

Exercises for DW & DM

Sheet 7 (until 28.05.2008)

Please note that you need **50%** of all exercise points to be admitted for the final exams. Exercises have to be turned in until **Thursday** before the next lecture and should be completed in teams of two students each. Write both names and “Matrikelnummer” on each page. If you have multiple pages, staple them together! Please hand in your solutions on **paper** into the mailbox at the IFIS floor or to our secretary (Mühlenpfordtstraße 23, 2nd floor). You may answer in either German or English.

Exercise 1 (5P)

1. Consider a client table as in Annex 1. Knowing that most of the queries project only the birth date, income and zip code, how would you partition the client table? Please draw the physically partitioned table. (3P)
2. What are mini-dimensions, and how are they useful? (2P)

Exercise 2 (7P)

1. In which cases, is using a cross product a good idea in optimizing star-joins? (1P)
2. Draw the “list of tuple IDs” table, after applying the semi-join technique as explained in the lecture, which corresponds to the tables and the tree in Annex 2. (3P)
3. With the previously calculated “list of tuple IDs”, draw the resulting tables of the joins marked with red arrows, on the join operator tree, in Annex 2. (3P)

Exercise 3 (6P)

1. What are materialized views? (1P)
2. Considering the aggregation levels of the product dimension presented in Annex 3, how would you reduce the following, through functional dependence:
 - a. (Prod. Group, Prod.Categ) (1P)
 - b. (Article, Prod. Categ) (1P)
 - c. (Article, Prod. Group, Day) (1P)
3. Which view materializing strategy is more suitable for DW (static or dynamic) and why? (2P)

Annex 1:

ID	Lastname	Firstname	Birth Date	ZIP code	Phone	Income
1	A	X	01.02.78	38100	61432	35K
2	B	Y	06.03.75	38108	61433	60K
3	C	Z	09.02.88	38106	51434	55K
...

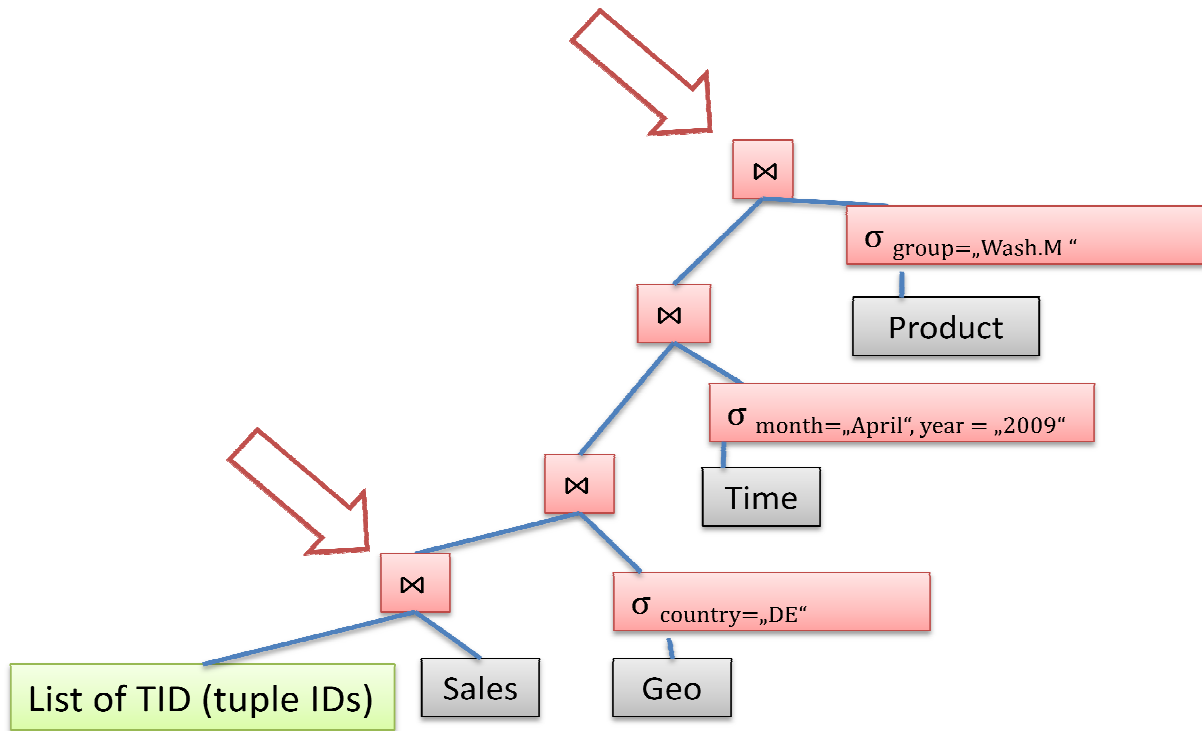
Annex 2:

ID	GeoID	ProdID	TimeID	Qty
1	1	2	1	1
2	1	2	2	5
3	1	2	3	2
4	3	1	1	6
5	2	3	3	2
6	2	1	1	2
7	1	4	2	3

GeoID	Store	City	Country
1	S1	BS	DE
2	S2	Han	DE
3	S3	Lyon	FR
...

ProdID	Prod	Group	Category
1	B501	Wash.M	Electro
2	WP219	Wash.M	Electro
3	WP18	Wash.M	Electro
4	P40A500	TV	Electro
...

TimeID	Day	Month	Year
1	22.01.2009	January	2009
2	03.04.2009	April	2009
3	23.04.2009	April	2009
...



Annex 3:

