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**Choose two tables (relations) from your project that are connected through a primary key and a foreign key, meaning that the primary key of one table should appear as a foreign key in the other table. Copy and paste the create table statements of those tables that you want to work on (from the PDF submitted in Phase I). If you cannot find such tables, then there may be a major problem with your design. Please use my office hours to resolve this issue.**

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CREATE TABLE MEMBER(

MEM\_ID INT PRIMARY KEY NOT NULL,

MEM\_FIRSTNAME VARCHAR(50),

MEM\_LASTNAME VARCHAR(50),

MEM\_ADRESS VARCHAR(255),

)

CREATE TABLE SUBIN\_SUBSCRIPTION(

sub\_id INT PRIMARY KEY NOT NULL,

FROM\_YEAR INT,

SUB\_PRICE DECIMAL(10, 2),

SUB\_TYPE VARCHAR(50),

MEM\_ID INT NOT NULL,

FOREIGN KEY (MEM\_ID) REFERENCES MEMBER (MEM\_ID) ON DELETE CASCADE

)

**Insert 10 rows to each table you have chosen using "insert into" statements. Data you insert does not need to be real, but it should be realistic, meaning that for example the name column should not have values like  "X Æ A-12" unless you are Elon Musk. Also execute those insert statements in mysql to actually insert the data**

INSERT INTO new\_schema3.MEMBER(MEM\_ID, MEM\_FIRSTNAME, MEM\_LASTNAME, MEM\_ADRESS)

VALUES

(1, 'John', 'Doe', '123 Main Street'),

(2, 'Jane', 'Smith', '456 Oak Avenue'),

(3, 'Robert', 'Johnson', '789 Pine Road'),

(4, 'Alice', 'Williams', '101 Cedar Lane'),

(5, 'David', 'Brown', '202 Elm Street'),

(6, 'Emily', 'Jones', '303 Maple Drive'),

(7, 'Michael', 'Davis', '404 Birch Street'),

(8, 'Olivia', 'Miller', '505 Pine Avenue'),

(9, 'Christopher', 'Taylor', '606 Oak Lane'),

(10, 'Sophia', 'Anderson', '707 Cedar Road');

INSERT INTO new\_schema3.SUBIN\_SUBSCRIPTION (sub\_id, FROM\_YEAR, SUB\_PRICE, SUB\_TYPE, MEM\_ID)

VALUES

(101, 2023, 50.00, 'Basic', 1),

(102, 2023, 60.00, 'Premium', 2),

(103, 2023, 70.00, 'Gold', 3),

(104, 2023, 80.00, 'Silver', 4),

(105, 2023, 90.00, 'Platinum', 5),

(106, 2023, 100.00, 'Basic', 6),

(107, 2023, 110.00, 'Premium', 7),

(108, 2023, 120.00, 'Gold', 8),

(109, 2023, 130.00, 'Silver', 9),

(110, 2023, 140.00, 'Platinum', 10);

**Display all the rows of the two tables through executing "select \* from <table\_name> " commands on mysql and include the snapshot of the result in your report.**

SELECT \* FROM new\_schema3.MEMBER;

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SELECT \* FROM new\_schema3.SUBIN\_SUBSCRIPTION;

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**Write down a query in English which will require joining the two of the tables you have selected, then write down its relational algebra equivalent.**

Retrieve the first and last names of members along with their subscription types and subscription prices for the year 2023.

Relational Algebra Equivalent:

π(MEM\_FIRSTNAME, MEM\_LASTNAME, SUB\_TYPE, SUB\_PRICE) (MEMBER ⨝ SUBIN\_SUBSCRIPTION)

**Write down the SQL version of the relational algebra query and execute the query in mysql. Include the snapshot of the result in your report.**

SELECT MEM\_FIRSTNAME, MEM\_LASTNAME, SUB\_TYPE, SUB\_PRICE

FROM MEMBER, SUBIN\_SUBSCRIPTION

WHERE MEMBER.MEM\_ID = SUBIN\_SUBSCRIPTION.MEM\_ID;

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**Write down a query in English which will  require "group by" operation, a statistical operator (SUM, AVG, MIN, MX etc), and will also require joining the two tables. Then write down the SQL version, execute it on mysql and include the snapshot of the result in your report.**

SELECT SUB\_TYPE, SUM(SUB\_PRICE), AVG(SUB\_PRICE)

FROM SUBIN\_SUBSCRIPTION

WHERE MEM\_ID IN ( SELECT MEM\_ID FROM MEMBER)

GROUP BY SUB\_TYPE;

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**Add a "check" constraint to a table in your project by updating the create table statement.Your constraint should involve a SQL query. Each student should write a different constraint. Adding a constraint to an existing table is done through the command "ALTER TABLE <table\_name> ADD CONSTRAINT CHECK (condition)" Execute the alter table command on mysql and try to insert a row which does not satisfy the constraint using insert into statement. Include the snapshot of your work in the report which shows that you have added the constraint and tried to insert a row violating that constraint.**

ALTER TABLE new\_schema3.SUBIN\_SUBSCRIPTION

ADD CONSTRAINT CHK\_FROM\_YEAR\_RANGE

CHECK (

FROM\_YEAR > 2000 AND FROM\_YEAR < 2024

);

INSERT INTO new\_schema3.SUBIN\_SUBSCRIPTION (sub\_id, FROM\_YEAR, SUB\_PRICE, SUB\_TYPE, MEM\_ID)

VALUES

(111, 2025, 550.00, 'Basic', 11);

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