Data Warehousing

Politecnico di Torino

Vehicle rental

Conceptual design

![Conceptual design diagram]
Logical design

Primary keys are underlined.

CarRental ($ArrId, DepId, Vid, CId, RTId, paymentMode,$ #rental, #kilometers, revenue)

LOCATION ($LId, city, province, region)

VEHICLE ($Vid, model, type, brand)

OPTIONS ($OId, name)

VEHICLEOPTIONS ($Vid, $OId)

RENTALTIME ($RTId, date, month, monthOfYear, 2m, 3m, 6m, year, dayOfWeek, workingDay)

CLIENTPROFILE ($CId, clientType, clientProvince, clientRegion)

Queries

Query A

Consider the rentals payed with credit card. Separately for each month, client type, province of the client’s domicile, analyze: the average number of kilometers for rental, the cumulative number of kilometers from the beginning of the year, the average daily kilometers.

SELECT

clienttype, clientprovince, month, year, 
sum(#kilometers)/sum(#rentals),
sum(sum(#kilometers) over (partition by clienttype, clientprovince, year 
order by month 
rows unbounded preceding) 
sum(#kilometers)/count(distinct date)
FROM

carrental cr, rentaltime rt, clientprofile cp
WHERE

cr.rtid = rt.rtid and cr.cid = cp.cid 
and paymentmode='credit card'
GROUP BY

clienttype, clientprovince, month, year
Query B

Consider the rentals of “truck” vehicle type. Separately for each rental start month and for each departure province, analyze: the average revenue per kilometer, the percentage of revenue over the total revenue of the year, the percentage of revenue over the total revenue for the corresponding departure region

```
SELECT
    month, year, d.province, d.region,
    sum(revenue)/sum(#kilometers),
    100*sum(revenue)/sum(sum(revenue)) over (partition by year, d.province) 100*sum(revenue)/sum(sum(revenue)) over (partition by month, d.region)
FROM
    carrental cr, rentaltime rt, location d, vehicle v
WHERE
    cr.rtid = rt.rtid and cr.arrlid = d.lid and cr.vid = v.vid
    and v.type='truck'
GROUP BY
    month, year, d.province, d.region
```