Assignment No3 Solution

**CS 614**

For Any Solution Just Comment on Website

**Question 1 (Marks 15)**

Classification is an important technique of data mining where the classification model is constructed through association rules extracted from the training dataset.

Consider the following training dataset containing the customers’ data of a bank. The column **Last\_Transaction** contains the number of days when customers have made their last transactions.

|  |  |  |  |
| --- | --- | --- | --- |
| **Gender** | **Age** | **Last\_Transaction** | **Loyalty** |
| Male | 64 | 98 | YES |
| Male | 35 | 125 | NO |
| Female | 25 | 50 | YES |
| Male | 39 | 50 | YES |
| Male | 45 | 90 | NO |
| Female | 42 | 165 | YES |
| Male | 21 | 25 | NO |
| Male | 48 | 28 | YES |
| Female | 55 | 110 | YES |
| Male | 58 | 120 | YES |

On the basis of the given training dataset, the following association rules constitute for the classification model.

IF Gender = Female THEN Loyalty = YES

ELSE

IF Age > 55 THEN Loyalty = YES

ELSE

IF Age < 30 THEN Loyalty = NO

ELSE

IF LastTransaction < 60 THEN Loyalty = YES

ELSE Loyalty = NO

You are required to identify the class for the following customers.

|  |  |  |  |
| --- | --- | --- | --- |
| **Gender** | **Age** | **Last\_Transaction** | **Loyalty** |
| Male | 20 | 15 | No |
| Male | 49 | 41 | No |
| Male | 68 | 75 | Yes |
| Female | 29 | 128 | Yes |
| Male | 53 | 85 | Yes |

**Note:** Only write YES and NO in the Loyalty column

**Question 2 (Marks 05)**

Data Mining contains two types of learning which are called supervised learning and un-supervised learning. In the following table some data mining techniques/algorithms are given. You are required to search and study about them and identify their proper type.

|  |  |  |
| --- | --- | --- |
| **Sr No.** | **Techniques/Algorithms** | **Type (Supervised/Un-supervised)** |
| 1 | Classification | Supervised |
| 2 | Support Vector Machine (SVM) | Supervised |
| 3 | Regression | Supervised |
| 4 | K-means | Supervised |
| 5 | K- nearest neighbor (K-NN) | Supervised |