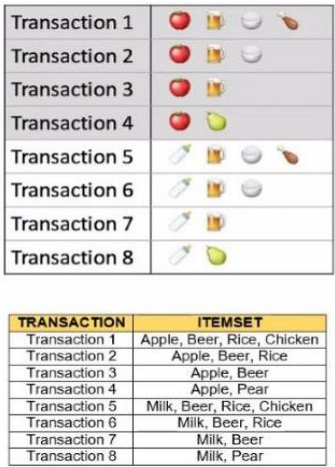
Name: Willie M. Bonavente

BSIT 2-4

**Assignment #8**

Given

|  |  |
| --- | --- |
| **Minimum Support** | **2** |
| **Minimum Confidence** | **50%** |

**GENERATING CANDIDATES AND GETTING SUPPORT COUNT**

**CANDIDATE SET - C1**

|  |  |
| --- | --- |
| Item Set | Support\_Count |
| Apple | 4 |
| Beer | 6 |
| Rice | 4 |
| Chicken | 2 |
| Pear | 2 |
| Milk | 4 |

**L1 (PRUNE)**

|  |  |
| --- | --- |
| Item Set | Support\_Count |
| Apple | 4 |
| Beer | 6 |
| Rice | 4 |
| Chicken | 2 |
| Pear | 2 |
| Milk | 4 |

**CANDIDATE SET - C2**

|  |  |
| --- | --- |
| Item Set | Support\_Count |
| Apple, Beer | 3 |
| Apple, Rice | 2 |
| Apple, Chicken | 1 |
| Apple, Pear | 1 |
| Apple, Milk | 0 |
| Beer, Rice | 4 |
| Beer, Chicken | 2 |
| Beer, Peer | 0 |
| Beer, Milk | 3 |
| Rice, Chicken | 2 |
| Rice, Pear | 0 |
| Rice, Milk | 2 |
| Chicken, Pear | 0 |
| Chicken, Milk, | 1 |
| Pear, Milk | 1 |

**FREQUENT SET - L2 (PRUNE)**

|  |  |
| --- | --- |
| Item Set | Support\_Count |
| Apple, Beer | 3 |
| Apple, Rice | 2 |
| Beer, Rice | 4 |
| Beer, Chicken | 2 |
| Beer, Milk | 3 |
| Rice, Chicken | 2 |

**Candidate Set - C3 (Join)**

|  |  |
| --- | --- |
| Item Set | Support\_Count |
| Apple, Beer, Rice | 2 |
| Apple, Beer, Chicken | 1 |
| Apple, Beer, Milk | 0 |
| Apple, Rice, Chicken | 1 |
| Apple, Chicken, Milk | 0 |
| Apple, Rice, Milk | 0 |
| Beer, Rice, Chicken | 2 |
| Beer, Rice, Milk | 2 |
| Beer, Chicken, Milk | 1 |
| Chicken, Milk, Rice | 1 |

**Frequent Set - L3 (Prune)**

|  |  |
| --- | --- |
| Item Set | Support\_Count |
| Apple, Beer, Rice | 2 |
| Beer, Rice, Chicken | 2 |
| Beer, Rice, Milk | 2 |

**COMPUTING FOR CONFIDENCE**

ITEM SET = [APPLE, BEER, RICE]

|  |  |  |  |
| --- | --- | --- | --- |
| Rules | Support | Confidence | Remarks |
| Apple ^ Beer -> Rice | 2 | =Sup{(Apple ^ Beer) ^ Rice} / sup(Apple ^ Beer)  = 2/3  = 0.667  = **66.67%** | VALID |
| Apple ^ Rice -> Beer | 2 | =Sup{(Apple ^ Rice) ^ Beer} / sup(Apple ^ Rice)  = 2/2  = 1  = **100%** | VALID |
| Beer ^ Rice -> Apple | 2 | =Sup{(Beer ^ Rice) ^ Apple} / sup(Beer ^ Rice)  = 2/4  = 0.5  = **50%** | VALID |
| Apple -> Rice ^ Beer | 2 | = Sup{Apple ^ (Rice ^ Beer)} / sup(Apple)  = 2/4  = 0.5  = **50%** | VALID |
| Beer -> Apple ^ Rice | 2 | = Sup{Beer ^ (Apple ^ Rice)} / sup(Beer)  = 2/6  = 0.3333  = **33.33%** | INVALID |
| Rice -> Apple ^ Beer | 2 | = Sup{Rice ^ (Apple ^ Beer)} / sup(Apple)  = 2/4  = 0.5  = **50%** | VALID |

