Domanda 1

Punteggio max.: 1,00

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

CUSTOMER (CID, Name, Surname, DateOfBirth)

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

ACCOMODATION (CID, HID, StartDate, EndDate)

Write the following query in relational algebra:

- Show the name and surname of customers born after 01/01/1990 who have stayed in at least two different hotels but have never stayed in a 4-star hotel.

Domanda 2

Punteggio max.: 1,00

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

PATIENT (TaxCode, Name, Surname, City)

SURGEON (CodS, Name, Surname, Specialization)

SURGERY (TaxCode, Date, Type, Report, Priority, CodS)

Write the following query in relational algebra:

- Considering only the surgeries performed between 2021 and 2022 on patients from the city of Milan, display the name and surname of surgeons with a specialization in cardiology who have performed at least two different types of surgeries, both with high priority, on the same patient but on different dates.

Domanda 3

Punteggio max.: 1,00

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

PLAYER (PID, Nickname, DateOfBirth, Nationality)

VIDEOGAME (VID, Name, Genre)

MATCH (PID, VID, Date, #Hours)

Write the following query in relational algebra:

- Write the nicknames of players who have played all the videogames belonging to the "action" genre.

Domanda 4

Punteggio max.: 1,00

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

RESTAURANT (CodR, Name, Surname, Address, City)

TABLE (TableNumber, CodR, #Seats, Outdoor)

PERSON (CodP, Name, Surname, Telephone, Email)

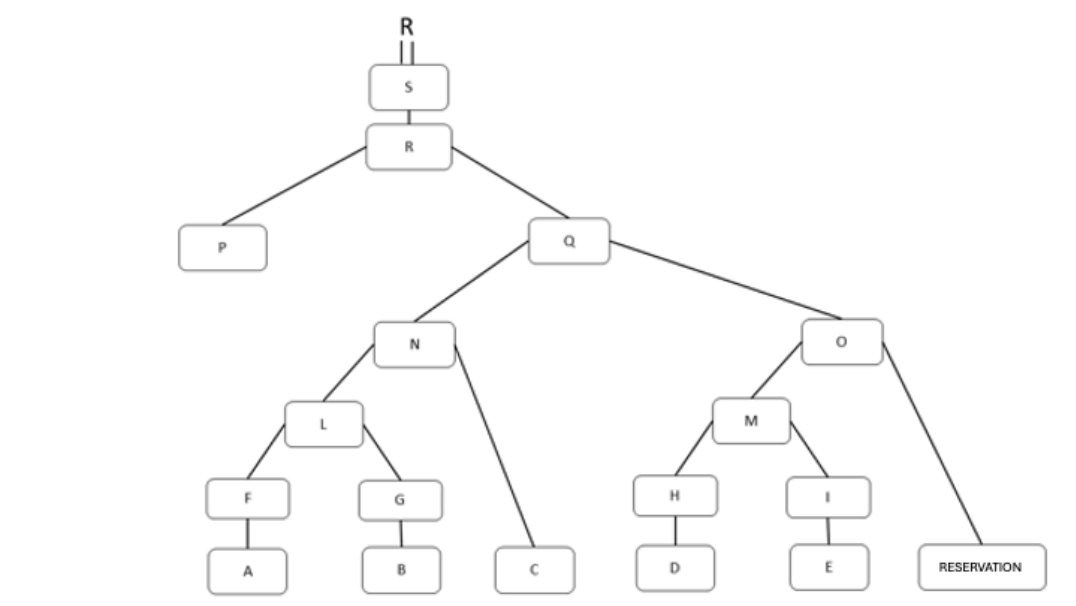
RESERVATION (CodP, Date, TableNumber, CodR)

- View the first and surname of people who, for the same date, have booked a table for 10 people (#Seats attribute) in the outdoor area, in *two different restaurants* in the city of Turin.

Instructions for completing the exercise:

The following query tree graphically represents the required algebraic query. You are asked to indicate, for each of the boxes present in the query tree (i.e., boxes from A to S), the corresponding relation or algebraic operator (with any associated predicate). Please use the text box below to provide the solution.

Note: Each box in the query tree is associated with only one relation or algebraic operator.



Domanda 5

Punteggio max.: 1,00

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

CUSTOMER (CodC, Name, Surname, Address, City, DateOfBirth)

BOOK (CodB, Title, AuthorName, Publisher, Price)

BOOKSTORE (CodBS, Name, Address, City)

PURCHASES (CodC, CodB, CodBS, Date, NumCopies)

- View the first name, surname, and city of customers aged between 24 and 34 years old who, in 2023, did not purchase any books from the publishing house 'TTT' at bookstores in Rome.

Note: The age of the customer must be calculated with respect to the reference year 2023.

Instructions for completing the exercise:
The following query tree graphically represents the required algebraic query. You are asked to indicate, for each of the boxes present in the query tree (i.e., boxes from A to M), the corresponding relation or algebraic operator (with any associated predicate). Please use the text box below to provide the solution.

Note: Each box in the query tree is associated with only one relation or algebraic operator.