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-- Assignment 7: Aziz Arrak, Kaylee Thomas, Madeline Cowgill, Shivani Patel
-- CIS 310-01, Guan
-- Due March 21, 2018

--1 List the customers from California who bought red mountain bikes in September 2003. Use order date as
date bought.

SELECT  C.CUSTOMERID, C.LASTNAME, C.FIRSTNAME, B.MODELTYPE, P.COLORLIST,
  CONVERT(VARCHAR(10),B.ORDERDATE, 101) AS [ORDERDATE], B.SALESTATE
FROM    BIKE..BICYCLE B INNER JOIN BIKE..PAINT P ON B.PAINTID = P.PAINTID
  INNER JOIN BIKE..CUSTOMER C ON C.CUSTOMERID = B.CUSTOMERID
WHERE   P.COLORLIST = 'RED'
  AND B.SALESTATE = 'CA'
  AND B.MODELTYPE = 'MOUNTAIN'
  AND YEAR(B.ORDERDATE) = '2003'
  AND MONTH(B.ORDERDATE) = '9'

--2 List the employees who sold race bikes shipped to Wisconsin without the help of a retail store in 2001

SELECT  DISTINCT E.EMPLOYEEID, E.LASTNAME, B.SALESTATE, B.MODELTYPE, B.STOREID,
  CONVERT(VARCHAR(10),B.ORDERDATE, 101) AS [ORDERDATE]
FROM    BIKE..EMPLOYEE E INNER JOIN BIKE..BICYCLE B ON E.EMPLOYEEID = B.EMPLOYEEID
WHERE   B.MODELTYPE = 'RACE'
  AND B.ORDERDATE LIKE '%2001%'
  AND B.SALESTATE = 'WI'
  AND B.STOREID IS NOT NULL

--3 List all of the (distinct) rear derailleurs installed on road bikes sold in Florida in 2002.

SELECT  DISTINCT C.COMPONENTID, M.MANUFACTURERNAME, C.PRODUCTNUMBER
FROM    BIKE..BICYCLE B INNER JOIN BIKE..BIKEPARTS BP
  ON B.SERIALNUMBER = BP.SERIALNUMBER INNER JOIN BIKE..COMPONENT C ON BP.COMPONENTID = C.COMPONENTID
  INNER JOIN BIKE..MANUFACTURER M ON C.MANUFACTURERID = M.MANUFACTURERID
WHERE   C.CATEGORY = 'REAR DERAILLEUR'
  AND B.ORDERDATE LIKE '%2002%'
  AND B.SALESTATE = 'FL'
  AND B.MODELTYPE = 'ROAD'

--4 Who bought the largest (frame size) full suspension mountain bike sold in Georgia in 2004?

SELECT  C.CUSTOMERID, C.LASTNAME, C.FIRSTNAME, B.MODELTYPE, B.SALESTATE, B.FRAMESIZE,
  CONVERT(VARCHAR(10), B.ORDERDATE, 101) AS DATE
FROM    BIKE..BICYCLE B INNER JOIN BIKE..CUSTOMER C ON B.CUSTOMERID = C.CUSTOMERID
WHERE   B.SALESTATE = 'GA'
  AND B.ORDERDATE LIKE '%2004%'
  AND B.MODELTYPE = 'MOUNTAIN FULL'
  AND B.FRAMESIZE =    (SELECT MAX(FRAMESIZE)
  FROM BIKE..BICYCLE
  WHERE B.MODELTYPE = 'MOUNTAIN FULL'
  )

--5 Which manufacturer gave us the largest discount on an order in 2003?

