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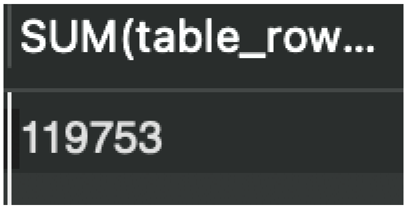
Question 1

```
use information_schema;
```

1.1

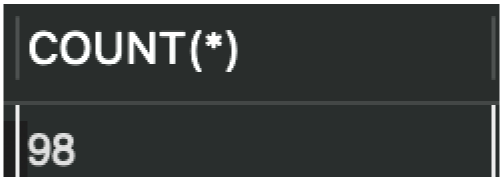
```
        SELECT SUM(table_rows)
          FROM information_schema.tables
          WHERE table_schema = 'aw';
```



```
SUM(table_row...
119753
```

1.2

```
        SELECT COUNT(*)
        FROM information_schema.tables;
```



```
COUNT(*)
98
```

1.3

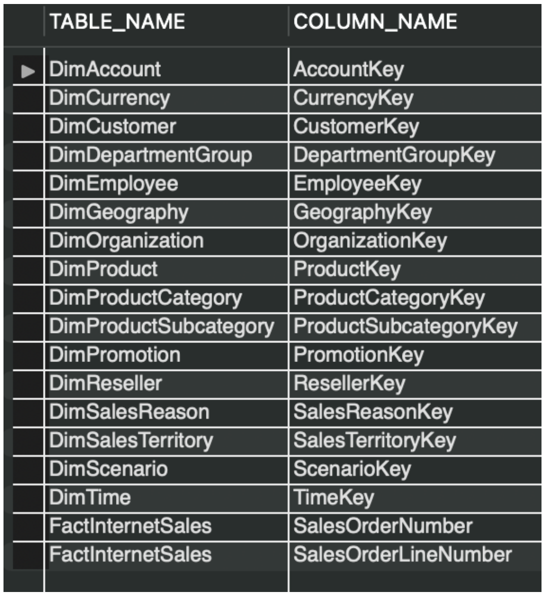
Using a manual count actully counts how many rows are present in each table while schema uses an approximation while taking into account reccent changes like delete & insert, resulting in a bad approximation.

1.4

count is less effective because it goes though each row while schema doesnt enter the rows at all "InnoDB is a storage engine for the database management system MySQL and MariaDB." (google)

Question 2

```
SELECT DISTINCT table_name, column_name
        FROM information_schema.COLUMNS
   WHERE table_schema = 'aw' AND column_key = 'PRI';
```



TABLE_NAME	COLUMN_NAME
DimAccount	AccountKey
DimCurrency	CurrencyKey
DimCustomer	CustomerKey
DimDepartmentGroup	DepartmentGroupKey
DimEmployee	EmployeeKey
DimGeography	GeographyKey
DimOrganization	OrganizationKey
DimProduct	ProductKey
DimProductCategory	ProductCategoryKey
DimProductSubcategory	ProductSubcategoryKey
DimPromotion	PromotionKey
DimReseller	ResellerKey
DimSalesReason	SalesReasonKey
DimSalesTerritory	SalesTerritoryKey
DimScenario	ScenarioKey
DimTime	TimeKey
FactInternetSales	SalesOrderNumber
FactInternetSales	SalesOrderLineNumber

Question 3

The database designer used Pascal Case

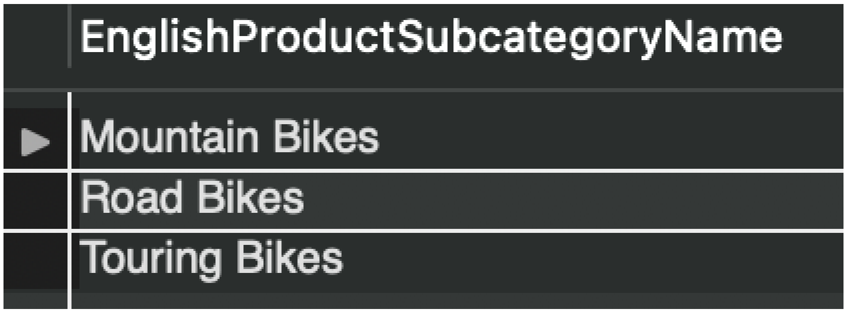
Question 4

The purpose of the recession relation on the columns of VacationHours on Phone because it is used to represent that the phone numbers are available if vacationHours are valid.

