

Homework: Relational Algebra - Solutions

1. Given the following relational schema (primary keys are underlined, optional attributes are denoted by *):

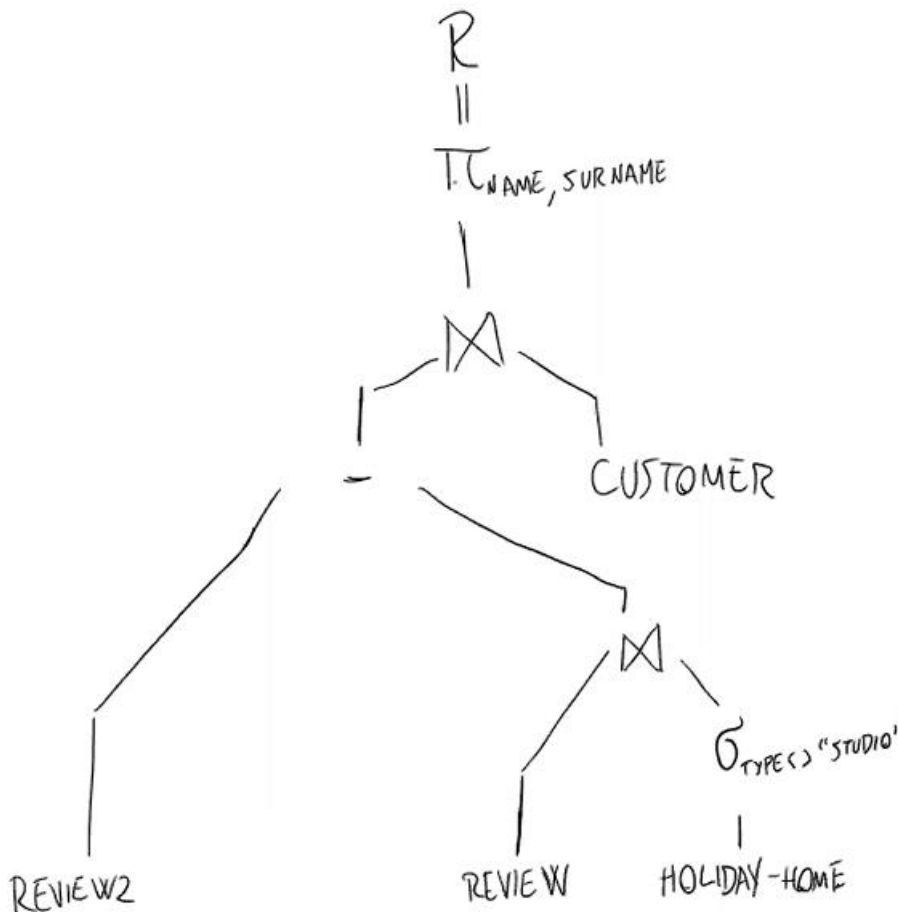
CUSTOMER (SSN, Name, Surname, BirthDay, ResidenceCity)

HOLIDAY-HOME (HID, Name, Type, Address, City, WeekPrice)

REVIEW (SSN, HID, Date, Text, Score)

Express the following query in relational algebra:

- View the name and surname of customers who reviewed only holiday homes of "studio" type.



