Problem 3:

* 350 franchises.
* 80,000 members. Addition across members and special events worksheet (300 per year per franchise, of which 200 use this. 150 unique customers per special event worksheet).
* 500 merchandises.
* 5,50,000 Addition across service purchase rows and contain rows
* 60,000 Special events purchases, for corporate and other organizations.
* 6,10,000 Total purchases.
* Sparsity estimate = (1 – (6,10,100 / (350 \* 500 \* 365 \* 80,000))) = 0.99999988062622