Q1:

<u>Decision Tree:</u>

Level 0 (Win)
 Media :
 ABC
      Level 1 (Lose)
      Is_Opponent_in_AP25_Preseason :
      In
            Level 2 (Lose)
      Out
            Level 2 (Win)
 CBS
      Level 1 (Lose)
 ESPN
      Level 1 (Win)
 FOX
      Level 1 (Lose)
 NBC
      Level 1 (Win)
      Is_Opponent_in_AP25_Preseason :
      In
            Level 2 (Win)
      Out
            Level 2 (Win)
            Is_Home_or_Away :
            Away
                  Level 3 (Win)
            Home
                  Level 3 (Win)

<u>Predicted Labels:</u>

['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'In', 'NBC'] Actual label: Lose | Predicted label: Win
['Away', 'Out', 'ESPN'] Actual label: Win | Predicted label: Win
['Away', 'Out', 'FOX'] Actual label: Win | Predicted label: Lose
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'Out', 'ABC'] Actual label: Win | Predicted label: Win
['Home', 'In', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'In', 'ABC'] Actual label: Lose | Predicted label: Lose
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'In', 'ABC'] Actual label: Lose | Predicted label: Lose

Evaluation Results:

Confusion matrix:

```
        ---------------
        | TP 8 | FN 1 |
        | FP 1 | TN 2 |
        ---------------
```

Accuracy: 0.8333
Precision: 0.8889
Recall: 0.8889
F1: 0.8889

Q2:

Decision Tree:

Level 0 (Win)
Is_Opponent_in_AP25_Preseason :
In

   Level 1 (Lose)
   Is_Home_or_Away :
   Away
      Level 2 (Lose)
   Home
      Level 2 (Lose)
Out

   Level 1 (Win)
   Media :
   ABC
      Level 2 (Win)
   CBS
      Level 2 (Lose)
   ESPN
      Level 2 (Win)
   NBC
      Level 2 (Win)
      Is_Home_or_Away :
      Away
         Level 3 (Win)
      Home
         Level 3 (Win)

Predicted Labels:
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'In', 'NBC'] Actual label: Lose | Predicted label: Lose
['Away', 'Out', 'ESPN'] Actual label: Win | Predicted label: Win

['Away', 'Out', 'FOX'] Actual label: Win | Predicted label: Win
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'Out', 'ABC'] Actual label: Win | Predicted label: Win
['Home', 'In', 'NBC'] Actual label: Win | Predicted label: Lose
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'In', 'ABC'] Actual label: Lose | Predicted label: Lose
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'In', 'ABC'] Actual label: Lose | Predicted label: Lose

Evaluation Results:

Confusion matrix:
```
        ---------------
        | TP 8 | FN 1 |
        | FP 0 | TN 3 |
        ---------------
```
Accuracy: 0.9167
Precision: 1.0
Recall: 0.8889
F1: 0.9412

Q3:

Predicted Labels:
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'In', 'NBC'] Actual label: Lose | Predicted label: Win
['Away', 'Out', 'ESPN'] Actual label: Win | Predicted label: Win
['Away', 'Out', 'FOX'] Actual label: Win | Predicted label: Lose
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'Out', 'ABC'] Actual label: Win | Predicted label: Lose
['Home', 'In', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'In', 'ABC'] Actual label: Lose | Predicted label: Lose
['Home', 'Out', 'NBC'] Actual label: Win | Predicted label: Win
['Away', 'In', 'ABC'] Actual label: Lose | Predicted label: Lose

Evaluation Results:

Confusion matrix:

```
---------------
| TP 7 | FN 2 |
| FP 1 | TN 2 |
---------------
```

Accuracy: 0.75
Precision: 0.875
Recall: 0.7778
F1: 0.8235