

3) (i) Now we have to create the views. In general, it is done as

CREATE VIEW GLOBAL SCHEMENAME, TABLE (ALL ATTRIBUTES) AS (

QUERY  
ON 1<sup>ST</sup>  
DATA  
SOURCE }     SELECT ...  
                FROM ...  
                WHERE ...

UNION

QUERY  
ON 2<sup>ND</sup>  
DATA  
SOURCE }     SELECT ...  
                FROM ...  
                WHERE ...

: IN CASE OF MORE SOURCES  
})

! FOR DIDACTICAL PURPOSE, WE WILL DO ALL THE VIEWS.

Obviously, during the exam is suffices to write only the

ONE REQUESTED FOR THE GIVEN QUERY)

IT IS SUGGESTED THAT ATTRIBUTES HAS THE SAME ORDER AS IN THE LOGICAL SCHEM

WE CAN ASSUME TO HAVE A FUNCTION THAT, GIVEN THE AGE, CALCULATE YEAR  
OF BIRTH

CREATE VIEW USAREALESTATECOMPANY. CLIENTS (SSN, LASTNAME,

FIRSTNAME, ADDRESS, CITY, STATE, DATEOFBIRTH, PHONENUMBER) AS (

SELECT SSN, LASTNAME, FIRSTNAME, ADDRESS, CITY, STATE, THISYEAR() -  
-AGE, PHONENUMBER)

FROM LALUXURYHOUSES. CLIENTS

UNION

SELECT SSN, SURNAME, NAME, ADDRESS, CITY, STATE, YEAROFBIRTH, PHONE

FROM USAHOUSES. BUYERS

UNION

SELECT SSN, SURNAME, NAME, ADDRESS, CITY, STATE, YEAROFBIRTH, PHONE

FROM USAHOUSES. OWNERS

)

CREATE VIEW USAREALESTATECOMPANY. REALESTATE (ADDRESS, CITY, STATE,  
SIZESQAREMETERS, ROOMS, NUMBEROFFLOORS) AS (

SELECT HOUSEADDRESS, HOUSECITY, 'CALIFORNIA', SIZESQAREMETERS,  
ROOMS, NULL NUMBEROFFLOORS IS NOT IN THE L.S.

FROM LA LUXURY HOUSES. HOUSES

UNION A SOLUTION LIKE CONVERT INTO SQAREMETERS (SIZESQAREFEET)  
IS ALSO ACCEPTABLE) NUMBEROFLOORS

SELECT ADDRESS, CITY, STATE, 0.929 \* SIZESQARE FEET, NUMBEROFROOMS,

FROM USA HOUSES. REAL ESTATES

)

!

CLIENTID AND EMPLOYEEID GENERALLY DO NOT MATCH. To handle  
THIS SOLUTION, WE USE A KEYGENERATOR THAT CREATES UNIVOCAL  
IDENTIFIERS. It IS A FUNCTION WRITTEN AS KEYGENTABLENAME (UNIQUE  
IDENTIFIER FOR A TABLE IN ITS DATA SOURCE, 'NAME OF THE TABLE!')

CREATE VIEW USAREALESTATECOMPANY. SALE (IDSALECONTRACT, DATE, COST,  
ESTATEADDRESS, ESTATECITY, IDEMPLOYEE ) AS (

SELECT KEYGENSALE (IDSALECONTRACT, 'LALUXURYHOUSES'), DATE, COST,  
HOUSEADDRESS, HOUSECITY, KEYGENEMPLOYEE (IDEMPLOYEE, 'LAHOUSES')  
FROM LAHOUSES. HOUSES  
UNION  
SELECT KEYGENSALE (R.IDRE || S.DATE, 'USAHOUSES'), S.DATE, S.PRICE,  
R.ADDRESS, R.CITY, KEYGENEMPLOYEE (S.AGENTID, 'USAHOUSES')  
FROM USAHOUSES. REALESTATE-SALE AS S, USAHOUSES. REALESTATES AS R  
WHERE S.IDRE=R.IDRE  
)

CREATE VIEW USAREALESTATECOMPANY. SOLDTO (IDSALECONTRACT, MENT) AS (

SELECT KEYGENSALE (IDSALECONTRACT, 'LALUXURYHOUSES'), CLIESSN  
FROM LAHOUSES. SOLDTO  
UNION  
SELECT KEYGENSALE (R.IDRE || S.DATE, 'USAHOUSES'), B.SSN  
FROM USAHOUSES. REALESTATE-SALE AS R, USAHOUSES. BUYERS AS B  
WHERE R.BUYERID=B.BUYERID  
)

(ALL THE NEXT VIEWS ARE NOT REQUESTED FOR THE EXERCISE)

CREATE VIEW USAREALESTATECOMPANY.EMPLOYEE (IDEMPLOYEE, LASTNAME,

FIRSTNAME, OFFICEPHONENUMBER, MOBILEPHONENUMBER) AS (

SELECT KEYGENEMPLOYEE (IDEMPLOYEE, 'LAWXURYHOMES'), LASTNAME,

FIRSTNAME, PHONE NUMBER, NULL

FROM LAWXURYHOMES. EMPLOYEE

UNION

SELECT KEYGENEMPLOYEE (AGENTID, 'USAHOUSES'), SURNAME, NAME,

OFFICEPHONENUMBER, MOBILEPHONE NUMBER

FROM USAHOUSES. AGENTS

)

