

Titanic Dataset (Apriori)

All Rules

Produces a set of 186 rules

Support = 0.01 & Confidence = 0.9

lhs	rhs	support	confidence	li
ft				
1 {Class=2nd, Age=Child}	=> {Survived=Yes}	0.01090413	1.0000000	3.
095640				
2 {Class=1st, Sex=Female}	=> {Survived=Yes}	0.06406179	0.9724138	3.
010243				
3 {Class=2nd, Sex=Male, Age=Adult}	=> {Survived=No}	0.06996820	0.9166667	1.
354083				
4 {Class=1st, Sex=Female, Age=Adult}	=> {Survived=Yes}	0.06360745	0.9722222	3.
009650				

Removing Redundancies

1 {Class=2nd, Age=Child}	=> {Survived=Yes}	0.01090413	1.0000000	3.09
5640				
2 {Class=1st, Sex=Female}	=> {Survived=Yes}	0.06406179	0.9724138	3.01
0243				
3 {Class=2nd, Sex=Male, Age=Adult}	=> {Survived=No}	0.06996820	0.9166667	1.35
4083				

Sorted

1 {Class=2nd, Age=Child}	=> {Survived=Yes}	0.01090413	1.0000000	3.09
5640				
2 {Class=1st, Sex=Female}	=> {Survived=Yes}	0.06406179	0.9724138	3.01
0243				
3 {Class=2nd, Sex=Male, Age=Adult}	=> {Survived=No}	0.06996820	0.9166667	1.35
4083				

Retail Dataset (Apriori)

All Rules

Set of 6108 rules

Support = 0.01 & Confidence = 0.9

Set of 520 rules

**1 - 500 omitted to save space **

501 {Bread, CannedGoods, Dairy, Drink, Fruit, PaperGoods, Vegetable}	=> {PersonalCar}
e} 0.0158 0.9518072 1.644165	
502 {Bread, CannedGoods, Dairy, Drink, FrozenFood, Fruit, Vegetable}	=> {PersonalCar}
e} 0.0314 0.9486405 1.638695	
503 {Bread, Dairy, Drink, FrozenFood, Fruit, PaperGoods, Tobacco}	=> {PersonalCar}
e} 0.0211 0.9590909 1.656747	
504 {Bread, Dairy, Drink, FrozenFood, PaperGoods, Tobacco, Vegetable}	=> {PersonalCar}
e} 0.0216 0.9642857 1.665721	

505 {Dairy,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0232 0.9666667 1.669834	
506 {Bread,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0303 0.9711538 1.677585	
507 {Bread,Dairy,Drink,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0408 0.9691211 1.674073	
508 {Bread,Dairy,Drink,FrozenFood,Fruit,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0459 0.9562500 1.651840	
509 {Bread,Dairy,Drink,FrozenFood,Fruit,PaperGoods,Vegetable}	=> {PersonalCar
e} 0.0232 0.9626556 1.662905	
510 {Bread,Cleaner,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0114 0.9579832 1.654834	
511 {Bread,Cleaner,Dairy,Drink,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0168 0.9655172 1.667848	
512 {Bread,CannedGoods,Dairy,Drink,FrozenFood,Fruit,PaperGoods,Tobacco}	=> {PersonalCar
e} 0.0120 0.9448819 1.632202	
513 {Bread,CannedGoods,Dairy,Drink,FrozenFood,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0124 0.9465649 1.635109	
514 {CannedGoods,Dairy,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0130 0.9489051 1.639152	
515 {Bread,CannedGoods,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0169 0.9602273 1.658710	
516 {Bread,CannedGoods,Dairy,Drink,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0123 0.9461538 1.634399	
517 {Bread,CannedGoods,Dairy,Drink,FrozenFood,Fruit,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0252 0.9473684 1.636498	
518 {Bread,CannedGoods,Dairy,Drink,FrozenFood,Fruit,PaperGoods,Vegetable}	=> {PersonalCar
e} 0.0136 0.9444444 1.631447	
519 {Bread,Dairy,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0191 0.9597990 1.657970	
520 {Bread,CannedGoods,Dairy,Drink,FrozenFood,Fruit,PaperGoods,Tobacco,Vegetable}	=> {PersonalCar
e} 0.0108 0.9391304 1.622267	