2. Given the following relational schema (primary keys are underlined, optional attributes are denoted by *):

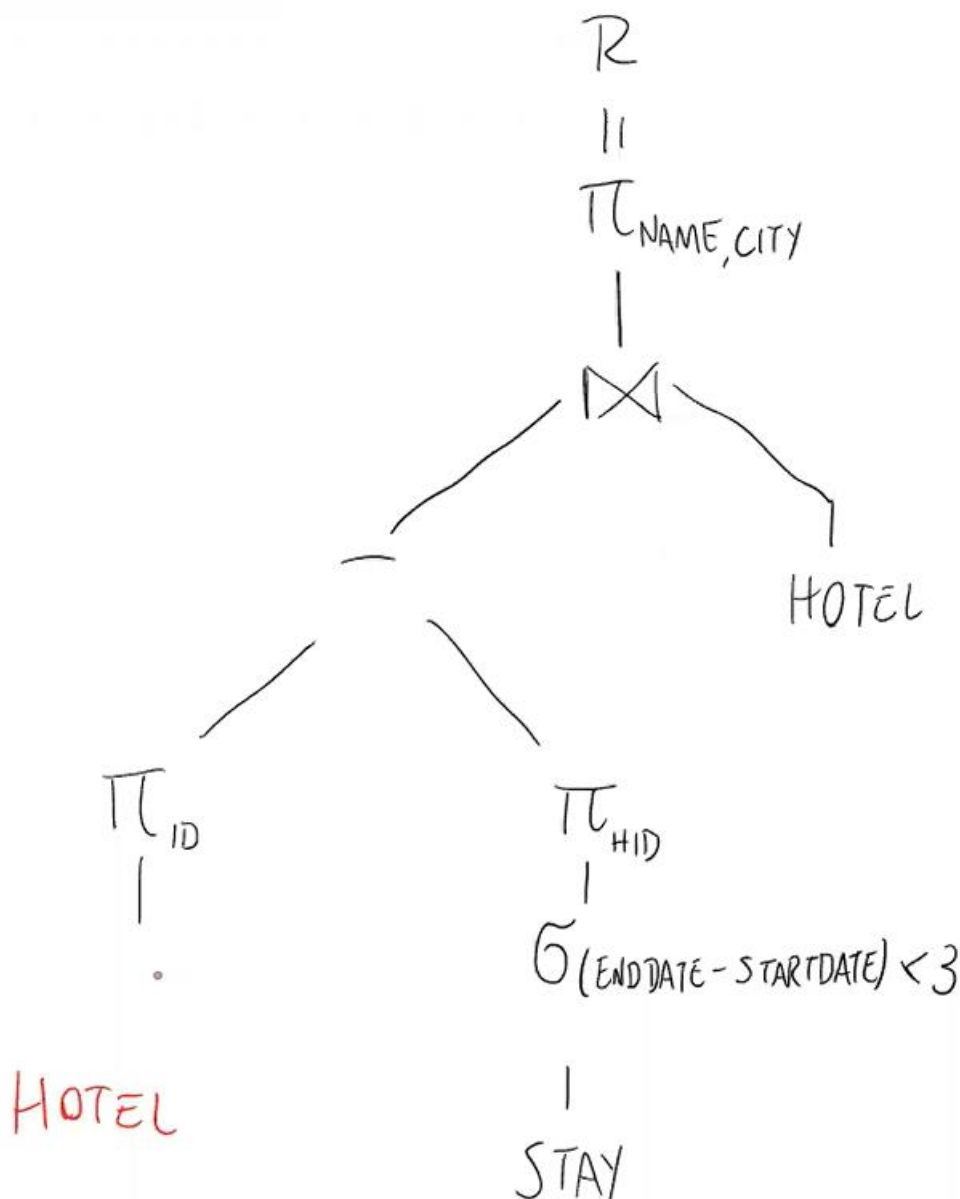
CUSTOMER (UID, Name, Surname, BirthDate)

HOTEL (HID, Name, City, Region, #Stars)

SOGGIORNO (UID, HID, StartDate, EndDate)

Express the following query in relational algebra:

- View the name and city of hotels that have never hosted customers for stays of less than 3 days (difference between EndDate and StartDate).



