**3.**

**Identify the grain in your dimensional design using the business needs as a guideline. You should then indicate relative storage requirements for the grain using the statistics for the data sources. Using the cardinality estimates provided, you should determine either the fact table size or sparsity and then compute the unknown grain size variable. For example, you should compute sparsity if the fact table size is given.**

50150 members: Members from ERD and unique members from spreadsheet

9100000 \* 50000 purchases per year: Purchases in ERD and and total purchases for all events in spreadsheet

150000 sales per year

550 franchises: Franchises in ERD and spreadsheet

365 days per year

Fact table size is determined as the total of purchases

Sparsity is determined as

1 - (91000000\*50000) / (550\*365\*150000\*50150) = 0.997

The data cube has mostly missing cells as < 1% of the cells are non-empty or non-zero.