Answers

1. What do the measures “Leverage”and “Conviction”mean?

***leverage* = Pr(*L*,*R*) - Pr(*L*).Pr(*R*)**.

Leverage measures the proportion of additional cases covered by both L and R above those expected if L and R were independent of each other.

***conviction* = Pr(*L*).Pr(not *R*) / Pr(*L*,*R*)**.

conviction is similar to lift, but it measures the effect of the right-hand-side not being true. It also inverts the ratio.

2. How are they calculated in Weka?

Leverage is calculated as –

```
double More...compute( int premiseSupport, int consequenceSupport,int totalSupport, int
totalTransactions)
{
        double coverageForItemSet = (double) totalSupport / (double) totalTransactions;
        double expectedCoverageIfIndependent = ((double) premiseSupport /
         (double) totalTransactions) * ((double) consequenceSupport /
         (double) totalTransactions);
        return coverageForItemSet - expectedCoverageIfIndependent;
}
```

Conviction is calculated as –

```
double More...compute( int premiseSupport, int consequenceSupport,int totalSupport, int
totalTransactions)
{
         double num = (double) premiseSupport * (double) (totalTransactions
         consequenceSupport) / (double) totalTransactions;
        double denom = premiseSupport - totalSupport + 1;
        return num / denom;
}
```

3. Notice that Weka can print out a string representation of a rule(try it out). Suppose you wanted to change default way in which a rule is printed, which method in which class needs to be modified?

toString() method in AssociationRule class has to be modified.