SELECT  DISTINCT M.MANUFACTURERID, M.MANUFACTURERNAME
FROM    BIKE..MANUFACTURER M INNER JOIN BIKE..COMPONENT C ON M.MANUFACTURERID = C.MANUFACTURERID
  INNER JOIN BIKE..PURCHASEITEM P ON C.COMPONENTID = P.COMPONENTID
  INNER JOIN BIKE..PURCHASEORDER PO ON P.PURCHASEID = PO.PURCHASEID
WHERE   YEAR(PO.ORDERDATE) = 2003
  AND PO.DISCOUNT =    (SELECT       MAX(DISCOUNT)
  FROM   BIKE..PURCHASEORDER
  WHERE  YEAR(ORDERDATE) = 2003
  )
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--6 What is the most expensive road bike component we stock that has a quantity on hand greater
-- than 200 units?

SELECT   C.COMPONENTID, M.MANUFACTURERNAME, C.PRODUCTNUMBER, C.ROAD, C.CATEGORY, C.LISTPRICE,
C.QUANTITYONHAND
FROM     BIKE..COMPONENT C INNER JOIN BIKE..MANUFACTURER M ON C.MANUFACTURERID = M.MANUFACTURERID
WHERE    C.ROAD = 'ROAD'
  AND C.LISTPRICE =    (SELECT MAX(LISTPRICE)
  FROM BIKE..COMPONENT
  WHERE ROAD = 'ROAD' AND QUANTITYONHAND > 200
  )


--7 Which inventory item represents the most money sitting on the shelf—based on estimated cost?

SELECT   DISTINCT CO.COMPONENTID, M.MANUFACTURERNAME, CO.PRODUCTNUMBER, CO.CATEGORY, CO.YEAR,
CO.ESTIMATEDCOST AS VALUE
FROM     BIKE..COMPONENT CO INNER JOIN BIKE..MANUFACTURER M ON CO.MANUFACTURERID = M.MANUFACTURERID
WHERE    CO.ESTIMATEDCOST = (SELECT MAX(ESTIMATEDCOST)
  FROM BIKE..COMPONENT
  )


--8 What is the greatest number of components ever installed in one day by one employee?

SELECT         E.EMPLOYEEID, E.LASTNAME, CONVERT(VARCHAR(10), BP.DATEINSTALLED, 101) AS DATEINSTALLED,
COUNT(BP.COMPONENTID) AS COUNTOFCOMPONENTID
FROM           BIKE..EMPLOYEE E INNER JOIN BIKE..BIKEPARTS BP ON E.EMPLOYEEID = BP.EMPLOYEEID
WHERE          BP.DATEINSTALLED IS NOT NULL
GROUP BY E.EMPLOYEEID, E.LASTNAME, BP.DATEINSTALLED
HAVING         COUNT(BP.COMPONENTID) = (SELECT         TOP 1 COUNT(BP.COMPONENTID)
  FROM         BIKE..EMPLOYEE E INNER JOIN BIKE..BIKEPARTS BP ON E.EMPLOYEEID = BP.EMPLOYEEID
  WHERE        BP.DATEINSTALLED IS NOT NULL
  GROUP BY     E.EMPLOYEEID, E.LASTNAME, BP.DATEINSTALLED
  ORDER BY     COUNT(BP.COMPONENTID) DESC
  )


--9 What was the most popular letter style on race bikes in 2003?

SELECT         LETTERSTYLEID, COUNT(SERIALNUMBER) AS CountOfSerialNumber
FROM           BIKE..BICYCLE
WHERE          MODELTYPE = 'RACE'
  AND ORDERDATE LIKE '%2003%'
GROUP BY LETTERSTYLEID
HAVING         COUNT(SERIALNUMBER) =      (SELECT            TOP 1 COUNT(SERIALNUMBER)
  FROM         BIKE..BICYCLE
  WHERE        MODELTYPE = 'RACE'
  AND ORDERDATE LIKE '%2003%'
  GROUP BY     LETTERSTYLEID
  ORDER BY     COUNT(LETTERSTYLEID) DESC
  )


--10 Which customer spent the most money with us and how many bicycles did that person buy in 2002?

