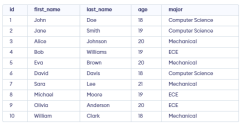
Question 1:

Assume you have a table named '**Students**' with columns '**StudentID**' (auto-incremented), ' **FirstName**' (VARCHAR), '**LastName**' (VARCHAR), '**Age**' (INT), and **Major**(VARCHAR).

You want to insert a new students name' with the age and the major into this table. Write an SQL query to perform this insertion, making sure to handle potential errors or issues that might arise during the process.

Expected Output :



id	first_name	last_name	age	major
1	John	Doe	18	Computer Science
2	Jane	Smith	19	Computer Science
3	Alice	Johnson	20	Mechanical
4	Bob	Williams	19	ECE
5	Eva	Brown	20	Mechanical
6	David	Davis	18	Computer Science
7	Sara	Lee	21	Mechanical
8	Michael	Moore	19	ECE
9	Olivia	Anderson	20	ECE
10	William	Clark	18	Mechanical

Title for Question 1: Insert Student Detail

Solution:

```
INSERT INTO students (first_name, last_name, age, major)
VALUES ('John', 'Doe', 18, 'Computer Science');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Jane', 'Smith', 19, 'Computer Science');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Alice', 'Johnson', 20, 'Mechanical');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Bob', 'Williams', 19, 'ECE');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Eva', 'Brown', 20, 'Mechanical');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('David', 'Davis', 18, 'Computer Science');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Sara', 'Lee', 21, 'Mechanical');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Michael', 'Moore', 19, 'ECE');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('Olivia', 'Anderson', 20, 'ECE');

INSERT INTO students (first_name, last_name, age, major)
VALUES ('William', 'Clark', 18, 'Mechanical');
```

TestCases:

S.No	Inputs	Outputs
1		id | first_name | last_name | age | major -- | ---------- | --------- | --- | ---------- 1 | John | Doe | 18 | Computer Science 2 | Jane | Smith | 19 | Computer Science 3 | Alice | Johnson | 20 | Mechanical 4 | Bob | Williams | 19 | ECE 5 | Eva | Brown | 20 | Mechanical 6 | David | Davis | 18 | Computer Science 7 | Sara | Lee | 21 | Mechanical 8 | Michael | Moore | 19 | ECE 9 | Olivia | Anderson | 20 | ECE 10 | William | Clark | 18 | Mechanical
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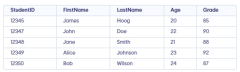
Question 2:

You have a table named Students with the following columns: **StudentID**, **FirstName**, **LastName**, **Age**, and **Grade**. You are tasked with updating a student's details in the table.

Write an SQL query to update the **Age** and **Grade** of a student with the **StudentID** of 12345. However, there's a catch. The new age and grade values must be calculated based on the current values of Age and Grade for that student. You need to increase the age by 1 year and increase the grade by 5 points. Ensure that you update the student's details atomically to avoid any data inconsistencies.

Input Table :



StudentID	FirstName	LastName	Age	Grade
12345	James	Hoog	20	85
12347	John	Doe	22	90
12348	Jane	Smith	21	88
12349	Alice	Johnson	23	92
12350	Bob	Wilson	24	87

Title for Question 2: Update the Student Detail

Solution:

```
select * from Students;
    UPDATE Students
    SET Age = Age + 1,
    Grade = Grade + 5
    WHERE StudentID = 12345;
select * from Students where  StudentID = 12345;
```

TestCases:

S.No	Inputs	Outputs
1	na	StudentID | FirstName | LastName | Age | Grade --------- | --------- | -------- | --- | ----- 12345 | James | Hoog | 20 | 85 12347 | John | Doe | 22 | 90 12348 | Jane | Smith | 21 | 88 12349 | Alice | Johnson | 23 | 92 12350 | Bob | Wilson | 24 | 87 StudentID | FirstName | LastName | Age | Grade --------- | --------- | -------- | --- | ----- 12345 | James | Hoog | 21 | 90
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Question 3:

A dress shop keeps records of dresses in a table called products. Each dress has a unique product_code. When a dress is sold, it should be removed from the products table to reflect that it is no longer in stock.

Table Structure:

- product_code, product_name, size, color, price
- sale_id, product_code

Input table :

table : products

product_code	product_name	size	color	price
P001	Summer Dress	M	Red	49.99
P002	Evening Gown	L	Black	99.99
P003	Casual Shirt	S	Blue	29.99
P004	Winter Coat	L	Gray	199.99
P005	Jeans	M	Denim	59.99

table : sold_products

sale_id	product_code
1	P001
2	P005

Title for Question 3: Delete the product details

Solution:

```
DELETE FROM sold_products WHERE product_code IN ('P001', 'P003');

DELETE FROM products WHERE product_code IN ('P001', 'P003');
```

TestCases:

S.No	Inputs	Outputs
1	na	product_code | product_name | size | color | price ---------- | ---------- | ---- | ----- | ------ P002 | Evening Gown | L | Black | 99.99 P004 | Winter Coat | L | Gray | 199.99 P005 | Jeans | M | Denim | 59.99
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Question 4:

In the following example, we are discussing, how a column can be dropped from a table if it exists in the table, using the SQL ALTER.

