Today’s class: Data Cubes, early paper¹; §§ 10.6,7.
Next class: synthesis and review, XSLT; § 12.3.

1. List the members of your group below. Underline your name.

2. If $F$ is a fact table, what are lower and upper bounds on the ratio $|\text{cube}(F)|/|F|$? Explain.

3. Define a view $\text{SalesA}$ that presents the data from $\text{Sales}$ aggregated in the manner suggested by the first two paragraphs of Example 10.31.

4. Is it possible to create a view that is equivalent to the view $\text{SalesCube}$ of Example 10.32 without using any data-cube features of SQL (such as with cube)?

5. The abstract refers to SQL aggregation queries producing zero- or one-dimensional aggregates. Is there a simple test to determine which? Explain.

6. Explain the comment on “creating $2^N$ aggregation columns” (bottom of page 34) in the context of the example of Table 3. Generalize.

7. Explain how to produce a spreadsheet table analogous to Table 4 using LibreOffice Calc.

8. Depict a likely mapping of the query of page 36 to logical and physical plans. Later, compare your work with the plans generated by PostgreSQL.

9. Provide a precise description of the query mentioned in the penultimate paragraph of Section 2 (page 38).

10. Devise and perform experiments to evaluate the claims made in the last paragraph of Section 2 on a current SQL implementation.