SELECT         B.CUSTOMERID, C.LASTNAME, C.FIRSTNAME, COUNT(B.CUSTOMERID) AS NUMBEROFBIKES,
SUM(B.SALEPRICE) AS AMOUNTSPENT
FROM           BIKE..BICYCLE B INNER JOIN BIKE..CUSTOMER C ON B.CUSTOMERID = C.CUSTOMERID
WHERE          ORDERDATE LIKE '%2002%'
GROUP BY B.CUSTOMERID, C.LASTNAME, C.FIRSTNAME
HAVING         SUM(B.SALEPRICE) = (SELECT         TOP 1 SUM(SALEPRICE)
  FROM         BIKE..BICYCLE
  WHERE        ORDERDATE LIKE '%2002%'
  GROUP BY     CUSTOMERID
  ORDER BY     SUM(SALEPRICE) DESC
  )
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--11 Have the sales of mountain bikes (full suspension or hard tail) increased or decreased from 2000 to
2004 (by count not by value)?

SELECT          YEAR(ORDERDATE) AS [SALEYEAR], COUNT(SERIALNUMBER) AS [COUNTOFSERIALNUMBER]
FROM            BIKE..BICYCLE
WHERE           YEAR(ORDERDATE) BETWEEN 2000 AND 2004
  AND MODELTYPE LIKE 'MOUNTAIN%'
GROUP BY YEAR(ORDERDATE)
ORDER BY YEAR(ORDERDATE) DESC


--12 Which component did the company spend the most money on in 2003?

SELECT          I.COMPONENTID, M.MANUFACTURERNAME, C.PRODUCTNUMBER, C.CATEGORY, SUM(I.PRICEPAID) AS [VALUE]

FROM            BIKE..PURCHASEORDER PO INNER JOIN BIKE..PURCHASEITEM I ON PO.PURCHASEID = I.PURCHASEID
  INNER JOIN BIKE..COMPONENT C ON I.COMPONENTID = C.COMPONENTID
  INNER JOIN BIKE..MANUFACTURER M ON C.MANUFACTURERID = M.MANUFACTURERID
WHERE           PO.ORDERDATE LIKE '%2003%'
GROUP BY I.COMPONENTID, M.MANUFACTURERNAME, C.PRODUCTNUMBER, C.CATEGORY
HAVING          SUM(I.PRICEPAID) = (SELECT          TOP 1 SUM(PRICEPAID)
  FROM          BIKE..PURCHASEITEM P INNER JOIN BIKE..PURCHASEORDER PO ON P.PURCHASEID = PO.PURCHASEID
  WHERE         PO.ORDERDATE LIKE '%2003%'
  GROUP BY      COMPONENTID
  ORDER BY      SUM(PRICEPAID) DESC
  )

--13 Which employee painted the most red race bikes in May 2003?

SELECT          E.EMPLOYEEID, E.LASTNAME, COUNT(B.SERIALNUMBER) AS "Number Painted"
FROM            BIKE..EMPLOYEE E INNER JOIN BIKE..BICYCLE B ON E.EMPLOYEEID = B.EMPLOYEEID
  INNER JOIN BIKE..PAINT P ON B.PAINTID = P.PAINTID
WHERE           P.COLORLIST = 'RED'
  AND YEAR(B.ORDERDATE) = '2003'
  AND MONTH(B.ORDERDATE) = '5'
  AND B.MODELTYPE = 'RACE'
GROUP BY E.EMPLOYEEID, E.LASTNAME


--14 Which California bike shop helped sell the most bikes (by value) in 2003?

SELECT          B.STOREID, R.STORENAME, C.CITY, SUM(B.SALEPRICE) AS SUMOFSALEPRICE
FROM            BIKE..BICYCLE B INNER JOIN BIKE..RETAILSTORE R ON B.STOREID = R.STOREID
  INNER JOIN BIKE..CITY C ON R.CITYID = C.CITYID
WHERE           B.SALESTATE = 'CA'
  AND YEAR(B.ORDERDATE) = '2003'
GROUP BY B.STOREID, R.STORENAME, C.CITY
HAVING          SUM(B.SALEPRICE) = (SELECT          TOP 1 SUM(SALEPRICE)
  FROM          BIKE..BICYCLE B INNER JOIN BIKE..RETAILSTORE R ON B.STOREID = R.STOREID
  INNER JOIN BIKE..CITY C ON R.CITYID = C.CITYID
  WHERE         SALESTATE = 'CA'
  AND YEAR(ORDERDATE) = '2003'
  GROUP BY      STORENAME
  ORDER BY      SUM(SALEPRICE) DESC
  )

--15 What is the total weight of the components on bicycle 11356?