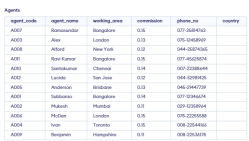
Task :

- To drop the existing column 'country' from the table 'agents'.

Table Structure

- agent_code, agent_name, working_area, commission, phone_no, country VA

Input Statement :



Title for Question 4: Drop the Column

Solution:

```
-- Drop the 'country' column if it exists
ALTER TABLE agents DROP COLUMN  country;
```

TestCases:

S.No	Inputs	Outputs
1	na	agent_code | agent_name | working_area | commission | phone_no ---------- | ---------- | ---------- | ---------- | ---------- A001 | Subbarao | Bangalore | 0.14 | 077-12346674 A002 | Mukesh | Mumbai | 0.11 | 029-12358964 A003 | Alex | London | 0.13 | 075-12458969 A004 | Ivan | Toronto | 0.15 | 008-22544166 A005 | Anderson | Brisbane | 0.13 | 045-21447739 A006 | McDen | London | 0.15 | 078-22255588 A007 | Ramasundar | Bangalore | 0.15 | 077-25814763 A008 | Alford | New York | 0.12 | 044-25874365 A009 | Benjamin | Hampshire | 0.11 | 008-22536178 A010 | Santakumar | Chennai | 0.14 | 007-22388644 A011 | Ravi Kumar | Bangalore | 0.15 | 077-45625874 A012 | Lucida | San Jose | 0.12 | 044-52981425
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Question 5:

What are the SQL statements used to create a table named "Employee," insert data into it, add two columns (Emp_ContactNo INT and Emp_EmailID VARCHAR(80)), and finally, display all the records in the "Employee" table?

Table Structure :

- CREATE TABLE Employee (Emp_Id, Emp_Name, Emp_Salary, Emp_City)

Input Table :

Employee

Emp_Id	Emp_Name	Emp_Salary	Emp_City
201	Abhay	25000	Goa
202	Ankit	45000	Delhi
203	Bheem	30000	Goa
204	Ram	29000	Goa
205	Sumit	40000	Delhi

Title for Question 5: Add the two column

Solution:

```
ALTER TABLE Employee
ADD Emp_ContactNo INT;

ALTER TABLE Employee
ADD Emp_EmailID VARCHAR(80);
```

TestCases:

S.No	Inputs	Outputs
1	na	Emp_Id | Emp_Name | Emp_Salary | Emp_City | Emp_ContactNo | Emp_EmailID ------ | -------- | ---------- | -------- | ------------- | ----------- 201 | Abhay | 25000 | Goa | null | null 202 | Ankit | 45000 | Delhi | null | null 203 | Bheem | 30000 | Goa | null | null 204 | Ram | 29000 | Goa | null | null 205 | Sumit | 40000 | Delhi | null | null
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Question 6:

In the following topic, we are discussing the SQL ALTER TABLE statement, which adds a column to a table. If not specified otherwise, the column will be added at the end of the table.

Task :

- To add a new column 'email' at the end of the table 'agents' with field name and data type

Table Structure:

- agent_code CHAR(4) PRIMARY KEY, agent_name VARCHAR(), working_area VARCHAR(), commission DECIMAL(), phone_no CHAR(), country VARCHAR().

Input Table:

Agents

agent_code	agent_name	working_area	commission	phone_no	country
A007	Ramasundar	Bangalore	0.15	077-25814763	
A003	Alex	London	0.13	075-12458969	
A008	Alford	New York	0.12	044-25874365	
A001	Ravi Kumar	Bangalore	0.15	077-45625874	
A010	Santakumar	Chennai	0.14	007-22388644	
A012	Lucida	San Jose	0.12	044-52981425	
A006	Anderson	Brisbane	0.13	045-21447739	
A001	Subbarao	Bangalore	0.14	077-12346674	
A002	Mukesh	Mumbai	0.11	029-12358964	
A004	McDen	London	0.15	078-22255588	
A004	Ivan	Toronto	0.15	008-22544166	
A009	Benjamin	Hampshire	0.11	008-22536178	

Title for Question 6: Alter the table agent

Solution:

```
ALTER TABLE agents ADD email char(25);

select * from agents;
```

TestCases:

S.No	Inputs	Outputs
1	na	agent_code | agent_name | working_area | commission | phone_no | country | email ---------- | ---------- | ---------- | ---------- | ---------- | ------- | ----- A001 | Subbarao | Bangalore | 0.14 | 077-12346674 | null | null A002 | Mukesh | Mumbai | 0.11 | 029-12358964 | null | null A003 | Alex | London | 0.13 | 075-12458969 | null | null A004 | Ivan | Toronto | 0.15 | 008-22544166 | null | null A005 | Anderson | Brisbane | 0.13 | 045-21447739 | null | null A006 | McDen | London | 0.15 | 078-22255588 | null | null A007 | Ramasundar | Bangalore | 0.15 | 077-25814763 | null | null A008 | Alford | New York | 0.12 | 044-25874365 | null | null A009 | Benjamin | Hampshire | 0.11 | 008-22536178 | null | null A010 | Santakumar | Chennai | 0.14 | 007-22388644 | null | null A011 | Ravi Kumar | Bangalore | 0.15 | 077-45625874 | null | null A012 | Lucida | San Jose | 0.12 | 044-52981425 | null | null
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