

## CSC 466 Lab 2 Report: Association Rules Mining

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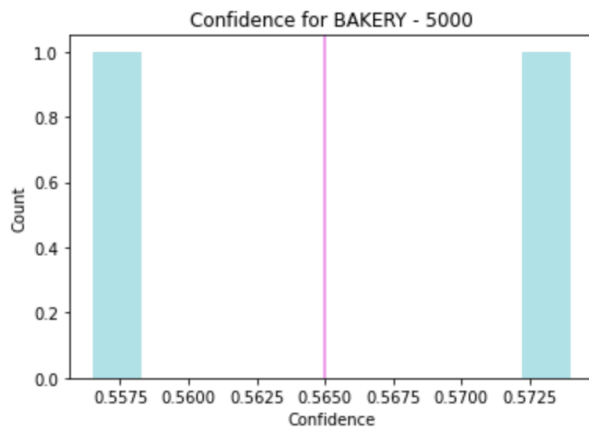
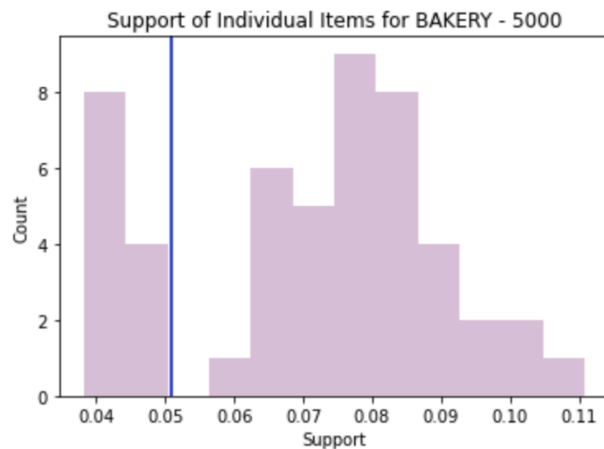
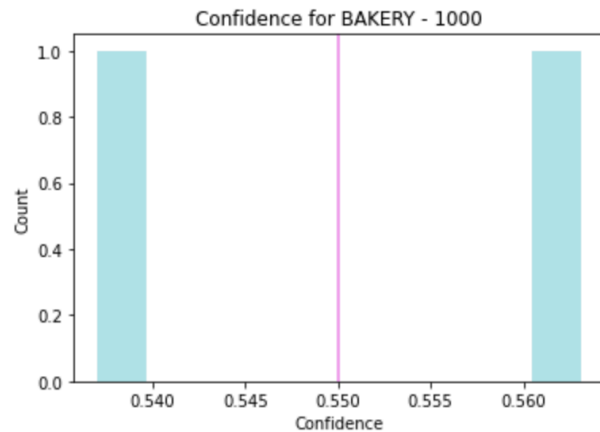
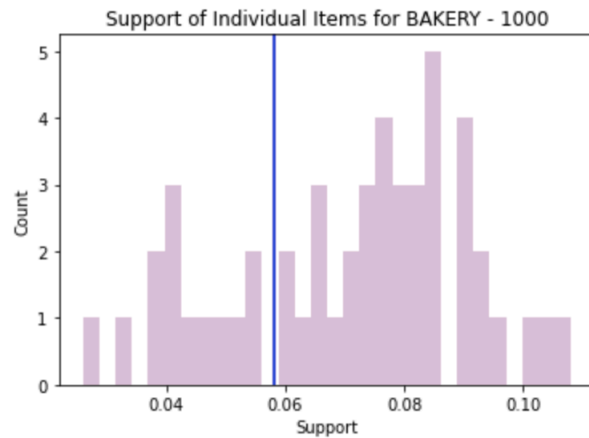
Kirina Sirohi, [kasirohi@calpoly.edu](mailto:kasirohi@calpoly.edu)