Removing Redundancies

lhs	rhs	support	confidence	lift
1 {Drink}	=> {PersonalCare}	0.2921	0.9675389	1.67134

Sorted

lhs	rhs	support	confidence	lift
1 {Drink}	=> {PersonalCare}	0.2921	0.9675389	1.67134

Game of Thrones Dataset (Apriori)

All Rules

Set of 475 rules

Support = 0.01 & Confidence = 0.9

Set of 83 rules

lhs	rhs	support	confidence	li
ft				
1 {House=House Martell}	=> {Survives=1}	0.01199564	0.9166667	1.
373502				
2 {House=House Tyrell}	=> {Survives=1}	0.01090513	0.9090909	1.
362151				
3 {House=Tyrell}	=> {Survives=1}	0.01526718	0.9333333	1.
398475				
4 {House=Martell}	=> {Survives=1}	0.02508179	0.9200000	1.
378497				
5 {House=House Martell,Book4}	=> {Survives=1}	0.01199564	1.0000000	1.
498366				
6 {House=Targaryen,Book5}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
7 {House=Tyrell,Book4}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
8 {House=Tyrell,Nobility}	=> {Survives=1}	0.01526718	0.9333333	1.
398475				
9 {House=Arryn,Book4}	=> {Survives=1}	0.01635769	0.9375000	1.
404718				
10 {House=Arryn,Nobility}	=> {Survives=1}	0.01853871	0.9444444	1.
415123				