3. Given the following relational schema (primary keys are underlined, optional attributes are denoted by *):

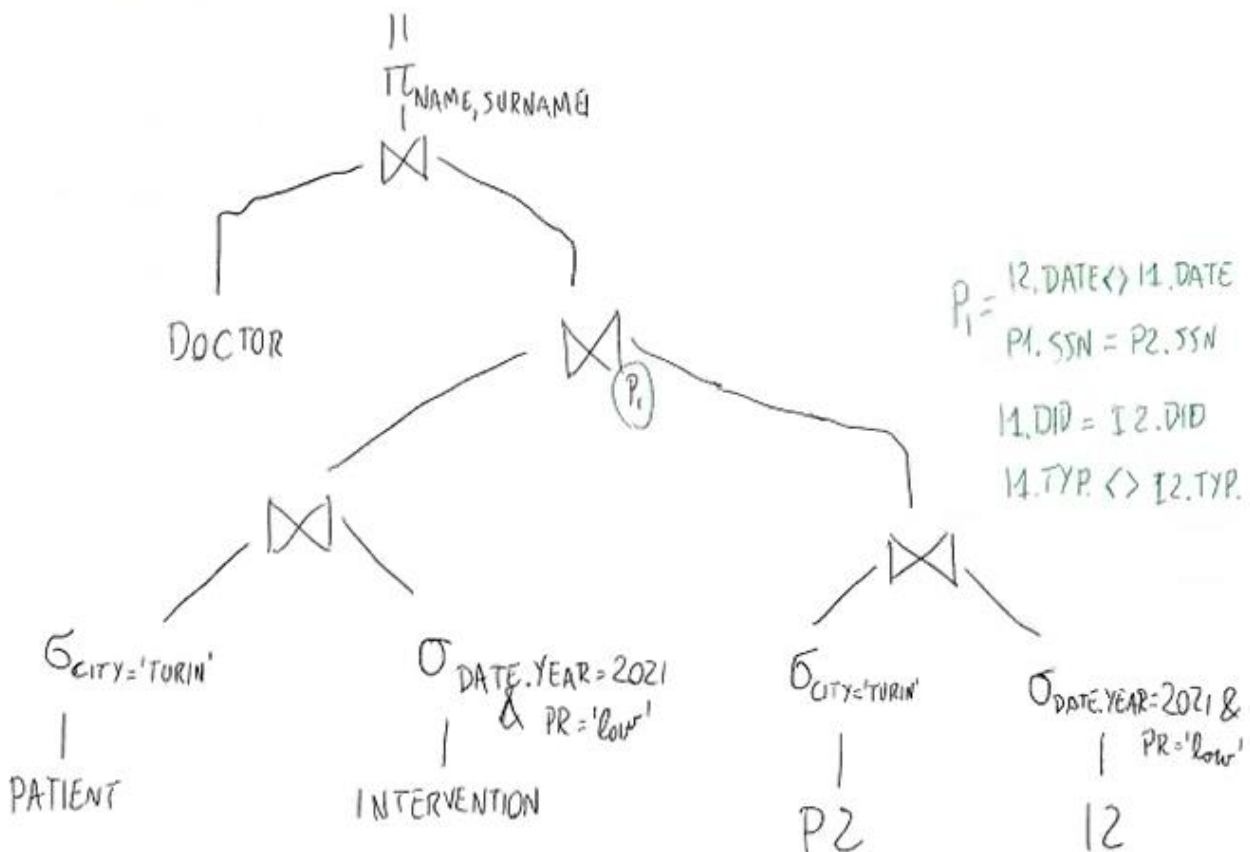
PATIENT (SSN, Name, Surname, City)

DOCTOR (DID, Name, Surname, Specialization)

INTERVENTION (SSN, Date, Typology, Report, Priority, DID)

Express the following query in relational algebra:

- Considering only the interventions carried out in the year 2021 on patients in the city of Turin, view the name and surname of the doctors who have performed at least two different types of intervention, both with low priority, to the same patient but on different dates.