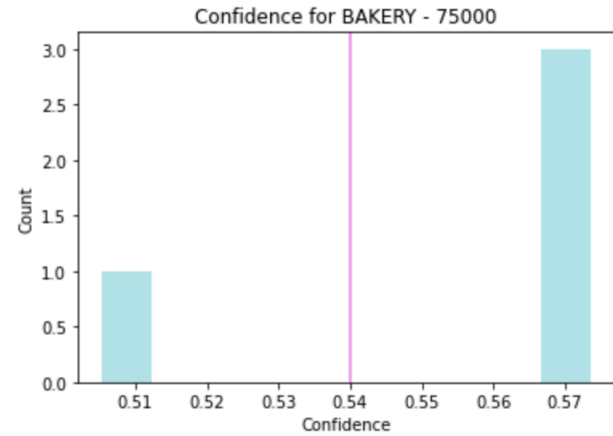
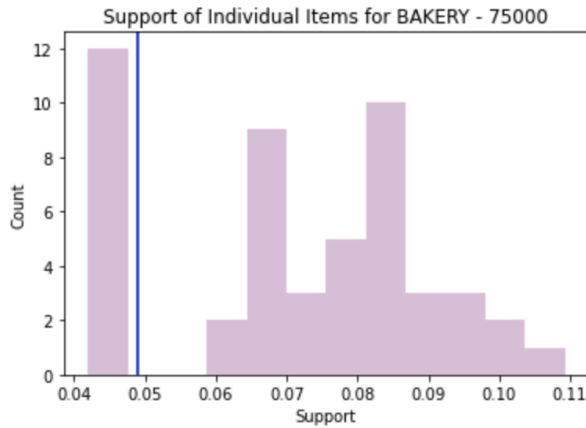
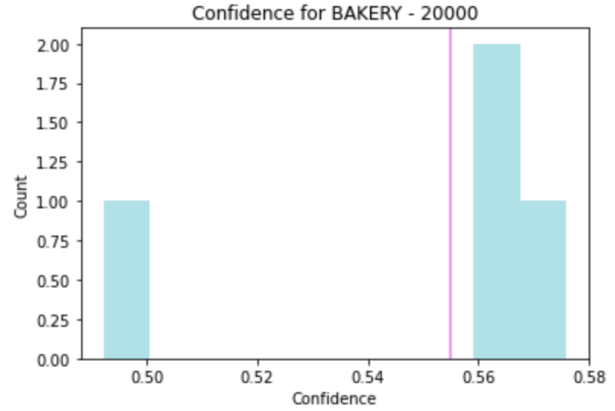
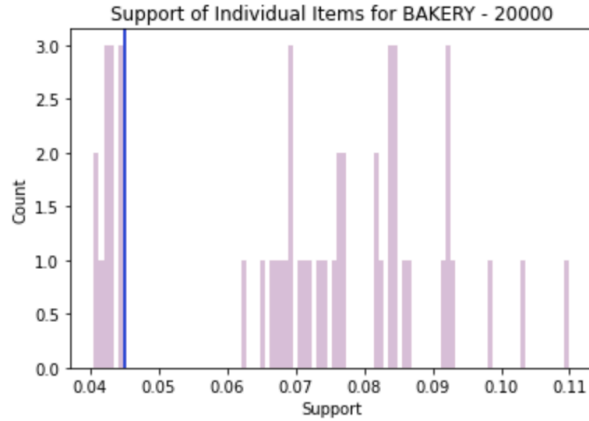
Dr. Alexander Dekhtyar

CSC 466: Knowledge Discovery from Data

### Minimum Support and Minimum Confidence Procedures

To find the optimal minimum support and minimum confidence parameters, we mostly looked at histograms and averages. For the minimum support, we created a histogram of the individual item supports and tried to find an area where there was a clean break and set that as our minimum support. To find the minimum confidence, we used our minimum support after determining it like we described above, and then initially set our confidence level to zero in order to view all of the association rules. From that, we plotted a histogram of all the confidences of all the association rules, and then found an area where there was a clean break and set that as our minimum confidence.