SELECT  SUM(C.WEIGHT) AS TotalWeight
FROM    BIKE..COMPONENT C INNER JOIN BIKE..BIKEPARTS BP ON C.COMPONENTID = BP.COMPONENTID
  INNER JOIN BIKE..BICYCLE B ON BP.SERIALNUMBER = B.SERIALNUMBER
WHERE   B.SERIALNUMBER = 11356
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--16 What is the total list price of all items in the 2002 Campy Record group?

SELECT          G.GROUPNAME, SUM(C.LISTPRICE) AS SumOfListPrice
FROM            BIKE..GROUPO G INNER JOIN BIKE..GROUPCOMPONENTS GC ON G.COMPONENTGROUPID = GC.GROUPID
  INNER JOIN BIKE..COMPONENT C ON GC.COMPONENTID = C.COMPONENTID
WHERE           G.GROUPNAME = 'CAMPY RECORD 2002'
GROUP BY G.GROUPNAME
ORDER BY SUM(C.LISTPRICE)


--17 In 2003, were more race bikes built from carbon or titanium (based on the down tube)?

SELECT          TM.MATERIAL, COUNT(B.SERIALNUMBER) AS CountOfSerialNumber
FROM            BIKE..TUBEMATERIAL TM INNER JOIN BIKE..BICYCLETUBEUSAGE BT ON TM.TUBEID = BT.TUBEID
  INNER JOIN BIKE..BICYCLE B ON BT.SERIALNUMBER = B.SERIALNUMBER
  INNER JOIN BIKE..BIKETUBES BTU ON B.SERIALNUMBER = BTU.SERIALNUMBER
WHERE           YEAR(B.STARTDATE) = 2003
  AND B.MODELTYPE = 'RACE'
  AND TM.MATERIAL IN ('CARBON FIBER', 'TITANIUM')
  AND BTU.TUBENAME = 'DOWN'
GROUP BY TM.MATERIAL
HAVING          COUNT(B.SERIALNUMBER) = (SELECT           TOP 1 COUNT(B.SERIALNUMBER)
  FROM           BIKE..TUBEMATERIAL TM INNER JOIN BIKE..BICYCLETUBEUSAGE BT ON TM.TUBEID = BT.TUBEID
  INNER JOIN BIKE..BICYCLE B ON BT.SERIALNUMBER = B.SERIALNUMBER
  INNER JOIN BIKE..BIKETUBES BTU ON B.SERIALNUMBER = BTU.SERIALNUMBER
  WHERE          YEAR(B.STARTDATE) = 2003
  AND B.MODELTYPE = 'RACE'
  AND TM.MATERIAL IN ('CARBON FIBER', 'TITANIUM')
  AND BTU.TUBENAME = 'DOWN'
  GROUP BY       TM.MATERIAL
  ORDER BY       COUNT(B.SERIALNUMBER) DESC
  )


--18 What is the average price paid for the 2001 Shimano XTR rear derailleurs?

SELECT   AVG(PI.PRICEPAID) AS AVGOFPRICEPAID
FROM     BIKE..PURCHASEITEM PI INNER JOIN BIKE..COMPONENT C ON PI.COMPONENTID = C.COMPONENTID
  INNER JOIN BIKE..GROUPCOMPONENTS G ON G.COMPONENTID = PI.COMPONENTID
  INNER JOIN BIKE..GROUPO GP ON GP.COMPONENTGROUPID = G.GROUPID
WHERE    GP.GROUPNAME = 'SHIMANO XTR 2001'
  AND C.CATEGORY = 'REAR DERAILLEUR'


--19 What is the average top tube length for a 54 cm (frame size) road bike built in 1999?

