**Problem Sheet – V (MADHUMITHA.S - 19PW13)**

USE 19pw13;

CREATE TABLE IF NOT EXISTS Supplier

(

SNr VARCHAR(4) CHECK (SNr REGEXP 'S[0-9]{3}' ),

SName VARCHAR(50) UNIQUE,

DateofBusiness DATE,

City VARCHAR(50) CHECK ( City REGEXP ('^[A-Z]')),

CONSTRAINT supplier\_pkey PRIMARY KEY (SNr)

);

CREATE TABLE IF NOT EXISTS Article

(

ANr VARCHAR(4) CHECK ( ANr REGEXP 'A[0-9]{2}'),

AName VARCHAR(50) UNIQUE,

Color VARCHAR(10),

Weight INT,

City VARCHAR(50),

CONSTRAINT article\_pkey PRIMARY KEY (ANr),

CONSTRAINT article\_color\_check CHECK ( Color IN ('WHITE','BLACK','RED') )

);

CREATE TABLE IF NOT EXISTS Delivery

(

SNr VARCHAR(4),

ANr VARCHAR(4),

Qty INT,

CONSTRAINT article\_fkey FOREIGN KEY (ANr) REFERENCES Article(ANr),

CONSTRAINT supplier\_fkey FOREIGN KEY (SNr) REFERENCES Supplier (SNr),

CONSTRAINT delivery\_pkey PRIMARY KEY (SNr, ANr)

);

INSERT INTO Supplier

VALUES ('S001', 'KENSTAR', STR\_TO\_DATE('01/01/2002', '%d/%m/%Y'), 'Chennai'),

('S002', 'SAMSUNG', STR\_TO\_DATE('12/10/2001', '%d/%m/%Y'), 'Cbe'),

('S003', 'ELGI', STR\_TO\_DATE('20/02/1999', '%d/%m/%Y'), 'Cbe'),

('S004', 'PHILIPS', STR\_TO\_DATE('10/12/1999', '%d/%m/%Y'), 'Delhi');

INSERT INTO Article

VALUES ('A01', 'MOBILE', 'BLACK', 100, 'Cbe'),

('A02', 'MICROWAVE', 'WHITE', 1500, 'Bombay'),

('A03', 'AIR COOLER', 'WHITE', 2000, 'Cbe'),

('A04', 'REFRIGIRATOR', 'RED', 10000, 'Delhi');

INSERT INTO Delivery

VALUES ('S003', 'A01', 1000),

('S002', 'A02', 200),

('S003', 'A02', 500),

('S004', 'A03', 10),

('S002', 'A04', 50),

('S003', 'A03', 25),

('S001', 'A02', 55),

('S001', 'A03', 200),

('S001', 'A04', 78),

('S001', 'A01', 67);

1. Display all pairs of article numbers with supplier numbers where one supplier delivers two articles.

SELECT SNr,ANr

FROM Delivery

WHERE SNr IN (SELECT SNr FROM Delivery GROUP BY SNr HAVING COUNT(\*)>1);

1. Display the article numbers and quantity of articles delivered whose cities are first in an alphabetic list of such cities.

SELECT ANr,Qty

FROM Delivery

WHERE ANr IN (SELECT ANr

FROM (SELECT ANr, RANK() OVER (ORDER BY City) AS RANKING FROM Article) Selection

WHERE RANKING = 1

);

1. List the supplier numbers of those suppliers who deliver the same articles as the supplier who delivers at least one red article.

SELECT DISTINCT SNr

FROM Delivery

WHERE ANr IN (

SELECT DISTINCT ANr

FROM Delivery

WHERE SNr IN (SELECT DISTINCT SNr

FROM Delivery

INNER JOIN Article ON Delivery.ANr = Article.ANr AND Article.Color = 'RED'));

1. Display the article numbers for articles delivered by a supplier in CBE to article in CBE.

SELECT ANr

FROM Delivery

WHERE (SNr ,ANr) IN

(SELECT SNr, ANr

FROM Supplier

CROSS JOIN Article

WHERE Supplier.City = 'Cbe' AND Article.City ='Cbe');

1. Change the color of all red articles to orange if the supplier belongs to CBE.

#Question violates the constraints

1. Insert the detail A05 WASHING MACHINE GREEN 20000 Cbe into the Article table by properly changing the needed constraints.

ALTER TABLE Article

DROP CONSTRAINT article\_color\_check;

ALTER TABLE Article

ADD CONSTRAINT article\_color\_check CHECK ( Color IN ('WHITE','BLACK','RED','GREEN'));

INSERT INTO Article VALUE ('A05' ,'WASHING MACHINE','GREEN',20000,'Cbe');

1. Find the date of business of the supplier who supplied BLACK article.

SELECT DateofBusiness

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM Article A

INNER JOIN Delivery D on A.ANr = D.ANr

WHERE A.Color = 'BLACK'

);

1. Find the name of the supplier who supplied maximum number of articles.

SELECT SName

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM (SELECT SNr,RANK() OVER (ORDER BY COUNT(DISTINCT ANr)DESC ) AS RANKING

FROM Delivery

GROUP BY SNr) SELECTION

WHERE RANKING=1

);

1. Find the name of the supplier who supplied maximum number of articles.

SELECT SName

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM (SELECT SNr,RANK() OVER (ORDER BY SUM(Qty)DESC )AS RANKING

FROM Delivery

GROUP BY SNr)SELECTION

WHERE RANKING=1

);

1. Find the name of the supplier who stands second in supplying maximum quantity of articles.

SELECT SName

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM (SELECT SNr,RANK() OVER (ORDER BY SUM(Qty)DESC )AS RANKING

