

SQL Language: Exercise

1. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

ATHLETE (ACode, AName, ASurname, Nationality, BirthDate)

ATTENDANCE (CCode, ACode, Position, Time)

COMPETITION (CCode, Place, Date, CType)

- a) Show the code and the name of the athletes who never attended any Super G competitions (CType = 'Super G').
- b) Find the countries for which at least 5 athletes born before 1980 compete, each of whom has participated in at least 10 cross-country skiing competitions.

2. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

PUBLISHER(PCode, EditorName, Address, City)

BOOK(BCode, Title, AuthorName, PCode)

BOOKSTORE(BSCode, BookshopName, Address, City)

SALE(BCode, BSCode, Date, NoCopies)

- a) Find the name of the bookstores where no books from publishers based in Turin have been sold.
- b) Find the name of the publishers for which at least 10 publications were sold in 2002 in bookstores in Rome in more than 2,000 copies.

3. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

MC_TEST(TestID, Topic, Score)

STUDENT (StudentID, Name, Address, CityA)

TEST-RESULT (StudentID, TestID, isCorrectAnswer)

- a) Find the names of students who did not correctly answer any math multiple choice test.
- b) Find the names of the students in Turin who achieved the maximum possible score in the math multiple choice test.

4. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

AIRCRAFT (SerialNumber, Model, Capacity)

SCHEDULE (Code, Departure, Destination, DepartureTime, ArrivalTime)

FLIGHTS (Code, SerialNumber, Date, NoReservations)

- a) Find out the code and departure time of flights departing from Milan to Naples on 1 October 1993, which still have free seats and whose duration (difference between the time of arrival and the time of departure) is less than the average duration of flights from Milan to Naples.

5. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

MECHANIC(ID, Name)

CAN-REPAIR (ID, FaultType)

HAS-DONE-REPAIR (RCode, ID, LicensePlate, Date, Duration, FaultType)

- a) Find the name of the mechanics who have carried out at least one repair of a fault that they did not know how to repair.
- b) For cars that required repairs carried out by at least 3 different mechanics on the same day, display the car's license plate, the date of repairs and the types of faults that occurred, sorting the result in ascending order of license plate and descending order of date.

6. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

MEETING_ROOM(RCode, NumberSeats, Projector)

BOOKING(RCode, Date, StartTime, EndTime, ECode)

EMPLOYEE(ECode, Name, Surname, BirthDate, City)

- a) View the code and maximum number of seats in projector-equipped rooms that have been booked at least 15 times for meetings starting before 3:00 p.m., but have never been booked for meetings starting after 8:00 p.m.
- b) View for each room the room code, the maximum number of seats and the number of reservations considering only the last date on which the room was booked

7. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

GUIDE (GCode, Name, Surname, Nationality)
 TOUR_TYPE (TourTypeCode, Monument, Duration, City)
 GROUP (GRCODE, NumberParticipants, Language)
 GUIDED_TOUR (GRCODE, Date, StartTime, TourTypeCode, GCode)

- a) Among the monuments for which at least 10 guided tours have been made, view the monument that has been visited by the largest number of people overall.
- b) For each tour guide who has never guided a type of tour for French-speaking groups, show name and surname and, for each date, the total number of type of tours guided and their total duration.

8. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

TEENAGER(TaxID, Name, Surname, Birthdate, City)
 ACTIVITY(ACode, ActivityName, Description, Category)
 SUMMER_CAMP(CCode, CampName, City)
 REGISTRATION-FOR-ACTIVITIES-IN-SUMMER-CAMP(TaxID, ACode, CCode, RegistrationDate)

- a) View the first and last name of the teenagers who participated in the largest number of summer camps for the activities in the "Tennis" category.

9. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

CUSTOMER (CustomerID, Name)
 ACCOUNT(AccountID, Balance, Branch, Country)
 CUSTOMER_ACCOUNT (CustomerID, AccountID)

- a) Find all branches that have at least one client who are the only holder (without co-holders) of a single current account (that is, customers to whom no other current account is in the name).

10. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

TAXPAYER(TaxId, Name, Street, City)
 TAX_RETURN(ReturnID, Type, Income)
 PRESENTS(TaxId, ReturnID, Date)

- a) Display the tax ID, name, and average income reported from 1990 onwards by taxpayers whom maximum income reported since 1990 is higher than the average income calculated on all tax returns in the database.

11. Given the following relational schema (primary keys are underlined, optional attributes are indicated by “*”)

PERSON (Name, Sex, Age)

PARENT (ParentName, ChildName)

- a) Find the name of each person younger than 10 years old who is an only child