SELECT   AVG(TOPTUBE) AS AVGOFTOPTUBE
FROM     BIKE..BICYCLE
WHERE    FRAMESIZE = 54
  AND MODELTYPE = 'ROAD'
  AND ORDERDATE LIKE '%1999%'


--20 On average, which costs (list price) more: road tires or mountain bike tires?

SELECT          ROAD, AVG(LISTPRICE) AS AVGOFLISTPRICE
FROM            BIKE..COMPONENT
WHERE           CATEGORY LIKE 'TIRE%' AND ROAD IN ('ROAD', 'MTB')
GROUP BY ROAD
HAVING          AVG(LISTPRICE) =     (SELECT               TOP 1 AVG(LISTPRICE)
  FROM            BIKE..COMPONENT
  WHERE           CATEGORY LIKE 'TIRE%'
  AND ROAD IN ('ROAD', 'MTB')
  GROUP BY        ROAD
  ORDER BY        AVG(LISTPRICE) DESC
  )
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--21 In May 2003, which employees sold road bikes that they also painted?

SELECT   DISTINCT B.EMPLOYEEID, E.LASTNAME
FROM     BIKE..BICYCLE B INNER JOIN BIKE..EMPLOYEE E ON B.EMPLOYEEID = E.EMPLOYEEID
WHERE    B.EMPLOYEEID = B.PAINTER
  AND YEAR(B.ORDERDATE) = '2003'
  AND MONTH(B.ORDERDATE) = '5'
  AND B.MODELTYPE = 'ROAD'

--22 In 2002, was the Old English letter style more popular with some paint jobs?

SELECT          P.PAINTID, P.COLORNAME, COUNT(B.SERIALNUMBER) AS NUMBEROFBIKESPAINTED
FROM            BIKE..PAINT P INNER JOIN BIKE..BICYCLE B ON P.PAINTID = B.PAINTID
WHERE           B.LETTERSTYLEID = 'ENGLISH'
  AND YEAR(B.ORDERDATE) = '2002'
GROUP BY P.PAINTID, P.COLORNAME
ORDER BY COUNT(B.SERIALNUMBER) DESC

--23 Which race bikes in 2003 sold for more than the average price of race bikes in 2002?

SELECT   SERIALNUMBER, MODELTYPE, CONVERT(VARCHAR(10),ORDERDATE, 101) AS [ORDERDATE], SALEPRICE
FROM     BIKE..BICYCLE
WHERE    YEAR(ORDERDATE) = '2003'
  AND MODELTYPE = 'RACE'
  AND SALEPRICE > (SELECT AVG(SALEPRICE)
   FROM  BIKE..BICYCLE
   WHERE YEAR(ORDERDATE) = '2002'
  AND MODELTYPE = 'RACE'
  )

--24 Which component that had no sales (installations) in 2004 has the highest inventory value (cost
basis)?

SELECT   DISTINCT M.MANUFACTURERNAME, C.PRODUCTNUMBER, C.CATEGORY,
  (C.ESTIMATEDCOST * C.QUANTITYONHAND) AS [VALUE], C.COMPONENTID
FROM     BIKE..MANUFACTURER M INNER JOIN BIKE..COMPONENT C ON M.MANUFACTURERID = C.MANUFACTURERID
  INNER JOIN BIKE..BIKEPARTS BP ON C.COMPONENTID = BP.COMPONENTID
WHERE    BP.DATEINSTALLED NOT LIKE '%2004%'
  AND (C.ESTIMATEDCOST * C.QUANTITYONHAND) = (SELECT     MAX(C.ESTIMATEDCOST * C.QUANTITYONHAND)
  FROM   BIKE..MANUFACTURER M INNER JOIN BIKE..COMPONENT C ON M.MANUFACTURERID = C.MANUFACTURERID
  INNER JOIN BIKE..BIKEPARTS BP ON C.COMPONENTID = BP.COMPONENTID
  WHERE  BP.DATEINSTALLED NOT LIKE '%2004%'

