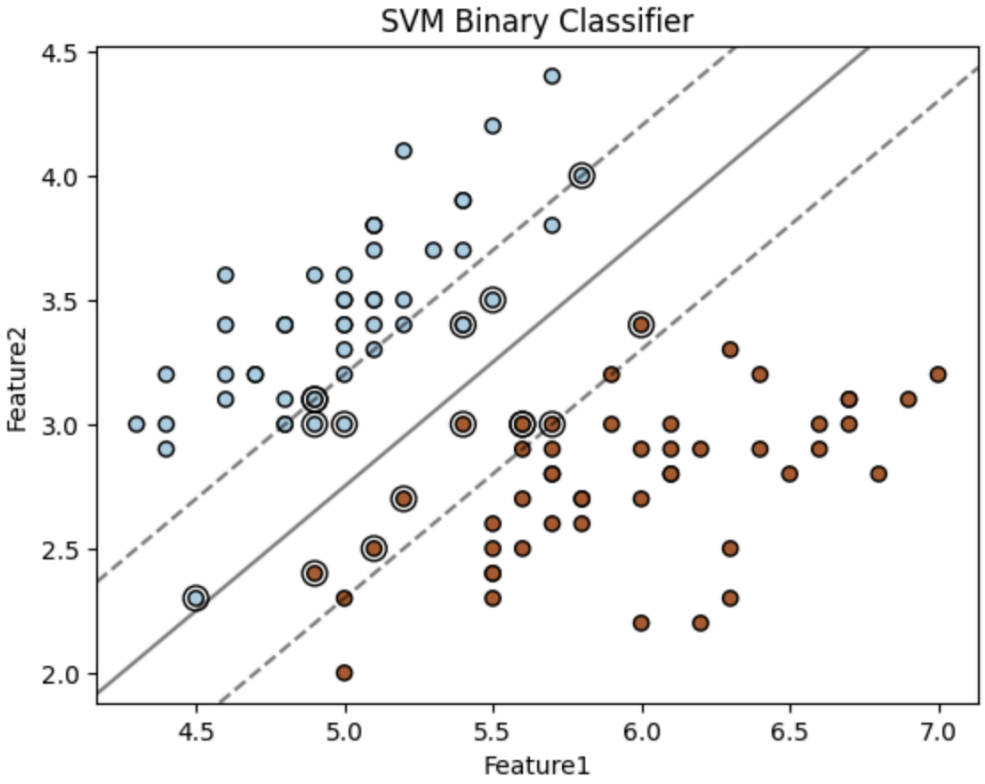
1. Probability of HeartDisease given evidence= restecg

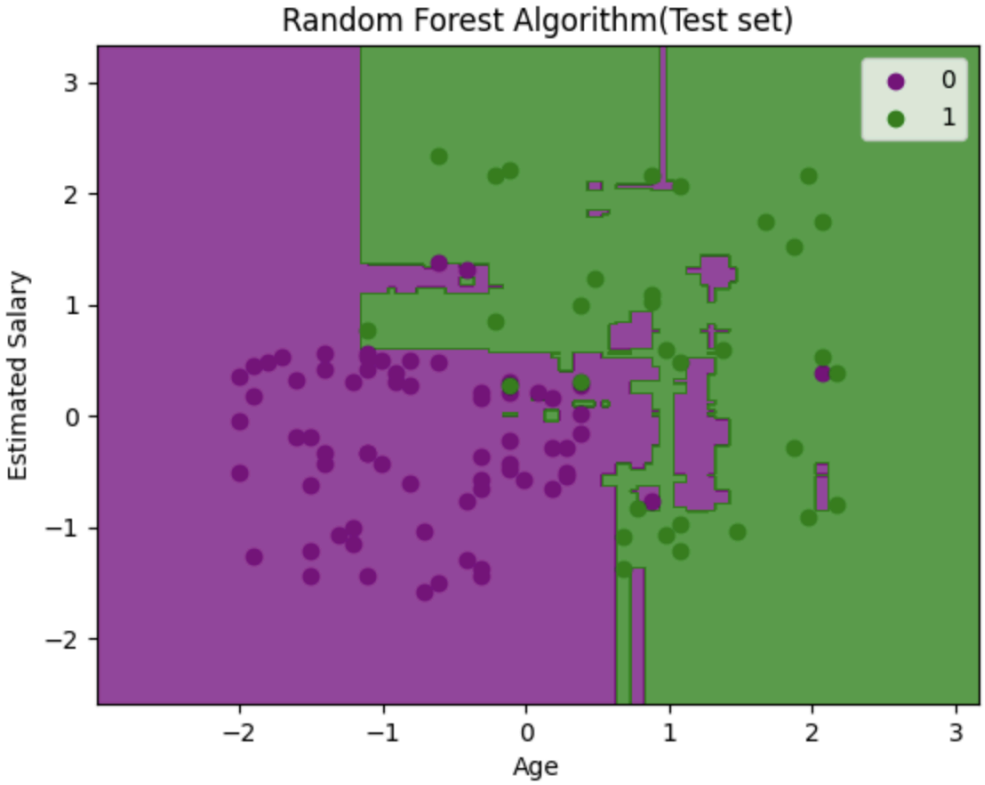
heartdisease	phi(heartdisease)
heartdisease(0)	0.1016
heartdisease(1)	0.0000
heartdisease(2)	0.2361
heartdisease(3)	0.2017
heartdisease(4)	0.4605

2. Probability of HeartDisease given evidence= cp

heartdisease	phi(heartdisease)
heartdisease(0)	0.3742
heartdisease(1)	0.2018
heartdisease(2)	0.1375
heartdisease(3)	0.1541
heartdisease(4)	0.1323

```
array([[13,  0,  0],
       [ 0, 15,  1],
       [ 0,  0,  9]])
```


SVM Binary Classifier
Feature2
Feature1
4.5
4.0
3.5
3.0
2.5
2.0
4.5
5.0
5.5
6.0
6.5
7.0


Random Forest Algorithm(Test set)
Estimated Salary
Age
0
1
3
2
1
0
−1
−2
−2
−1
0
1
2
3