### Minimum Support and Minimum Confidence Parameters for Bakery Datasets

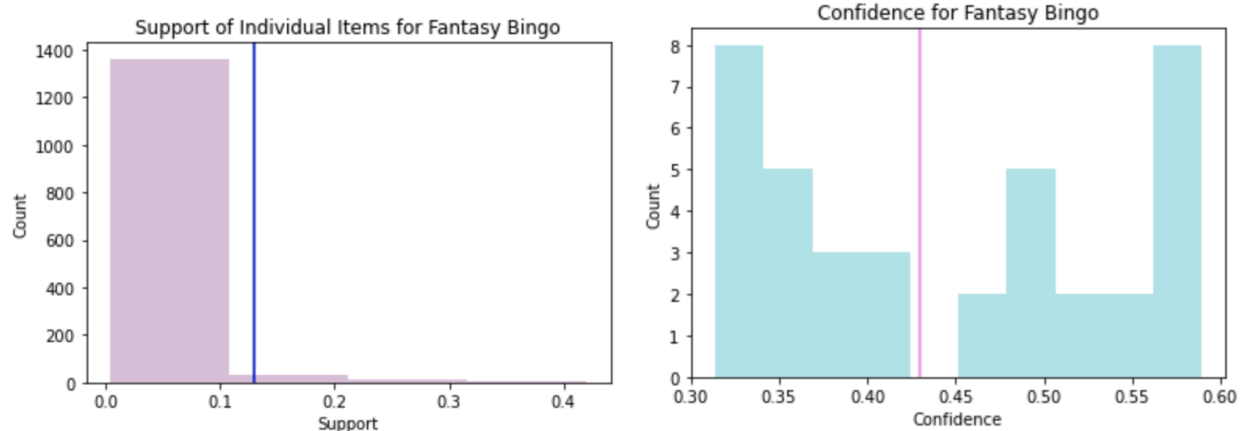
Dataset	Minimum Support Value	Minimum Confidence Value	Total Number of Skyline Association Rules Induced
Bakery - 1000	0.058	0.55	9
Bakery - 5000	0.051	0.565	9
Bakery - 20000	0.045	0.055	9
Bakery - 75000	0.049	0.54	10

### Skyline Association Rules for Bakery - 75000 Dataset

- 'Addison, Katherine / Monette, Sarah -> Bancroft, Josiah, Support: 0.13991769547325103, Confidence: 0.5666666666666667'

2. 'Addison, Katherine / Monette, Sarah -> Sanderson, Brandon, Support: 0.1440329218106996, Confidence: 0.5833333333333334'
3. 'Lawrence, Mark -> Bancroft, Josiah, Support: 0.1728395061728395, Confidence: 0.56'
4. 'Novik, Naomi -> Bancroft, Josiah, Support: 0.1440329218106996, Confidence: 0.546875'
5. 'Pratchett, Terry -> Bancroft, Josiah, Support: 0.1646090534979424, Confidence: 0.5882352941176471'
6. 'Sullivan, Michael J. -> Bancroft, Josiah, Support: 0.13580246913580246, Confidence: 0.5892857142857142'
7. 'Gaiman, Neil -> Sanderson, Brandon, Support: 0.1522633744855967, Confidence: 0.5692307692307692'
8. 'Novik, Naomi -> Sanderson, Brandon, Support: 0.14814814814814814, Confidence: 0.5624999999999999'
9. 'Rowe, Andrew -> Sanderson, Brandon, Support: 0.13991769547325103, Confidence: 0.576271186440678'
10. 'Sullivan, Michael J. -> Sanderson, Brandon, Support: 0.13168724279835392, Confidence: 0.5714285714285715'

### Minimum Support and Minimum Confidence Parameters for Fantasy Bingo Dataset



Dataset	Minimum Support Value	Minimum Confidence Value	Total Number of Skyline Association Rules Induced
Fantasy Bingo	0.13	0.43	19