  )

--25 Create a vendor contacts list of all manufacturers and retail stores in California. Include only the
columns for VendorName and Phone. The retail stores should only include stores that participated in the
sale of at least one bicycle in 2004

-- DISPLAYS ALL MANUFACTUERER'S LOCATED IN CALIFORNIA
SELECT   DISTINCT M.MANUFACTURERNAME, M.PHONE
FROM     BIKE..MANUFACTURER M INNER JOIN BIKE..CITY C ON M.CITYID = C.CITYID
WHERE    C.STATE = 'CA'

--DISPLAYS ALL RETAIL STORES IN CALIFORNIA AND ONLY THOSE SOLD AT LEAST ONE BIKE IN 2004
SELECT   DISTINCT R.STORENAME, R.PHONE
FROM     BIKE..RETAILSTORE R INNER JOIN BIKE..BICYCLE B ON B.STOREID = R.STOREID
  INNER JOIN BIKE..CITY C ON C.CITYID = R.CITYID
WHERE    YEAR(B.ORDERDATE) = 2004
  AND (C.STATE = 'CA' OR B.SALESTATE = 'CA')

--26 List all of the employees who report to Venetiaan.
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SELECT          M.LASTNAME, E.EMPLOYEEID, E.LASTNAME, E.FIRSTNAME, E.TITLE
FROM            BIKE..EMPLOYEE M INNER JOIN BIKE..EMPLOYEE E ON M.EMPLOYEEID = E.CURRENTMANAGER
WHERE           M.LASTNAME = 'VENETIAAN'
ORDER BY E.LASTNAME

--27 List the components where the company purchased at least 25 percent more units than it used through
June 30, 2000.

SELECT          C.COMPONENTID, M.MANUFACTURERNAME, C.PRODUCTNUMBER, C.CATEGORY, PI.QUANTITYRECEIVED AS
TOTALRECEIVED,
  COUNT(BP.DATEINSTALLED) AS TOTALUSED,
  ((PI.QUANTITYRECEIVED - COUNT(BP.DATEINSTALLED)) * (C.LISTPRICE - PI.PRICEPAID)) AS NETGAIN,
  ((PI.QUANTITYRECEIVED - COUNT(BP.DATEINSTALLED)) / (C.LISTPRICE - PI.PRICEPAID)) AS NETPCT,
  C.LISTPRICE
FROM            BIKE..COMPONENT C INNER JOIN BIKE..MANUFACTURER M ON C.MANUFACTURERID = M.MANUFACTURERID
  INNER JOIN BIKE..PURCHASEITEM PI ON C.COMPONENTID = PI.COMPONENTID
  INNER JOIN BIKE..PURCHASEORDER PO ON PI.PURCHASEID = PO.PURCHASEID
  INNER JOIN BIKE..BIKEPARTS BP ON C.COMPONENTID = BP.COMPONENTID
WHERE           PO.RECEIVEDATE <= '30-JUN-2000'
GROUP BY C.COMPONENTID, M.MANUFACTURERNAME, C.PRODUCTNUMBER, C.CATEGORY,
  PI.QUANTITYRECEIVED, PI.PRICEPAID, C.LISTPRICE
HAVING          PI.QUANTITYRECEIVED >= 1.25 * COUNT(BP.DATEINSTALLED)

--28 In which years did the average build time for the year exceed the overall average build time for all
years?
--        The build time is the difference between order date and ship date.

SELECT          YEAR(ORDERDATE) AS YEAR, AVG(DATEDIFF(DAY, ORDERDATE, SHIPDATE)) AS BUILDTIME
FROM            BIKE..BICYCLE
GROUP BY YEAR(ORDERDATE)
HAVING          AVG(DATEDIFF(DAY, ORDERDATE, SHIPDATE)) >(SELECT        AVG(DATEDIFF(DAY, ORDERDATE,
SHIPDATE))
  FROM   BIKE..BICYCLE
  )
```