11 {House=Martell,Book3} 498366	=> {Survives=1} 0.01526718 1.0000000 1.
12 {House=Martell,Nobility} 423448	=> {Survives=1} 0.02071974 0.9500000 1.
13 {House=Greyjoy,Book4} 383107	=> {Survives=1} 0.03925845 0.9230769 1.
14 {House=Stark,Gender=F} 355664	=> {Survives=1} 0.02071974 0.9047619 1.
15 {House=Stark,Book5} 498366	=> {Survives=1} 0.02944384 1.0000000 1.
16 {House=Lannister,Book4} 391340	=> {Survives=1} 0.04252999 0.9285714 1.
17 {House=Lannister,Book5} 498366	=> {Survives=1} 0.01199564 1.0000000 1.
18 {Gender=F,Book4} 437208	=> {Survives=1} 0.05125409 0.9591837 1.
19 {Nobility,Book4} 376050	=> {Survives=1} 0.14721919 0.9183673 1.
20 {House=Targaryen,Gender=M,Book5} 373502	=> {Survives=1} 0.01199564 0.9166667 1.
21 {House=Tyrell,Nobility,Book4} 383107	=> {Survives=1} 0.01308615 0.9230769 1.
22 {House=Arryn,Nobility,Book4} 498366	=> {Survives=1} 0.01308615 1.0000000 1.
23 {House=Arryn,Gender=M,Book4} 383107	=> {Survives=1} 0.01308615 0.9230769 1.
24 {House=Arryn,Gender=M,Nobility} 404718	=> {Survives=1} 0.01635769 0.9375000 1.
25 {House=Martell,Nobility,Book3} 498366	=> {Survives=1} 0.01308615 1.0000000 1.
26 {House=Martell,Gender=M,Book3} 498366	=> {Survives=1} 0.01090513 1.0000000 1.
27 {House=Martell,Gender=M,Nobility} 398475	=> {Survives=1} 0.01526718 0.9333333 1.
28 {House=Greyjoy,Nobility,Book4} 395030	=> {Survives=1} 0.02944384 0.9310345 1.
29 {House=Greyjoy,Gender=M,Book4} 369935	=> {Survives=1} 0.03489640 0.9142857 1.
30 {House=Stark,Gender=F,Book5} 498366	=> {Survives=1} 0.01090513 1.0000000 1.
31 {House=Stark,Gender=F,Book3} 362151	=> {Survives=1} 0.01090513 0.9090909 1.
32 {House=Stark,Nobility,Book5} 498366	=> {Survives=1} 0.02835333 1.0000000 1.
33 {House=Stark,Gender=M,Book5} 498366	=> {Survives=1} 0.01853871 1.0000000 1.
34 {House=Lannister,Book3,Book4} 427015	=> {Survives=1} 0.02181025 0.9523810 1.
35 {House=Lannister,Nobility,Book4} 376877	=> {Survives=1} 0.03707743 0.9189189 1.
36 {House=Lannister,Gender=M,Book4} 415123	=> {Survives=1} 0.03707743 0.9444444 1.
37 {House=Lannister,Gender=M,Book5} 498366	=> {Survives=1} 0.01090513 1.0000000 1.
38 {House=Night's Watch,Book1,Book5} 498366	=> {Survives=1} 0.01308615 1.0000000 1.
39 {House=None,Gender=F,Nobility} 427015	=> {Survives=1} 0.02181025 0.9523810 1.
40 {Gender=F,Book4,Book5} 498366	=> {Survives=1} 0.01199564 1.0000000 1.
41 {Gender=F,Book2,Book4} 362151	=> {Survives=1} 0.01090513 0.9090909 1.
42 {Gender=F,Book3,Book4} 498366	=> {Survives=1} 0.02071974 1.0000000 1.
43 {Gender=F,Nobility,Book4} 455556	=> {Survives=1} 0.03707743 0.9714286 1.
44 {Gender=F,Book3,Book5} 423448	=> {Survives=1} 0.02071974 0.9500000 1.
45 {Gender=F,Nobility,Book5} 448420	=> {Survives=1} 0.03162486 0.9666667 1.
46 {Book2,Book4,Book5} 373502	=> {Survives=1} 0.02399128 0.9166667 1.
47 {Nobility,Book4,Book5} 440737	=> {Survives=1} 0.02726281 0.9615385 1.
48 {Gender=M,Nobility,Book4} 351205	=> {Survives=1} 0.11014177 0.9017857 1.
49 {Book1,Book3,Book5} 352184	=> {Survives=1} 0.04034896 0.9024390 1.
50 {House=Arryn,Gender=M,Nobility,Book4} 498366	=> {Survives=1} 0.01090513 1.0000000 1.

