**CS-504**

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**PROBLEM 1**

|  |  |  |
| --- | --- | --- |
|  | Correctly classified instance | Root mean squared error |
| Decision Stump | 66.6667% | 0.3333 |
| J48 | 96% | 0.1586 |
| J48-Unpruned | 96% | 0.1586 |
| Lazy-IBK KMN-3 | 95.3333% | 0.1703 |
| Lazy-IBK KMN-5 | 95.3333% | 0.1444 |

**Explanation：**

Decision Stump is a decision tree, also known as a one level decision tree. A one level means that you can make a judgment on each column attribute. In practical terms, the Decision Stump determines the final classification result based on a judgment of an attribute. For example, whether the fruit is an apple or not according to whether the fruit is a circle or not, this embodies a simple rule (or feature) effect. The attribute used to make the decision is “Petal length”

**PROBLEM 2**

**a)**

If we want to explain all the combination of features, we can't do it ourselves. For example, the combination of 100 features cannot be quickly calculated. Because this calculation process is huge, and it is difficult to find the best feature.

**b)**

|  |  |  |
| --- | --- | --- |
| Subset size | Attribute in “best” subset | Classification accuracy |
| 4 | All | 95.3333% |
| 3 | Sepal length, petal length, petal width | 96.6667% |
| 2 | Sepal length, petal width | 96% |
| 1 | Petal width | 96% |

**c)** NO