

Assignment 3 Report

(Apriori algorithm)

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The task was to find the sequential pattern and association rule from the dataset. Dataset was a stream of categorical values establishing the region of interest of a child.

The following were the results and some interesting findings obtained through this algorithm:

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```
>> assignment
Dataset consists of gaze streams with multiple categorical values
Different categories indicate different region of interest
Categories 1-25 are indicated by A -Y
Please provide support threshold value eg. 2 : 2
Please provide confidence threshold value eg. 0.5 : 0.5
The support threshold is: 2
The confidence threshold is: 0.5
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cevent_eye_roi_child_16963.mat
```

```
*** Association rule 2-itemset: F->J with confidence level: 1
"Thus child goes from : " "snowman" "->" "hammer"
```

There is definitively established behaviour pattern for the child. It may have to do with some wrecking the child is doing.

```
Association rejected : J->O with confidence level: 0.17
Association rejected : J->B with confidence level: 0.17
Association rejected : X->Q with confidence level: 0.33
Association rejected : X->V with confidence level: 0.33
Association rejected : R->U with confidence level: 0.29
Association rejected : O->W with confidence level: 0.24
Association rejected : O->U with confidence level: 0.12
Association rejected : O->A with confidence level: 0.18
Association rejected : B->I with confidence level: 0.3
Association rejected : B->E with confidence level: 0.2
Association rejected : M->U with confidence level: 0.3
Association rejected : N->V with confidence level: 0.18
Association rejected : N->E with confidence level: 0.18
Association rejected : Q->V with confidence level: 0.25
Association rejected : H->P with confidence level: 0.4
-----
```

```
Association rejected : FJ->B with confidence level: 0.4
Association rule NOT established for 3-itemsets
```

A definite pattern could NOT emerge. But for some of the time the child tried to go through some game plan involving 3 different items. Maybe the child is of very young age.

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cevent_eye_roi_child_17608.mat

Association rejected : F->R with confidence level: 0.18
Association rejected : F->P with confidence level: 0.18
Association rejected : F->E with confidence level: 0.27
Association rejected : R->G with confidence level: 0.15
Association rejected : R->M with confidence level: 0.15
Association rejected : R->K with confidence level: 0.15
Association rejected : R->J with confidence level: 0.15
Association rejected : Q->O with confidence level: 0.13
Association rejected : Q->M with confidence level: 0.13
Association rejected : Q->J with confidence level: 0.19
Association rejected : Q->A with confidence level: 0.19
Association rejected : O->A with confidence level: 0.32
Association rejected : O->W with confidence level: 0.16

*** Association rule 2-itemset: T->C with confidence level: 0.57
"Thus child goes from : " "whitecar" "->" "bluecar"

This seems like "vroom" "vroom" thing children do when they have two car toys.

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Association rejected : C->J with confidence level: 0.2
Association rejected : C->D with confidence level: 0.2
Association rejected : P->E with confidence level: 0.33
Association rejected : B->J with confidence level: 0.27
Association rejected : V->J with confidence level: 0.25
Association rejected : M->X with confidence level: 0.22
Association rejected : K->U with confidence level: 0.29
Association rejected : X->A with confidence level: 0.33
Association rejected : Y->J with confidence level: 0.44
Association rejected : U->A with confidence level: 0.25
Association rule NOT established for 3-itemsets

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cevent_eye_roi_child_17757.mat

Association rejected : V->W with confidence level: 0.33
Association rejected : U->M with confidence level: 0.33
Association rejected : M->R with confidence level: 0.29
Association rejected : X->J with confidence level: 0.13
Association rejected : X->B with confidence level: 0.13
Association rejected : X->T with confidence level: 0.13
Association rejected : X->O with confidence level: 0.13
Association rejected : J->N with confidence level: 0.15
Association rejected : J->O with confidence level: 0.15
Association rejected : J->L with confidence level: 0.15
Association rejected : R->W with confidence level: 0.29
Association rejected : W->G with confidence level: 0.15
Association rejected : W->T with confidence level: 0.15
Association rejected : W->O with confidence level: 0.15
Association rejected : B->T with confidence level: 0.17

Association rejected : B->Q with confidence level: 0.25
Association rejected : K->L with confidence level: 0.22
Association rejected : I->C with confidence level: 0.5
Association rejected : G->T with confidence level: 0.17
Association rejected : F->T with confidence level: 0.25
Association rejected : F->O with confidence level: 0.25
Association rejected : T->Q with confidence level: 0.17
Association rejected : T->H with confidence level: 0.11
Association rejected : A->H with confidence level: 0.33
Association rule NOT established for 2-itemsets
Association rule NOT established for 3-itemsets

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cevent_eye_roi_child_17782.mat

Association rejected : P->B with confidence level: 0.33

Association rejected : P->O with confidence level: 0.33

*** Association rule 2-itemset: F->O with confidence level: 0.67
"Thus child goes from : " "snowman" "->" "doll"

Association rejected : B->O with confidence level: 0.43
Association rejected : W->H with confidence level: 0.33
Association rejected : W->O with confidence level: 0.33

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*** Association rule 2-itemset: H->O with confidence level: 0.63
"Thus child goes from : " "spongebob" "->" "doll"

Association rejected : O->N with confidence level: 0.083
Association rule NOT established for 3-itemsets

The child is seeing some pattern or relation between these three toys. But plays only with two at a time. Much can be speculated about the child through this behaviour.

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cevent_eye_roi_child_17874.mat

Association rejected : O->C with confidence level: 0.33
Association rejected : O->K with confidence level: 0.33
Association rejected : C->U with confidence level: 0.27
Association rejected : G->Q with confidence level: 0.19
Association rejected : G->B with confidence level: 0.19
Association rejected : G->P with confidence level: 0.25
Association rejected : G->A with confidence level: 0.13
Association rejected : Q->B with confidence level: 0.26
Association rejected : Q->U with confidence level: 0.23
Association rejected : Q->H with confidence level: 0.065
Association rejected : Q->D with confidence level: 0.065
Association rejected : Q->V with confidence level: 0.097

Association rejected : B->E with confidence level: 0.12
Association rejected : B->U with confidence level: 0.24
Association rejected : K->E with confidence level: 0.33
Association rejected : E->U with confidence level: 0.3
Association rejected : S->R with confidence level: 0.4
Association rejected : U->A with confidence level: 0.074
Association rejected : U->H with confidence level: 0.19
Association rejected : J->A with confidence level: 0.2
Association rule NOT established for 2-itemsets
Association rule NOT established for 3-itemsets

In this file, nothing could be established. Maybe the child was super active or high on sugar.

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cevent_eye_roi_child_18796.mat

Association rejected : Q->A with confidence level: 0.29
Association rejected : B->F with confidence level: 0.25
Association rejected : B->T with confidence level: 0.25
Association rejected : F->W with confidence level: 0.14
Association rejected : F->A with confidence level: 0.21
Association rejected : N->V with confidence level: 0.38
Association rejected : W->Y with confidence level: 0.18
Association rejected : W->T with confidence level: 0.18
Association rejected : W->O with confidence level: 0.27
Association rejected : P->Y with confidence level: 0.5
Association rejected : Y->V with confidence level: 0.25
Association rejected : V->J with confidence level: 0.13
Association rejected : V->I with confidence level: 0.13
Association rejected : V->X with confidence level: 0.13
Association rejected : T->O with confidence level: 0.29

*** Association rule 2-itemset: I->A with confidence level: 0.6
"Thus child goes from : " "turtle" "->" "helmet"

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Association rejected : U->K with confidence level: 0.2
Association rejected : O->A with confidence level: 0.2
Association rejected : D->K with confidence level: 0.33

*** Association rule 2-itemset: G->A with confidence level: 0.67
"Thus child goes from : " "rabbit" "->" "helmet"

Association rule NOT established for 3-itemsets

In this file the child plays with rabbit and turtle, & oddly a helmet. It can be speculated that the child remembers some connection between turtle and hare, from the bedtime stories.