Logic data modeling

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Exercise 1
Italian administrative borders

Exercise 2
Archaeological Park
Italian administrative borders: logic schema

Relational DBMS

town ( x, y, name, dwellers, altitude, prov_abb )
province ( abbreviation, name, region_name)
prov_cap ( prov_abb, town_name )
region ( name, town_name )
foreign_country ( name, inhabitats, capital )
borders ( key1, key2 )

Spatial Relational DBMS

town ( name, dwellers, altitude, position )
province ( abbreviation, name, border )
prov_cap ( prov_abb, town_name )
regioni ( name, town_name, border )
foreign_country ( name, inhabitats, capital, border )

where:
• the position attribute in the table town is of type point;
• the border attribute in the tables foreign_country, province and regioni are of type polygon.

The relation “belongs to” between town and province and the relation “borders” between neighbouring administrative entities can be directly obtained by means of the query tools of the spatial relational DBMS.
Archaeological Park: logic schema

Relational DBMS

site ( id, lithological, lat, lon, elevation, cadastral_id )
manager ( tax_payer_code, name, surname, address, tel, notes )
private_estates ( cadastral_id )
owner ( tax_payer_code, name, surname, address, tel )
owner_private-estates ( tax_payer_code, cadastral_id )
manager_site ( site_id, tax_payer_code_manager )
references ( id, title, author, publisher, year )
ref_site ( site_id, ref_id )
service_point ( id, typology )
tour_pathway ( name, last )
site_path ( site_id, name_path )
serv_path ( serv_id, name_path )
engraving ( age, total )
engr_site ( age, site_id )
Spatial Relational DBMS

site ( id, position, lithological, elevation )

manager ( tax_payer_code, name, surname, address, tel, notes )

private_estates ( cadastral_id, border )

owner ( tax_payer_code, name, surname, address, tel )

owner_private_estates ( tax_payer_code, cadastral_id )

manager_site ( site_id, tax_payer_code_manager )

references ( id, title, author, publisher, year )

ref_site ( site_id, ref_id )

service_point ( id, typology, position)

tour_pathway ( name, last, path )

engraving ( age, total )

engr_site ( age, site_id )

where:

- the position attribute in the tables site and service_point is of type point;
- the path attribute in the table tour is of type polyline
- the border attribute in the estate table is of type polygon

The relation “belongs to” between site and tour, service point and tour, site and estate can be directly obtained by means of the query tools of the spatial relational DBMS.