FROM Delivery

GROUP BY SNr)SELECTION

WHERE RANKING=2

);

1. Display the details of delivery of the suppliers from the same city.

SELECT \*

FROM Delivery

WHERE SNr IN (

SELECT SNr

FROM Supplier

WHERE City IN (SELECT City FROM Supplier GROUP BY City HAVING COUNT(City)>1)

);

1. Display only the details of delivery of the suppliers from different cities.

SELECT \*

FROM Delivery

WHERE SNr IN (

SELECT SNr

FROM Supplier

WHERE City IN (SELECT CITY FROM Supplier GROUP BY CITY HAVING COUNT(City) =1)

);

1. Find the date of business of the supplier who supplied a total of 250 units.

SELECT SNr,DateofBusiness

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM Delivery

GROUP BY ANr

HAVING SUM(Qty) =250

);

1. Find the articles supplied by supplier ELGI.

SELECT ANr

FROM Delivery

WHERE SNr IN (

SELECT SNr

FROM Supplier

WHERE SName = 'ELGI'

);

1. Find the article with maximum quantity supplied.

SELECT A.\*

FROM Article A

WHERE A.ANr IN (SELECT ANr

FROM (

SELECT ANr , RANK() OVER (ORDER BY SUM(Qty) DESC )AS RANKING

FROM Delivery

GROUP BY ANr)SELECTION

WHERE RANKING =1);

1. Display the cities of the suppliers who supply MICROWAVE.

SELECT CITY

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM Delivery

WHERE ANr IN (SELECT ANr FROM Article WHERE AName = 'MICROWAVE')

);

1. Display the details of the cities of the suppliers who supply MICROWAVE with more than one supplier.

SELECT S.City

FROM Delivery

INNER JOIN Supplier S USING (SNr)

INNER JOIN Article A USING (ANr)

WHERE A.AName = 'MICROWAVE'

GROUP BY S.City HAVING COUNT(\*)>1;

1. Display the weight of the same colored articles supplied by the same supplier.

SELECT SNr,AName,Weight,Color

FROM Delivery

INNER JOIN Article A USING (ANr)

INNER JOIN Supplier S USING (SNr)

WHERE (A.Color,SNr) IN (

SELECT A.Color,SNr

FROM Delivery

INNER JOIN Article A USING (ANr)

INNER JOIN Supplier S USING (SNr)

GROUP BY A.Color, SNr

HAVING COUNT(SNr) > 1)

ORDER BY SNr;

1. Display the delivery details along with all the details in the order of supplier id.

SELECT \*

FROM Delivery

INNER JOIN Supplier S USING (SNr)

INNER JOIN Article A USING (ANr)

ORDER BY SNr;

1. Find and display the details of the articles supplied in the sorted order of supplier number.

SELECT \*

FROM Article

INNER JOIN Delivery D on Article.ANr = D.ANr

ORDER BY SNr;

1. Display the articles supplied by the last supplier in the alphabetical order of supplier list.

SELECT A.\*

FROM Delivery

INNER JOIN Article A USING (ANr)

WHERE SNr = (SELECT SNr FROM Supplier ORDER BY SName DESC LIMIT 1);

1. Display the supplier names who supply part “MICROWAVE”.

SELECT DISTINCT S.SName

FROM Delivery

INNER JOIN Article A USING (ANr)

INNER JOIN Supplier S USING (SNr)

WHERE A.AName = 'MICROWAVE';

1. Display the supplier names who do not supply part “MOBILE”.

SELECT SName

FROM Supplier

WHERE SNr NOT IN (

SELECT SNr

FROM Delivery

INNER JOIN Article A on Delivery.ANr = A.ANr

WHERE AName = 'MOBILE'

);

1. Display the supplier names who supply all articles.

SELECT SName

FROM Supplier

WHERE SNr IN (

SELECT SNr

FROM Delivery

INNER JOIN Article A on Delivery.ANr = A.ANr

GROUP BY SNr

HAVING COUNT(DISTINCT A.ANr) = (SELECT COUNT(\*) FROM Article) );

1. Display the supplier numbers who supply at least one of the articles supplied by supplier ‘S002’.

SELECT SName

FROM Supplier

JOIN Delivery D USING (SNr)

WHERE ANr IN (SELECT ANr FROM Delivery WHERE SNr = 'S002');

1. Display all pairs of supplier numbers such that two suppliers are “colocated” (located in the same city).

SELECT SNr,City

FROM Supplier

WHERE City IN (SELECT City FROM Supplier GROUP BY City HAVING COUNT(\*) >1);

1. Display the article numbers that are not supplied by any supplier in Delhi.

SELECT ANr

FROM Article

WHERE ANr NOT IN (

SELECT DISTINCT ANr

FROM Supplier

INNER JOIN Delivery D on Supplier.SNr = D.SNr AND Supplier.City = 'DELHI'

);

1. List the supplier numbers of suppliers whose city is first in the lexicographic order of cities.

SELECT SNr

FROM Supplier

WHERE City = (SELECT City FROM Supplier ORDER BY City LIMIT 1);

1. Find the article numbers supplied by every supplier with weight more than 2000.

SELECT ANr

FROM Article

WHERE Weight > 2000 AND

ANr IN (SELECT ANr FROM Delivery GROUP BY ANr HAVING COUNT(ANr) IN (SELECT COUNT(SNr)FROM Supplier));

1. Find the article names supplied by S001 and no one else.

SELECT AName

FROM Article

NATURAL JOIN Delivery

WHERE ANr NOT IN

(SELECT DISTINCT ANr FROM Delivery

WHERE SNr <> 'S001');