BEATRICE PIRAS   s259888

HOMEWORK #1 : RELATIONAL ALGEBRA
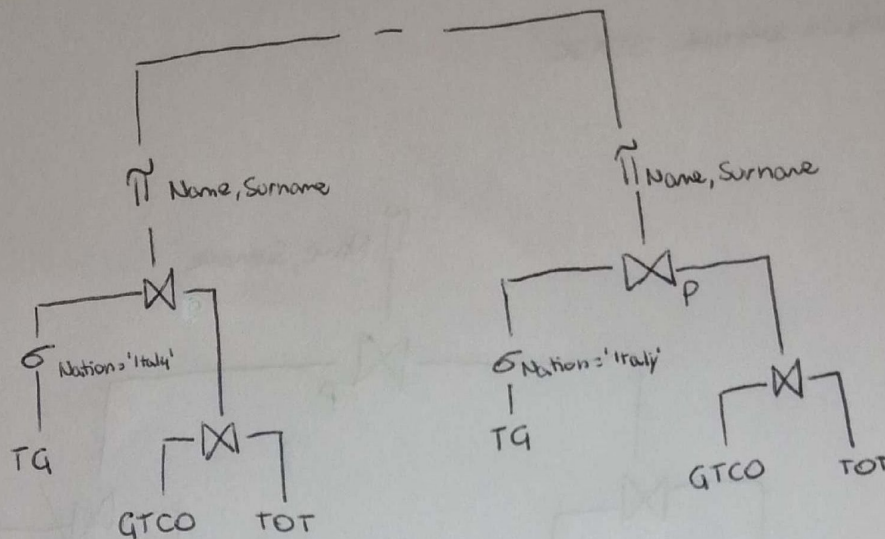
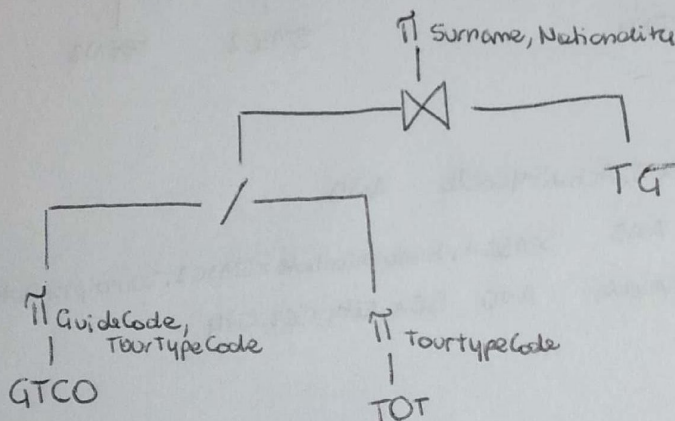Ex 1.   TOUR-GUIDE = TG   TYPE-OF-TOUR = TOT   GROUP = G   GUIDED-TOUR-CARRIED-OUT
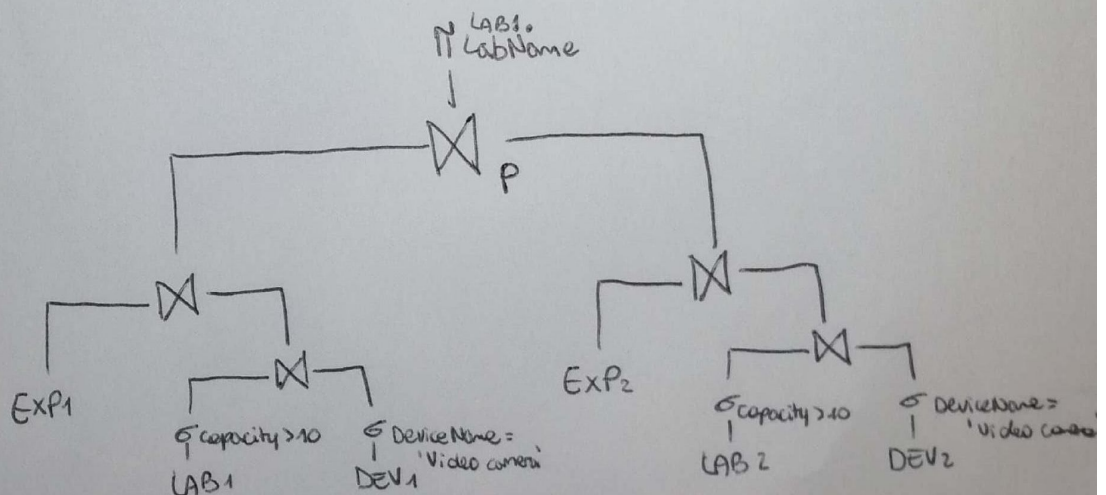   = GTCO

a)