CREATE VIEW USAREALESTATECOMPANY. OWNEDBY (ESTATEADDRESS, ESTATECITY,  
CLIENT) AS (

SELECT HOUSEADDRESS, HOUSECITY, CLIENTSSN

FROM LAWXURYHOMES. HOUSE-OWNEDBY

UNION

SELECT R.ADDRESS, R.CITY, O.SSN

FROM REALESTATES AS R, OWNERS AS O

WHERE R.OWNERID = O.OWNERID

)

⑥

QUERY EXECUTED ON THE G.B.

```
SELECT DISTINCT C.FIRSTNAME, C.LASTNAME  
FROM USAREALESTATECOMPANY.CLIENTS AS C,  
USAREALESTATECOMPANY.SALE AS S,  
USAREALESTATECOMPANY.SALESINFO AS SI,  
USAREALESTATECOMPANY.REALESTATES AS R  
WHERE C.SSN=SI.CLIENT AND SI.IDSALECONTRACT=S.IDSALECONTRACT  
AND S.ESTATEADDRESS=R.ADDRESS AND S.ESTATECITY=R.CITY  
AND R.SIZESQUAREMETERS>100 AND C.CITY='LOS ANGELES'  
AND R.CITY='BEVERLY HILLS'
```

## ② QUERY WRITING

LUXURYHOUSES USAHOUSES

SELECT C.LASTNAME, C.FIRSTNAME  
FROM LALUXURYHOUSES.CLIENTS AS C, LALUXURYHOUSES.SALE AS S  
LALUXURYHOUSES.SOLDTO AS ST, LALUXURYHOUSES.HOUSES AS H  
WHERE C.SSN=ST.CLENTS AND ST.IDSALECONTRACT=S.IDSALECONTRACT  
AND H.HOUSEADDRESS=S.HOUSEADDRESS AND  
H.HOUSECITY=S.HOUSECITY AND C.CITY='LOS ANGELES' AND  
H.SIZEQUADRAMETERS > 100 AND H.CITY='BEVERLY HILLS'

UNION

SELECT B.SURNAME AS LASTNAME, B.NAME AS FIRSTNAME  
FROM USAHOUSES.BUYERS AS B, USAHOUSES.REALESTATE-SALE AS S,  
USAHOUSES.REALESTATES AS R  
WHERE B.BUYERID=S.BUYERID AND S.IDRE AND B.CITY='LOS ANGELES'  
AND R.SIZESQUAREFEET\*(0.929) > 100 AND  
R.CITY='BEVERLY HILLS'

# XML INTRODUCTION

AN XML DOCUMENT IS A NESTED LIST OF ELEMENTS WHICH CAN BE WHATEVER YOU LIKE ACCORDING TO A "SPECIFICATION" CONTAINED IN ANOTHER DOCUMENT CALLED DTD, A DOCUMENT WHICH TELLS HOW A LEGAL XML DOCUMENT LOOKS LIKE ACCORDING TO THE SPECIFIC DTD.

DTD DOCUMENT

(CREATE ELEMENT)

<!ELEMENT NAME\_OF\_THE\_ELEMENT (LIST\_OF\_CHILDREN)>

EXAMPLE: <!ELEMENT STUDENTS(STUDENT)>

<STUDENTS>

<STUDENT>

</STUDENT>

</STUDENTS>

WE CAN SPECIFY SOME PROPERTIES FOR CHILDREN:

+ AT LEAST ONE STUDENT

\* NUMBER\_OF\_STUDENTS ≥ 0

EMPTY NUMBER\_OF\_STUDENTS = 1

? EITHER 0 OR 1 STUDENT

EXAMPLE: <!ELEMENT STUDENTS(STUDENT\*)>

<!ELEMENT STUDENT(CNAME, SURNAME, ADDRESS?)>

→ STRINGS

<!ELEMENT NAME (#PCDATA)>

<!ELEMENT SURNAME (#PCDATA)>

<!ELEMENT ADDRESS EMPTY>

</STUDENT>

</STUDENTS>

EXAMPLE: <!ELEMENT STUDENTS(STUDENT\*)>

<STUDENTS>

<STUDENT>

<NAME> OMAR </NAME>

<SURNAME> NASA </SURNAME>

</STUDENT>

</STUDENTS>

| IF "NAME" CONTAINS A VALUE, WE HAVE TO SPECIFY ITS TYPE

| IF AN ELEMENT HAS SOME ATTRIBUTES, WE HAVE TO SPECIFY THEM AND THEIR TYPE

EXAMPLE: <!ELEMENT STUDENTS(STUDENT+)>

<!ELEMENT STUDENT(CNAME, SURNAME, ADDRESS?)>

→ STRINGS

<!ELEMENT NAME (#PCDATA)>

<!ELEMENT SURNAME (#PCDATA)>

<!ELEMENT ADDRESS EMPTY>

<!ATTLIST ADDRESS STREET CDATA #REQUIRED

NUMBER CDATA #REQUIRED

CITY CDATA MILAN

VALID (0/1) "0" />

↑ ?

</STUDENT >

</STUDENTS>

\* WE CAN PUT:

- "VALUE" - DEFAULT VALUE,
- #IMPLIED - OPTIONAL
- #REQUIRED - MUST BE SPECIFIED
- #FIXED - CANNOT CHANGE

†

THERE ARE TWO WAYS TO ASSIGN A VALUE:

- INSERT BETWEEN TAG <NAME> OMAR </NAME>

- DEFINE IT AS ATTRIBUTE <ADDRESS STREET="VIA GOLGI" CITY="MILAN"/>