Product Recommendations for India's Largest Grocery Store's Mobile App

Situation: Bigbasket is India's largest online grocery and food store established in 2011 by a group of entrepreneurs Hari Menon, Vipul Parekh, V S Ramesh, V S Sudhakar, and Abhinay Choudhari. In 2016, Bigbasket sold more than 18,000 products and 1,000 brands operating across 12 Indian cities. India is among the top-10 food and grocery markets in the world, with an estimated size of approximately USD 350 billion, and the online (especially mobile) channel is growing fast, especially due to COVID. Note that 30% of Bigbasket customers place orders through smart phones.

Complication: Bigbasket is trying to solve a problem frequently encountered by customers of online grocery stores. Unlike other e-commerce companies such as Amazon, Bigbasket customers place orders for several products in a single order, sometimes as high as 80 products in one order depending on their purchase frequency. It is common that customers forget to order few grocery items which may result either in placing additional orders or customers purchasing those products from neighborhood stores resulting in a financial loss to online grocery stores.

Key question: Can we use analytics to create a smart basket enabled by a "Did you forget?" feature that would identify the items the customer may have forgotten to order.

Solution approach: Use association rules mining to find products that are co-purchased, and use this to recommend products at the time of purchase/just before check-out.

Deck: Association rule mining

Dataset[1]: BigBasket Data IMB575-XLS-ENG (Excel file). This is classic point-of-sale data. Each transaction spills over into multiple rows, where each row represents a singular item. We have to do some data engineering to convert this to a 'transaction' object that can then be used by the apriori algorithm to mine for the association rules

R Code: smartBasket-AssociationRulesMining (R file)

Discussion questions from analysis::

1. Which of the many rules should we use? How to decide this?

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2. How will these rules be integrated into the app?
3. How will we know this creates business value?