Assignment #12 Association Rules by Joshua Troup

**Q1: Consider the results of the association rules analysis. What does first rule (first row) indicate?**

Rule1 shows if brushes are purchased, then a nail polish will also be purchased with a 100% confidence and a lift ratio of 3.57 which is very likely.

**Q2: For the first row/rule, explain the “Support for A,” “Support for C,” and “Support for A & C”**

**output. Share your insights.**

Support for A indicates 149 purchases or transactions of brushes. Support for C shows 280 purchases or transactions of nail polish. Support for A&C shows 149 purchases or transactions of nail polish and brushes.

**Q3: For the first Rule/row, explain the “Lift Ratio”. Is there an association? Comment.**

The first rule indicates a 100% confidence level with a 3.57% lift level which is considered useful. Lift is greater than 1 so the result is an association and a greater chance item Y is likely to be bought if item x is bought.

**Q4: Interpret the first three rules in the output in words.**

The first rule has a confidence level of 100% and a 3.57% lift ratio indicating it is highly likely brushes will be bought with nail polish. Rule 1 also has a 15% support for both items being purchased. Rule 2 has a confidence level 53% with a lift ratio 3.57% indicating it a good chance of nail polish being bought together with brushes. Rule 2 also has a 15% support for both items being purchased. Rule 3 has a confidence level of 65% with a 3.24% lift level indicating the probability mascara & eyeliner will be purchased together with concealer & eye shadow. Rule 3 also has a 11% support for both items being purchased. All three of these items would be beneficial to the company to promote sales and maximize sales. Location of these items should be beside on the same level as A.

**Q5: Reviewing the first 14 rules, comment on their redundancy and how you would assess their**

**utility.**

The first 14 rules come in pairs that are mirror images of one another. Rule 1 & 2 or basically the same and considered mirror images. Rules 3-10 can be used in a general offer or special covering the 5 products: eyeliner, mascara, concealer, eyeshadow, and blush. Rule 11-14 can be used in a general offer to include lip gloss, eyeshadow, foundation and mascara.