51 {House=Greyjoy,Gender=M,Nobility,Book4}	=> {Survives=1}	0.02726281	0.9259259	1.
387376				
52 {House=Stark,Gender=F,Nobility,Book5}	=> {Survives=1}	0.01090513	1.0000000	1.
498366				
53 {House=Stark,Gender=M,Nobility,Book5}	=> {Survives=1}	0.01744820	1.0000000	1.
498366				
54 {House=Lannister,Book2,Book3,Book4}	=> {Survives=1}	0.01635769	0.9375000	1.
404718				
55 {House=Lannister,Gender=M,Book2,Book4}	=> {Survives=1}	0.01962923	0.9000000	1.
348529				
56 {House=Lannister,Nobility,Book3,Book4}	=> {Survives=1}	0.01853871	0.9444444	1.
415123				
57 {House=Lannister,Gender=M,Book3,Book4}	=> {Survives=1}	0.01962923	0.9473684	1.
419505				
58 {House=Lannister,Gender=M,Nobility,Book4}	=> {Survives=1}	0.03162486	0.9354839	1.
401697				
59 {House=Lannister,Gender=M,Nobility,Book3}	=> {Survives=1}	0.02508179	0.9200000	1.
378497				
60 {House=Night's Watch,Book1,Book3,Book5}	=> {Survives=1}	0.01308615	1.0000000	1.
498366				
61 {House=Night's Watch,Gender=M,Book1,Book5}	=> {Survives=1}	0.01308615	1.0000000	1.
498366				
62 {House=None,Gender=F,Nobility,Book3}	=> {Survives=1}	0.01417666	0.9285714	1.
391340				
63 {Gender=F,Nobility,Book3,Book4}	=> {Survives=1}	0.01962923	1.0000000	1.
498366				
64 {Gender=F,Book2,Book3,Book5}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
65 {Gender=F,Nobility,Book3,Book5}	=> {Survives=1}	0.01199564	0.9166667	1.
373502				
66 {Nobility,Book1,Book4,Book5}	=> {Survives=1}	0.01090513	0.9090909	1.
362151				
67 {Nobility,Book2,Book4,Book5}	=> {Survives=1}	0.01744820	0.9411765	1.
410227				
68 {Nobility,Book3,Book4,Book5}	=> {Survives=1}	0.01417666	0.9285714	1.
391340				
69 {Gender=M,Nobility,Book4,Book5}	=> {Survives=1}	0.01744820	0.9411765	1.
410227				
70 {Nobility,Book2,Book3,Book4}	=> {Survives=1}	0.03598691	0.9166667	1.
373502				
71 {Gender=M,Book1,Book3,Book5}	=> {Survives=1}	0.03380589	0.9117647	1.
366157				
72 {House=Lannister,Nobility,Book2,Book3,Book4}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
73 {House=Lannister,Gender=M,Book2,Book3,Book4}	=> {Survives=1}	0.01635769	0.9375000	1.
404718				
74 {House=Lannister,Gender=M,Nobility,Book3,Book4}	=> {Survives=1}	0.01635769	0.9375000	1.
404718				
75 {House=Night's Watch,Gender=M,Book1,Book3,Book5}	=> {Survives=1}	0.01308615	1.0000000	1.
498366				
76 {Nobility,Book1,Book2,Book4,Book5}	=> {Survives=1}	0.01090513	0.9090909	1.
362151				
77 {Nobility,Book1,Book3,Book4,Book5}	=> {Survives=1}	0.01090513	0.9090909	1.
362151				
78 {Nobility,Book2,Book3,Book4,Book5}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
79 {Gender=M,Nobility,Book2,Book4,Book5}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
80 {Gender=M,Nobility,Book3,Book4,Book5}	=> {Survives=1}	0.01090513	0.9090909	1.
362151				
81 {Gender=M,Nobility,Book2,Book3,Book4}	=> {Survives=1}	0.02944384	0.9000000	1.
348529				
82 {House=Lannister,Gender=M,Nobility,Book2,Book3,Book4}	=> {Survives=1}	0.01308615	0.9230769	1.
383107				
83 {Nobility,Book1,Book2,Book3,Book4,Book5}	=> {Survives=1}	0.01090513	0.9090909	1.
362151				

Removing Redundancies

Set of 21 rules

lhs	rhs	support	confidence	lift
1 {House=House Martell}	=> {Survives=1}	0.01199564	0.9166667	1.373502
2 {House=House Tyrell}	=> {Survives=1}	0.01090513	0.9090909	1.362151
3 {House=Tyrell}	=> {Survives=1}	0.01526718	0.9333333	1.398475
4 {House=Martell}	=> {Survives=1}	0.02508179	0.9200000	1.378497
6 {House=Targaryen,Book5}	=> {Survives=1}	0.01308615	0.9230769	1.383107
9 {House=Arryn,Book4}	=> {Survives=1}	0.01635769	0.9375000	1.404718

