|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Impurity Metric** | **Max Depth** | **Precision** | **Recall** | **F1 Score** |
| Gini Index | 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| Entropy | 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |

**Table 1 – Model performance metrics for “no-recurrence-events” class**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Impurity Metric** | **Max Depth** | **Precision** | **Recall** | **F1 Score** |
| Gini Index | 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| Entropy | 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |

**Table 2 – Model performance metrics for “recurrence-events” class**

Question 1 (1 point): Based upon the model performance metrics, which class value is DecisionTreeClassifier **“better”** at predicting? Be sure to specifically mention the metric(s) you’re using to quantify your findings.

<your answer goes here>

Question 2 (1 point): Which impurity metric provides higher quality predictions? Be sure to specifically mention the metric(s) you’re using to quantify your findings.

<your answer goes here>

Question 3 (1 point): Regardless of the impurity metric, what happens as max depth increases? Be sure to specifically mention the metric(s) you’re using to quantify your findings.

<your answer goes here>

Question 4 (1 point): Try incrementally increasing the max depth value up to 20 for each of the impurity metrics. What happens to the performance metrics when you do this? Why is this trend actually problematic for the model? Be sure to specifically name the phenomenon that is occurring as the max depth is increased.

<your answer goes here>