DATA MANIPULATION the company

HIERARCHY:



TYPE DEFINITIONS:

type department	= department name, floor, extension
<i>type</i> employee	= name, initials, address, postalcode, department_iob_salary
type article	= description, color, stock,
<i>type</i> supplier	= company name, postalcode.
type cappile	supplier_town, extension
<i>typ</i> e supply	= supplier, article, lead_time,
	quantity, date, amount
<i>type</i> customer	<pre>= name, initials, address, postalcode, customer_town, credit_amount, credit_limit</pre>
<i>type</i> sale	= department, article, quantity, price, amount, customer, date, down_payment.

DATA MANIPULATION advertising campaign

ADDITION OF TYPES:

<i>type</i> region <i>type</i> advertisement	<pre>= region name, major_town = paper name, date, region,</pre>
	costs
<i>typ</i> e publicity	= advertisement, article.

ADDITION OF ATTRIBUTES:



DATA MANIPULATION advertising campaign (continued)

Which regions advertised in the period from 1 January 1991 (date > 910100) to 1 April 1991 (date < 910400) and what were the associated regional costs? The benefits are calculated by considering the turnover in the same period of the previous year.

extend region with turnover1 = total sale its amount where date > 900100 and date < 900400 per customer its region.

extend region with turnover2 = total sale its amount where date > 910100 and date < 910400 per customer its region.

extend region *with* increase = turnover2 – turnover1.

extend region *with* costs = *total* advertisement *its* costs *where* date > 910100 *and* date < 910400 *per* region.

get region *its* region name, turnover1, turnover2, increase, costs *where* costs > 0.

DATA MANIPULATION advertising campaign (continued)

What were sales in the advertisement period, compared to the same period last year?

extend article with turnover1 = total sale its amount where date > 900100 and date < 900400 per article.

extend article with turnover2 = total sale its amount where date > 910100 and date < 910400 per article.

Introduce additional conditions (e.g. select only if turnover increase exceeds 10%, or if it is negative).

extend article with increase = turnover2 – turnover1.

get article *its* description, turnover1, turnover2, increase

where turnover2 > 1.1 * turnover1 *or* increase < 0.

Which articles were advertised during the campaign?

extend article with advertised = any publicity per article.

get article *where* advertised.

DATA MANIPULATION return calculation

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extend article with quantity =
     total sale its quantity
     where date > 910300 and date < 910400
     per article.
extend article with totpurch = quantity * purchase_price.
extend article with totsal =
     total sale its amount
     where date > 910300 and date < 910400
     per article.
extend article with grossprofit = totsal - totpurch.
extend sale with wtdsale = ((date - 910300) * quantity) / 31.
extend supply with wtdpurch = ((date - 910300) * quantity) / 31.
extend article with wtdsale =
     total sale its wtdsale
     where date > 910300 and date < 910400
     per article.
extend article with wtdpurch =
     total supply its wtdpurch
     where date > 910300 and date < 910400
     per article.
extend article with sumpurch =
     total supply its quantity
     where date > 910400
     per article.
extend article with sumsale =
     total sale its quantity
     where date > 910400
     per article.
extend article with endstock = stock + sumsale - sumpurch.
extend article with avgstock = endstock + wtdsale - wtdpurch.
extend article with avginvest = avgstock * purchase_price.
extend article with return = 0.0000.
update article its return = (grossprofit / avginvest) * 100
     where avginvest \neq 0.
get article its description, purchase_price, sale_price, totsal,
     grossprofit, avginvest, return
     where return < 0.
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DATA MANIPULATION workload distribution

extend department with numsale = count employee where job = "salclerk" per department. extend department with turnover = total sale its amount per department. extend department with purchase = total sale its article its purchase_price * quantity per department. extend department with iturnover = 0.00. update department its iturnover = (turnover - purchase) / numsale where numsale \neq 0. get department its department name, numsale, turnover, purchase, turnover_purchase, iturnover where numsale \neq 0.

DATA MANIPULATION stock control

extend article	e with stvalue	= stock *	purchase_	_price.
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extend article with three = total sale its quantity where date > 900400 and date < 900700 per article.

extend article with estimate = 9999.

- update article its estimate = 3 * stock / threewhere three $\neq 0$.
- *get* article *its* description, stock, price, stvalue, three, estimate.

DATA MANIPULATION exercises

The model to be used in the exercises concerns the registration of patient treatments in a hospital. The following type definitions are available:

<i>typ</i> e patient	= name, address, town
<i>typ</i> e physician	= name, extension, department
<i>type</i> department	= internal_address, extension
type treatment type	e = description, hourly_rate
<i>type</i> treatment	= patient, physician, treatment type, date, minutes_duration
<i>type</i> admission	= patient, physician, admission_date, release_date.

EXERCISES:

- 1 Provide the abstraction hierarchy corresponding to the type definitions.
- 2 Does a patient have to be registered for admission? Explain your answer briefly.
- 3 Can a patient only have treatments by physicians belonging to one department? Explain your answer briefly.

DATA MANIPULATION exercises

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EXERCISES:

Formulate the following queries by using the semantic query language or explain briefly if this is impossible.

- 4 Select patients treated by a physician in department D9.
- 5 Select patients admitted to hospital by a physician in department D9.
- 6 Select patients having undergone treatment, but who were never admitted to hospital.
- 7 Select patients having undergone treatment by a physician, who also treated a patient treated by a physician in department D9.
- 8 Determine total treatment costs per patient per admission.

DATA MANIPULATION answers

1. HIERARCHY



DATA MANIPULATION answers

7. XPLAIN QUERY

This problem has to be split up into three simpler problems:

- III: determine patients having treatment by a physician with property II;
- II: determine physicians who treated a patient with property I;
- I: determine patient having treatment by a physician in department D9.

extend patient with I = any treatment where physician its department = "D9" per patient.

- extend physician with II = any treatment where patient its I per physician.
- extend patient with III = any treatment where physician its II per patient.

get patient where III.