10 {House=Arryn,Nobility}	=> {Survives=1}	0.01853871	0.9444444	1.415123
13 {House=Greyjoy,Book4}	=> {Survives=1}	0.03925845	0.9230769	1.383107
14 {House=Stark,Gender=F}	=> {Survives=1}	0.02071974	0.9047619	1.355664
15 {House=Stark,Book5}	=> {Survives=1}	0.02944384	1.0000000	1.498366
16 {House=Lannister,Book4}	=> {Survives=1}	0.04252999	0.9285714	1.391340
17 {House=Lannister,Book5}	=> {Survives=1}	0.01199564	1.0000000	1.498366
18 {Gender=F,Book4}	=> {Survives=1}	0.05125409	0.9591837	1.437208
19 {Nobility,Book4}	=> {Survives=1}	0.14721919	0.9183673	1.376050
38 {House=Night's Watch,Book1,Book5}	=> {Survives=1}	0.01308615	1.0000000	1.498366
39 {House=None,Gender=F,Nobility}	=> {Survives=1}	0.02181025	0.9523810	1.427015
44 {Gender=F,Book3,Book5}	=> {Survives=1}	0.02071974	0.9500000	1.423448
45 {Gender=F,Nobility,Book5}	=> {Survives=1}	0.03162486	0.9666667	1.448420
46 {Book2,Book4,Book5}	=> {Survives=1}	0.02399128	0.9166667	1.373502
49 {Book1,Book3,Book5}	=> {Survives=1}	0.04034896	0.9024390	1.352184
59 {House=Lannister,Gender=M,Nobility,Book3}	=> {Survives=1}	0.02508179	0.9200000	1.378497

Sorted

Set of 21 rules

lhs	rhs	support	confidence	lift
15 {House=Stark,Book5}	=> {Survives=1}	0.02944384	1.0000000	1.498366
17 {House=Lannister,Book5}	=> {Survives=1}	0.01199564	1.0000000	1.498366
38 {House=Night's Watch,Book1,Book5}	=> {Survives=1}	0.01308615	1.0000000	1.498366
45 {Gender=F,Nobility,Book5}	=> {Survives=1}	0.03162486	0.9666667	1.448420
18 {Gender=F,Book4}	=> {Survives=1}	0.05125409	0.9591837	1.437208
39 {House=None,Gender=F,Nobility}	=> {Survives=1}	0.02181025	0.9523810	1.427015
44 {Gender=F,Book3,Book5}	=> {Survives=1}	0.02071974	0.9500000	1.423448
10 {House=Arryn,Nobility}	=> {Survives=1}	0.01853871	0.9444444	1.415123
9 {House=Arryn,Book4}	=> {Survives=1}	0.01635769	0.9375000	1.404718
3 {House=Tyrell}	=> {Survives=1}	0.01526718	0.9333333	1.398475
16 {House=Lannister,Book4}	=> {Survives=1}	0.04252999	0.9285714	1.391340
6 {House=Targaryen,Book5}	=> {Survives=1}	0.01308615	0.9230769	1.383107
13 {House=Greyjoy,Book4}	=> {Survives=1}	0.03925845	0.9230769	1.383107
4 {House=Martell}	=> {Survives=1}	0.02508179	0.9200000	1.378497
59 {House=Lannister,Gender=M,Nobility,Book3}	=> {Survives=1}	0.02508179	0.9200000	1.378497
19 {Nobility,Book4}	=> {Survives=1}	0.14721919	0.9183673	1.376050
1 {House=House Martell}	=> {Survives=1}	0.01199564	0.9166667	1.373502
46 {Book2,Book4,Book5}	=> {Survives=1}	0.02399128	0.9166667	1.373502
2 {House=House Tyrell}	=> {Survives=1}	0.01090513	0.9090909	1.362151
14 {House=Stark,Gender=F}	=> {Survives=1}	0.02071974	0.9047619	1.355664
49 {Book1,Book3,Book5}	=> {Survives=1}	0.04034896	0.9024390	1.352184

Nobility does not play a role in survival as there are only 5 rules (23.8% chance) that account for nobility leading to survival. Gender also does not play a rule in survival as there are only 6 (28.5% chance) rules that account for gender leading to survival. No rules state that Jon Snow should not live as he is part of the Night's Watch and is in Books 1-5. The rule {House=Night's Watch, Book1, Book5} states that he survives with a high enough lift value. Arya Stark is of House Stark , a Female, exists in all the Books (1-5); the rules {House Stark, Book 5} and {House Stark, Gender = F} both apply to her and signifies that she does survive.