

Review Part1 of NStdDBS

Prof. Dr. M. Böhlen

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Task 1: Assume the Gregorian calendar with granularities *Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, Weekend, Weekday, Day, Week, Month, Year*. Use granularity operations to define the following granularities: *FirstDayOfMonth, Thanksgiving, FutureYears* (i.e., all years after 2009).

Hint: Thanksgiving is the fourth Thursday of November.

Task 2: Model the Gregorian calendar with granularities *Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, Weekend, Weekday, Day, Week, Month, Year* with granularity operations.

Hint: In order to define granularity months first define granularity pseudo months, which ignores leap years.

Task 3: Draw the dependency graph of the Gregorian calendar from Task 1. A dependency graph is a directed graph whose nodes are the granularities and where there is an edge from G to H iff H appears in an expression associated with G.

Task 4: Show how to express *Group* in terms of *Alter*.

Task 5: Convert the granule *(Year/2008,Month/5,Day/26)* into a *(Week,Day)* representation. Do this step by step and show the corresponding labels.

Task 6: Assume relation *Employee(Name,Salary,Position,Start,End)* is split into two relations so that coalescing is not necessary for determining the salary and position history. Give a query that still requires coalescing with this schema. Explain when coalescing would not be required.