4. Given the following relational schema (primary keys are underlined, optional attributes are denoted by *):

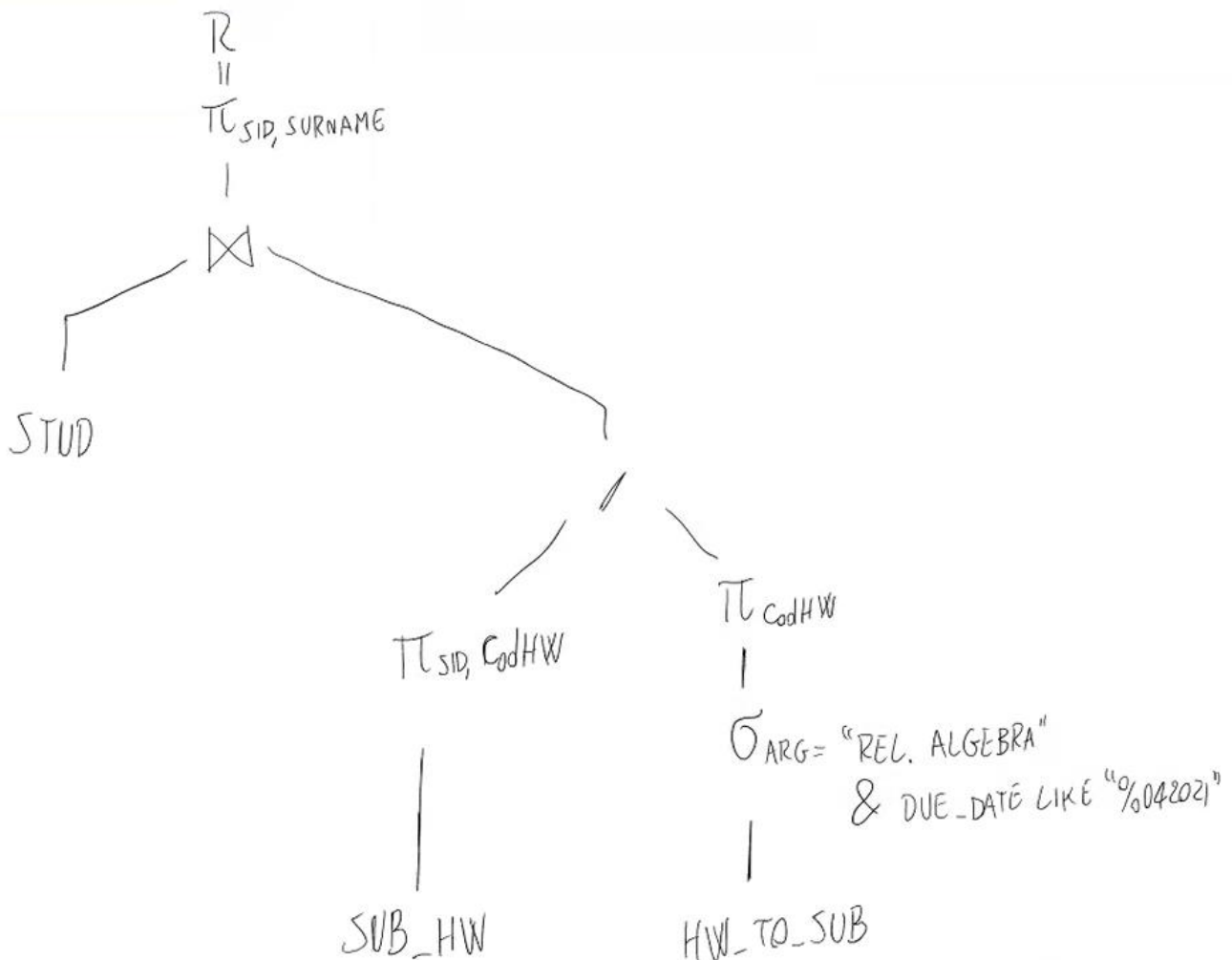
STUDENT(SID, Name, Surname, Course)

HOMEWORK_TO_SUBMIT (CodHW, Title, Argument, DueDate)

SUBMITTED_HOMEWORK (SID, CodHW, SentDate)

Express the following query in relational algebra:

- View the serial number and surname of the students who have delivered all the homework on the topic "Relational Algebra" with a due date scheduled for April 2021.



5. Given the following relational schema (primary keys are underlined, optional attributes are denoted by *):

MATCH(MID, HomeTeam, VisitingTeam, Date, Competition)

PLAYER(PID, Name, Surname, Role, Nation)

GOAL(MID, Minute, PID)

Express the following query in relational algebra:

- View the surname and country of midfielders (a player's role) who, in the year 2020, have scored at least one goal in all competitions. Note: Consider competitions with at least one match played in the year 2020.

