

Question 3:

Grain:

80,000: Sum of unique customers in database and spreadsheets of all franchises

500: Merchandise rows

30,200: Sum of special events per year and service categories

Days per year: 365

600,000: Sales rows per year

160,000: Sum of service purchases and special events per year

Sparsity estimate:

Formula: $1 - (\text{fact table size} / \text{product of dimensions})$

SalesFact: $= 1 - (600,000 / 80,000 * 50 * 365)$

$= 0.99995890411$

ServPurchFact: $= 1 - (160,000 / 30,200 * 365 * 80,000)$

$= 0.99999981856$

Most of the values in both fact tables are missing, with less than 1% non zero values.