π Name, Surname

$\bowtie$

σ Nation = 'Italy'

TG

$\bowtie$

GTCO   TOT

π Name, Surname

$\bowtie_P$

σ Nation = 'Italy'

TG

$\bowtie$

GTCO   TOT

P = TOT.Duration < 2   AND   TG.Guidecode = GTCO.Guidecode

b)

π Surname, Nationality

$\bowtie$

TG

$/$

π GuideCode,
    TourTypeCode

GTCO

π TourtypeCode

TOT

Ex 2

STUDENT = S
LABORATORY = LAB
DEVICE = DEV
EXPERIMENT = EXP

π LAB1.
   LabName

$\bowtie_P$

$\bowtie$

EXP1

$\bowtie$

σ capacity > 10 σ DeviceName =
                                'Video camera'
LAB1   DEV1

$\bowtie$

EXP2

$\bowtie$

σ capacity > 10 σ DeviceName =
                                'Video came...'
LAB2   DEV2

P = LAB1.Labid = LAB2.Labid   AND   EXP1.Deviceid = EXP2.Deviceid
        AND   EXP1.Date = EXP2.Date   AND   EXP1.StudentId = EXP2.StudentId
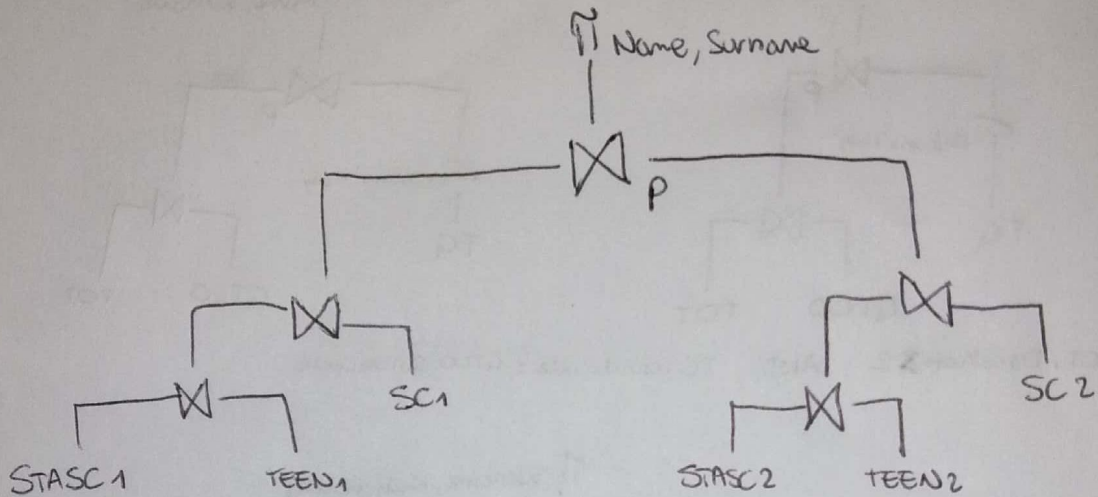
Ex 3

TEENAGER = TEEN
ACTIVITY = A
SUMMER-CAMP = SC
SUBSCRIPTION-TO-ACTIVITY-IN-SUMMERCAMP = STASC

$$\Pi \text{ Name, Surname}$$

$$\bowtie_P$$

$$\bowtie$$ SC1

$$\bowtie$$ SC2

STASC1 $\bowtie$ TEEN1

STASC2 $\bowtie$ TEEN2

$P = $ STASC1.ActivityCode <> STASC2.ActivityCode   AND
TEEN1.SSN = TEEN2.SSN   AND   STASC1.SubscriptionDate = STASC2.SubscriptionDate   AND
SC1.CompCode <> SC2.CompCode   AND   SC1.City = SC2.City