COMPUTING FOR CONFIDENCE

ITEMS SET = [BEER, RICE, CHICKEN]

|  |  |  |  |
| --- | --- | --- | --- |
| Rules | Support | Confidence | Remarks |
| Beer ^ Rice -> Chicken | 2 | = = Sup{(Beer ^ Rice) ^ Chicken} / sup(Beer ^ Rice)  = 2/4  = 0.5  = **50%** | VALID |
| Beer ^ Chicken -> Rice | 2 | = Sup{(Beer Chicken) ^ Rice} / sup(Beer Chicken)  = 2/2  = 1  = **100%** | VALID |
| Rice ^ Chicken -> Beer | 2 | = Sup{(Rice ^ Chicken) ^ Beer} / sup(Rice ^ Chicken)  = 2/2  = 1  = **100%** | VALID |
| Beer -> Rice ^ Chicken | 2 | = Sup{Beer ^ (Rice Chicken)} / sup(Beer)  = 2/6  = 0.3333  = **33.33%** | INVALID |
| Rice -> Beer ^ Chicken | 2 | = Sup{Rice ^ (Beer^ Chicken)} / sup(Rice)  = 2/4  = 0.5  = **50%** | VALID |
| Chicken -> Rice ^ Beer | 2 | = Sup{Chicken ^ (Rice ^ Beer)} /sup(Chicken)  = 2/2  = 1  = **100%** | VALID |

**COMPUTING FOR CONFIDENCE**

ITEMS SET = [BEER, RICE, MILK]

|  |  |  |  |
| --- | --- | --- | --- |
| Rules | Support | Confidence | Remarks |
| Beer ^ Rice -> Milk | 2 | = Sup{(Beer ^ Rice) ^ Milk} / sup(Beer ^ Rice)  = 2/4  = 0.5  = **50%** | VALID |
| Beer ^ Milk -> Rice | 2 | = Sup{(Beer ^ Milk) ^ Rice} / sup(Beer ^ Milk)  = 2/6  = 0.3333  = **33.33%** | INVALID |
| Rice ^ Milk -> Beer | 2 | = Sup{(Rice ^ Milk) ^ Beer} / sup(Rice ^ Milk)  = 2/2  = 1  = **100%** | VALID |
| Beer -> Rice ^ Milk | 2 | = Sup{Beer ^ (Rice Milk)} / sup(Beer)  = 2/6  = 0.3333  = **33.33%** | INVALID |
| Rice -> Beer ^ Milk | 2 | = Sup{Rice ^ (Beer ^ Milk)} / sup(Rice)  = 2/4  = 0.5  = **50%** | VALID |
| Milk -> Rice ^ Beer | 2 | = Sup{Milk ^ (Rice ^ Beer)} / sup(Milk)  = 2/4  = 0.5  = 50% | VALID |

**COMPUTING FOR LIFT**

ITEMS SET = [APPLE, BEER, RICE]

|  |  |  |  |
| --- | --- | --- | --- |
| Rules | Support | Confidence | Remarks |
| Apple ^ Beer -> Rice | 2 | = Sup{(Apple ^ Beer) ^ Rice} / sup(Apple ^ Beer) \* sup(Rice)  = **1.33** | GREATER THAN 1 |
| Apple ^ Rice -> Beer | 2 | = Sup{(Apple ^ Rice) ^ Beer} / sup(Apple ^ Rice) \* sup(Beer)  = **1.33** | GREATER THAN 1 |
| Beer ^ Rice -> Apple | 2 | = Sup{(Beer ^ Rice) ^ Apple} / sup(Beer^ Rice) \* sup(Apple)  = **1** | EQUALS TO 1 |
| Apple -> Rice ^ Beer | 2 | = Sup{Apple ^ (Beer ^ Rice)} / sup(Apple) \* sup(Beer ^ Rice) = **1** | EQUALS TO 1 |
| Beer -> Apple ^ Rice | 2 | = Sup{Beer ^ (Apple ^ Rice)} / sup(Beer) \* sup(Apple ^ Rice)  = **1.33** | GREATER THAN 1 |
| Rice -> Apple ^ Beer | 2 | = Sup{Rice ^ (Apple ^ Rice)} / sup (Rice) \* sup(Apple ^ Rice)  =**1.33** | GREATER THAN 1 |