### Skyline Frequent Itemsets for Fantasy Bingo Dataset

1. "[ Aaron, Rachel / Bach, Rachel]", Support: 0.2345679012345679"
2. "[ Abercrombie, Joe]", Support: 0.18106995884773663"
3. "[ Addison, Katherine / Monette, Sarah]", Support: 0.24691358024691357"
4. "[ Arden, Katherine]", Support: 0.205761316872428"
5. "[ Ball, Krista D. / Ball, K.]", Support: 0.20164609053497942"
6. "[ Bancroft, Josiah]", Support: 0.4156378600823045"
7. "[ Brennan, Marie]", Support: 0.2757201646090535"
8. "[ Butcher, Jim]", Support: 0.16049382716049382"
9. "[ Chambers, Becky]", Support: 0.205761316872428"
10. "[ Eames, Nicholas]", Support: 0.26337448559670784"
11. "[ Gaiman, Neil]", Support: 0.2674897119341564"
12. "[ Gladstone, Max]", Support: 0.18106995884773663"
13. "[ Hawkins, Scott]", Support: 0.13991769547325103"
14. "[ Hobb, Robin / Lindholm, Megan]", Support: 0.2839506172839506"
15. "[ Hurley, Kameron]", Support: 0.13580246913580246"
16. "[ Jemisin, N. K.]", Support: 0.36213991769547327"
17. "[ Kay, Guy Gavriel]", Support: 0.13580246913580246"
18. "[ King, Stephen]", Support: 0.18106995884773663"
19. "[ Lawrence, Mark]", Support: 0.30864197530864196"
20. "[ Le Guin, Ursula K.]", Support: 0.2345679012345679"
21. "[ Lynch, Scott]", Support: 0.19753086419753085"
22. "[ McClellan, Brian]", Support: 0.1728395061728395"
23. "[ McGuire, Seanan / Grant, Mira]", Support: 0.13991769547325103"
24. "[ Mieville, China]", Support: 0.25925925925925924"
25. "[ North, Claire / Webb, Catherine / Griffin, Kate]", Support: 0.14814814814814814"
26. "[ Novik, Naomi]", Support: 0.26337448559670784"
27. "[ Pratchett, Terry]", Support: 0.27983539094650206"
28. "[ Rowe, Andrew]", Support: 0.24279835390946503"
29. "[ Sanderson, Brandon]", Support: 0.41975308641975306"
30. "[ Schafer, Courtney]", Support: 0.16049382716049382"
31. "[ Schwab, V. E. / Schwab, Victoria]", Support: 0.13991769547325103"
32. "[ Sullivan, Michael J.]", Support: 0.23045267489711935"
33. "[ Valente, Catherynne M.]", Support: 0.205761316872428"
34. "[ VanderMeer, Jeff]", Support: 0.2345679012345679"
35. "[ Willis, Connie]", Support: 0.1440329218106996"
36. "[ Wurts, Janny]", Support: 0.13580246913580246"
37. "[ Zelazny, Roger]", Support: 0.13580246913580246"

### Skyline Association Rules for Fantasy Bingo Dataset

1. 'Addison, Katherine / Monette, Sarah -> Bancroft, Josiah, Support: 0.13991769547325103, Confidence: 0.5666666666666667'
2. 'Addison, Katherine / Monette, Sarah -> Sanderson, Brandon, Support: 0.1440329218106996, Confidence: 0.5833333333333334'
3. 'Eames, Nicholas -> Bancroft, Josiah, Support: 0.13991769547325103, Confidence: 0.53125'
4. 'Gaiman, Neil -> Bancroft, Josiah, Support: 0.13168724279835392, Confidence: 0.49230769230769234'
5. 'Hobb, Robin / Lindholm, Megan -> Bancroft, Josiah, Support: 0.13168724279835392, Confidence: 0.46376811594202905'
6. 'Lawrence, Mark -> Bancroft, Josiah, Support: 0.1728395061728395, Confidence: 0.56'
7. 'Novik, Naomi -> Bancroft, Josiah, Support: 0.1440329218106996, Confidence: 0.546875'
8. 'Pratchett, Terry -> Bancroft, Josiah, Support: 0.1646090534979424, Confidence: 0.5882352941176471'
9. 'Sanderson, Brandon -> Bancroft, Josiah, Support: 0.205761316872428, Confidence: 0.4901960784313726'
10. 'Bancroft, Josiah -> Sanderson, Brandon, Support: 0.205761316872428, Confidence: 0.49504950495049505'
11. 'Sullivan, Michael J. -> Bancroft, Josiah, Support: 0.13580246913580246, Confidence: 0.5892857142857142'
12. 'Brennan, Marie -> Jemisin, N. K., Support: 0.13580246913580246, Confidence: 0.49253731343283574'
13. 'Gaiman, Neil -> Sanderson, Brandon Support: 0.1522633744855967, Confidence: 0.5692307692307692'
14. 'Jemisin, N. K. -> Sanderson, Brandon Support: 0.16872427983539096, Confidence: 0.46590909090909094'
15. 'Lawrence, Mark -> Sanderson, Brandon Support: 0.16049382716049382, Confidence: 0.52'
16. 'Novik, Naomi -> Sanderson, Brandon, Support: 0.14814814814814814, Confidence: 0.5624999999999999'
17. 'Pratchett, Terry -> Sanderson, Brandon, Support: 0.13991769547325103, Confidence: 0.5'
18. 'Rowe, Andrew -> Sanderson, Brandon, Support: 0.13991769547325103, Confidence: 0.576271186440678'
19. 'Sullivan, Michael J. -> Sanderson, Brandon, Support: 0.13168724279835392, Confidence: 0.5714285714285715'