**TABLE-1**

|  |  |
| --- | --- |
| **TID** | **LIST OF ITEM IDS** |
| **T100** | **I1,I2,I5** |
| **T200** | **I2,I4** |
| **T300** | **I2,I3** |
| **T400** | **I1,I2,I4** |
| **T500** | **I1,I3** |
| **T600** | **I2,I3** |
| **T700** | **I1,I3** |
| **T800** | **I1,I2,I3,I5** |
| **T900** | **I1.I2,I3** |

**SOLUTIONS:SUPORT THRESHOLD=(2\9)=22%=2,MINIMUM CONFIDENCE=70%**

1. **Count Of Each Item**

**TABLE-2**

|  |  |
| --- | --- |
| **Item** | **Count** |
| I1 | 6 |
| I2 | 7 |
| I3 | 6 |
| I4 | 2 |
| I5 | 2 |
| I6 | 0 |
| I7 | 0 |
| I8 | 0 |
| I9 | 0 |

1. **Prune Step:**

 shows that I6,I7,I8,I9 item does not meet min\_sup=2, thus it is deleted, only I1, I2, I3, I4,I5 meet min\_sup count.

**TABLE-3**

|  |  |
| --- | --- |
| **item** | **count** |
| **I1** | **6** |
| **I2** | **7** |
| **I3** | **6** |
| **I4** | **2** |
| **I5** | **2** |

1. **Join Step:** Form 2-itemset. From **TABLE-1**find out the occurrences of 2-itemset.

**TABLE-4**

|  |  |
| --- | --- |
| ITEM | count |
| **I1, I2** | 4 |
| **I1 ,I3** | 4 |
| **I1, I4** | 1 |
| **I1 ,I5** | 2 |
| **I2 ,I3** | 4 |
| **I2,I4** | 2 |
| **I2,I5** | 2 |
| **I3, I4** | 0 |
| **I3,I5** | 1 |
| **I4,I5** | 0 |

1. **Prune Step:** **TABLE -4**shows that item set {I1, I4} , {I3, I4},{I3,I5} AND {I4,I5} does not meet min\_sup, thus it is deleted.

**TABLE-5**

|  |  |
| --- | --- |
| ITEM | COUNT |
| I1,I2 | 4 |
| I1,I3 | 4 |
| I1,I5 | 2 |
| I2,I3 | 4 |
| I2,I4 | 2 |
| I2,I5 | 2 |

1. **Join and Prune Step:** Form 3-itemset. From the **TABLE- 1** find out occurrences of 3-itemset. From **TABLE-5**, find out the 2-itemset subsets which support min\_sup.

* We can see for itemset {I1, I2, I3} subsets, {I1, I2}, {I1, I3}, {I2, I3} are occurring in **TABLE-5** thus {I1, I2, I3} is frequent.
* We can see for itemset {I1, I2, I4} subsets, {I1, I2}, {I1, I4}, {I2, I4}, {I1, I4} is not frequent, as it is not occurring in **TABLE-5** thus {I1, I2, I4} is not frequent, hence it is deleted.
* We can see itemset{I1,I2,I5} subsets, {I1, I2}, {I1, I5}, {I2, I5}, {I1, I5} is not frequent, as it is not occurring in **TABLE-5** thus {I1, I2, I5} is not frequent, hence it is deleted.

**TABLE-6**

|  |
| --- |
| **item** |
| I1,I2,I3 |
| I1,I2,I4 |
| I1,I2,I5 |
| I1,I3,I4 |
| I1,I3,I5 |
| I2,I3,I4 |
| I2,I3,I5 |
| I3,I4,I5 |

**Only {I1, I2, I3} is frequent**.

1. **Generate Association Rules:** From the frequent itemset discovered above the association could be:

{I1, I2} => {I3}

Confidence = support {I1, I2, I3} / support {I1, I2} = (2/ 4)\* 100 = 50%

{I1, I3} => {I2}

Confidence = support {I1, I2, I3} / support {I1, I3} = (3/ 4)\* 100 = 75%

{I2, I3} => {I1}

Confidence = support {I1, I2, I3} / support {I2, I3} = (2/ 4)\* 100 = 50%

{I1} => {I2, I3}

Confidence = support {I1, I2, I3} / support {I1} = (2/ 6)\* 100 = 33.33%

{I2} => {I1, I3}

Confidence = support {I1, I2, I3} / support {I2 = (2/ 7)\* 100 = 28.57%

{I3} => {I1, I2}

Confidence = support {I1, I2, I3} / support {I3} = (2/ 6)\* 100 = 33.33%

ONLY ONE RULES STRONG {I1, I3} => {I2}.This shows that all the above association rules are WEEK if minimum confidence threshold is 70%.