**COMPUTING FOR LIFT**

ITEMS SET = [BEER, RICE, MILK]

|  |  |  |  |
| --- | --- | --- | --- |
| Rules | Support | Confidence | Remarks |
| Beer ^ Rice -> Chicken | 2 | = Sup{(Beer ^ Rice) ^ Chicken} / sup(Beer ^ Rice) \* sup (Chicken)  = **2** | GREATER THAN 1 |
| Beer ^ Chicken -> Rice | 2 | Sup{(Beer Chicken) ^ Rice} / sup(Beer Chicken) \* sup(Rice)  = **2** | GREATER THAN 1 |
| Rice ^ Chicken -> Beer | 2 | = Sup{(Rice ^ Chicken) ^ Beer} / sup (Rice Chicken) \* sup(Beer)  = **1.33** | GREATER THAN 1 |
| Beer -> Rice ^ Chicken | 2 | = Sup{Beer ^ (Rice Chicken)} / sup(Beer) \* sup(Rice Chicken) = **1.33** | GREATER THAN 1 |
| Rice -> Beer ^ Chicken | 2 | = Sup{Rice (Beer Chicken)} / sup(Rice) \* sup(Beer Chicken)  = **2** | GREATER THAN 1 |
| Chicken -> Rice ^ Beer | 2 | = Sup{Chicken ^ (Rice^ Beer)} / sup (Chicken) \* sup(Rice Beer)  = **2** | GREATER THAN 1 |

**COMPUTING FOR LIFT**

ITEMS SET = [BEER, RICE, CHICKEN]

|  |  |  |  |
| --- | --- | --- | --- |
| Rules | Support | Confidence | Remarks |
| Beer ^ Rice -> Milk | 2 | = Sup{(Beer ^ Rice) ^ Milk} / sup(Beer ^ Rice) \* sup(Milk)  = **1.33** | GREATER THAN 1 |
| Beer ^ Milk -> Rice | 2 | = Sup{(Beer ^ Milk) ^ Rice} / sup(Beer ^ Milk) \* sup(Rice)  = **1** | EQUALS TO 1 |
| Rice ^ Milk -> Beer | 2 | = Sup{(Rice ^ Milk) ^ Beer} / sup(Rice Milk) \* sup(Beer)  = **1.33** | GREATER THAN 1 |
| Beer -> Rice ^ Milk | 2 | = Sup{Beer ^ (Rice Milk)} / sup(Beer) \* sup(Rice ^ Milk)  = **1.33** | GREATER THAN 1 |
| Rice -> Beer ^ Milk | 2 | = Sup{Rice ^ (Beer ^ Milk)} / sup (Rice) \* sup (Beer ^ Milk)  = **1.33** | GREATER THAN 1 |
| Milk -> Rice ^ Beer | 2 | = Sup{Milk ^ (Rice^ Beer)} / sup(Milk) \* sup (Rice ^ Beer)  = **1** | EQUALS TO 1 |

**FIND THE CONVICTION BASED ON 1 AND 2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **RULES** | **SUPPORT (B)** | **CONFIDENCE** | **LIFT** | **CONVICTION** | **REMARKS** |
|  | Apple, Beer, Rice | | |  |  |
| Apple ^ Beer → Rice |  |  |  |  | **POSITIVE CORRELATION** |
| Apple ^ Rice → Beer |  |  |  |  | **Undefined** |
| Beer ^ Rice → Apple |  |  |  |  | **NO RELATIONSHIP** |
| Apple → Beer ^ Rice |  |  |  |  | **NO RELATIONSHIP** |
| Beer → Apple ^ Rice |  |  |  |  | **POSITIVE CORRELATION** |
| Rice → Apple ^ Beer |  |  |  |  | **POSITIVE CORRELATION** |
|  | Beer, Chicken, Rice | | |  |  |
| Beer ^ Chicken → Rice |  |  |  |  | **Undefined** |
| Beer ^ Rice → Chicken |  |  |  |  | **POSITIVE CORRELATION** |
| Rice ^ Chicken → Beer |  |  |  |  | **Undefined** |
| Beer → Rice ^ Chicken |  |  |  |  | **POSITIVE CORRELATION** |
| Rice → Beer ^ Chicken |  |  |  |  | **POSITIVE CORRELATION** |
| Chicken → Beer ^ Rice |  |  |  |  | **Undefined** |
|  | Beer, Milk, Rice | | |  |  |
| Beer ^ Milk → Rice |  |  |  |  | **POSITIVE CORRELATION** |
| Beer ^ Rice → Milk |  |  |  |  | **NO RELATIONSHIP** |
| Rice ^ Milk → Beer |  |  |  |  | **Undefined** |
| Beer → Rice ^ Milk |  |  |  |  | **POSITIVE CORRELATION** |
| Rice → Beer ^ Milk |  |  |  |  | **POSITIVE CORRELATION** |
| Milk → Beer ^ Rice |  |  |  |  | **NO RELATIONSHIP** |

***9 established rules***.