-- 1. Display the names of athletes who won a gold medal in the

-- 2008 Olympics and whose height is greater than the average height

-- of all athletes in the 2008 Olympics.

SELECT \* FROM olympics

WHERE Year = 2008 AND

Medal = 'Gold' AND

Height > (SELECT AVG(Height) FROM olympics WHERE Year = 2008);

-- 2. Display the names of athletes who won a medal in the sport of basketball

-- in the 2016 Olympics and whose weight is less than the average weight

-- of all athletes who won a medal in the 2016 Olympics.

SELECT name FROM olympics

WHERE Year = 2016 AND

Sport = 'Basketball' AND

Medal IS NOT NULL AND

height < (SELECT AVG(Height) FROM olympics WHERE Year = 2016

AND Medal IS NOT NULL);

-- 3. Display the names of all athletes who have won a medal in the sport

-- of swimming in both the 2008 and 2016 Olympics.

~~SELECT \* FROM olympics~~

~~WHERE Sport = 'Swimming' AND~~

~~Year IN (2008,2016) AND~~

~~Medal IS NOT NULL;~~

Updated Solution:

# Using Group By:

SELECT Name FROM olympics  
WHERE Sport = 'Swimming'  
 AND Year IN (2008, 2016)  
 AND Medal IS NOT NULL  
GROUP BY Name  
HAVING COUNT(DISTINCT Year) = 2  
ORDER BY Name;  
  
# Using Sub Query:  
  
SELECT DISTINCT Name  
FROM olympics  
WHERE Sport = 'Swimming'  
 AND Medal IS NOT NULL  
 AND Name IN (  
 SELECT Name  
 FROM olympics  
 WHERE Sport = 'Swimming' AND Year = 2008 AND Medal IS NOT NULL  
 )  
 AND Name IN (  
 SELECT Name  
 FROM olympics  
 WHERE Sport = 'Swimming' AND Year = 2016 AND Medal IS NOT NULL  
 ) ORDER BY Name;

# Using Inner Join:  
  
SELECT Distinct(t1.Name) FROM (SELECT Name FROM olympics  
WHERE Year = 2016 AND Sport = 'Swimming' AND Medal IN ('Gold','Silver','Bronze')) t1  
INNER JOIN  
(SELECT Name FROM olympics  
WHERE Year = 2008 AND Sport = 'Swimming' AND Medal IN ('Gold','Silver','Bronze')) t2  
ON t1.Name = t2.Name  
Order By Name;

-- 4. Display the names of all countries that have won more than 50 medals

-- in a single year.

SELECT country,Year,COUNT(\*) FROM olympics

WHERE Medal IS NOT NULL AND country IS NOT NULL

GROUP BY country,Year

HAVING COUNT(\*) > 50

ORDER BY Year,country;

-- 5. Display the names of all athletes who have won medals in

-- more than one sport in the same year.

SELECT DISTINCT name FROM olympics

WHERE ID in (SELECT DISTINCT ID FROM olympics

WHERE Medal IS NOT NULL

GROUP BY ID,Year,Sport

HAVING COUNT(Medal) > 1

ORDER BY COUNT(Medal) DESC);

-- 6. What is the average weight difference between male and female athletes

-- in the Olympics who have won a medal in the same event?

WITH result AS (

SELECT \* FROM olympics

WHERE Medal IS NOT NULL

)

SELECT AVG(A.Weight - B.Weight) FROM result A

JOIN result B

ON A.Event = B.Event

AND A.Gender != B.Gender;

-- 7. How many patients have claimed more than the average claim amount

-- for patients who are smokers and have at least one child,

-- and belong to the southeast region?

SELECT COUNT(claim) FROM insurance

WHERE claim > (SELECT AVG(Claim) FROM insurance

WHERE smoker = 'Yes' AND

region = 'southwest' AND

children >= 1);

-- 8. How many patients have claimed more than the average claim amount

-- for patients who are not smokers and have a BMI greater than the

-- average BMI for patients who have at least one child?

SELECT COUNT(claim) FROM insurance

WHERE claim > (SELECT AVG(claim) FROM insurance

WHERE smoker = 'No' AND

bmi > (SELECT AVG(bmi) FROM insurance

WHERE children >= 1));

-- 9. How many patients have claimed more than the average claim amount

-- for patients who have a BMI greater than the average BMI for patients

-- who are diabetic, have at least one child, and are from the

-- southwest region?

SELECT COUNT(claim) FROM insurance

WHERE claim > (SELECT AVG(claim) FROM insurance WHERE

bmi > (SELECT AVG(bmi) FROM insurance

WHERE children >= 1 AND

diabetic = 'Yes' AND

region = 'southwest'));

-- 10. What is the difference in the average claim amount between patients

-- who are smokers and patients who are non-smokers, and have the same BMI

-- and number of children?

~~SELECT AVG(A.claim - B.claim) FROM insurance A~~

~~JOIN insurance B~~

~~ON A.bmi = B.bmi~~

~~AND A.smoker != B.smoker~~

~~AND A.children = B.children~~

Updated Solution:

We need to find the difference in average claims by Smokers and non-smokers having the same BMI and Children.

SELECT bmi, children, AVG(claim) AS smoker\_avg\_claim, (

SELECT AVG(claim)

FROM insurance\_data AS non\_smoker

WHERE non\_smoker.bmi = smoker.bmi

AND non\_smoker.children = smoker.children

AND non\_smoker.smoker = 'No'

) AS non\_smoker\_avg\_claim, AVG(claim) - (

SELECT AVG(claim)

FROM insurance\_data AS non\_smoker

WHERE non\_smoker.bmi = smoker.bmi

AND non\_smoker.children = smoker.children

AND non\_smoker.smoker = 'No'

) AS claim\_diff

FROM insurance\_data AS smoker

WHERE smoker.smoker = 'Yes'

GROUP BY smoker.bmi, smoker.children

having claim\_diff is not null

ORDER BY bmi, children;

Output:

