1. How can cubes in general be calculated efficiently? What is an Iceberg-Cube?

2. Describe briefly the OLAP functions defined in SQL:2003 from our lecture.

3. Formulate the following SQL queries with the given star-schema-script on the website:

   (a) Compute the variance of the monthly salaries between 2008 and 2010 for each product group (Produktgruppe).

   (b) Compute the salary of products of the product group beer (bier) along the states (Bundesland) of the shop (Filiale) dimension and the months of the time dimension. Formulate the query once using the CUBE-operator and another time using the ROLLUP-operator, as well as without them.

   (c) Determine the 10 products that were sold the most for each state (Bundesland).

   (d) Compute the fraction of each state on the overall sales for each product group in 2010.