Question 5

```
use aw;

SELECT EnglishProductSubcategoryName -- correct answer
        FROM DimProductSubcategory
        WHERE ProductCategoryKey = 1;
```

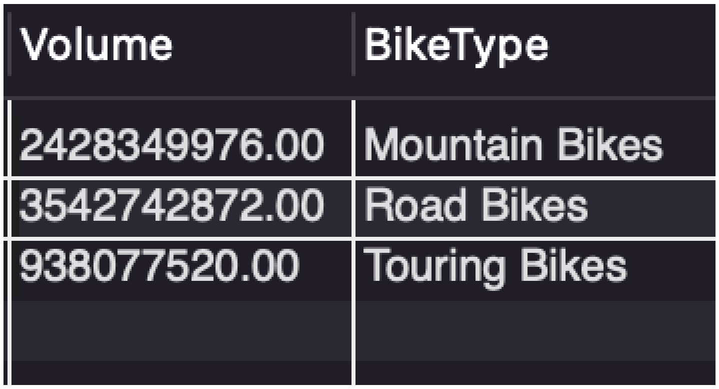


EnglishProductSubcategoryName
Mountain Bikes
Road Bikes
Touring Bikes

Question 6

RESULT Touring Bikes

```
SELECT PVal.DVal AS Volume, DimProductSubcategory.EnglishProductSubcategoryName AS
BikeType
        FROM (SELECT SUM(UP1.unitprice) AS DVal, DimProduct.ProductSubcategoryKey
        FROM (SELECT UnitPrice, ProductKey
        FROM FactInternetSales
                RIGHT JOIN DimTime ON FactInternetSales.OrderDateKey
                WHERE FullDateAlternateKey BETWEEN '2004-01-01' AND
'2004-12-31') AS UP1
            JOIN DimProduct ON UP1.ProductKey = DimProduct.ProductKey
            WHERE DimProduct.ProductSubcategoryKey = 1 ||
DimProduct.ProductSubcategoryKey = 2 || DimProduct.ProductSubcategoryKey = 3
            GROUP BY DimProduct.ProductSubcategoryKey) AS PVal
JOIN DimProductSubcategory ON DimProductSubcategory.ProductSubcategoryKey =
PVal.ProductSubcategoryKey;
```

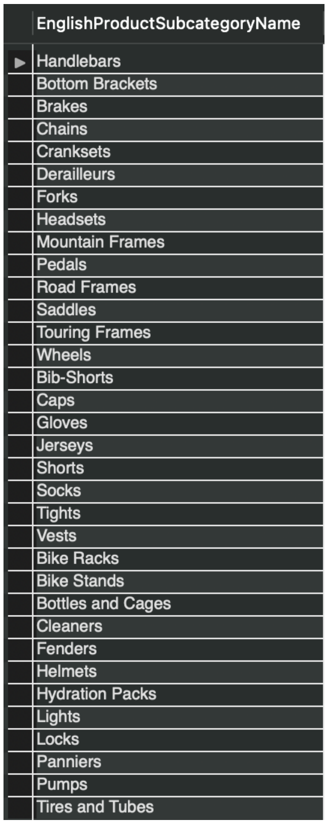


Volume	BikeType
2428349976.00	Mountain Bikes
3542742872.00	Road Bikes
938077520.00	Touring Bikes

Question 7

Result: Jerseys, Headsets, Forks, Socks, Pannieers and Saddles

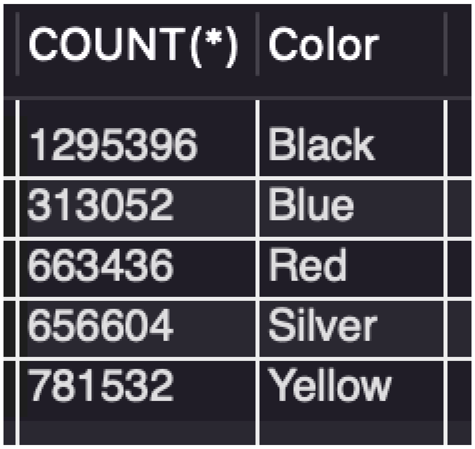
```
        SELECT EnglishProductSubcategoryName
  FROM DimProductSubcategory
  WHERE ProductCategoryKey != 1;
```



EnglishProductSubcategoryName
Handlebars
Bottom Brackets
Brakes
Chains
Cranksets
Derailleurs
Forks
Headsets
Mountain Frames
Pedals
Road Frames
Saddles
Touring Frames
Wheels
Bib-Shorts
Caps
Gloves
Jerseys
Shorts
Socks
Tights
Vests
Bike Racks
Bike Stands
Bottles and Cages
Cleaners
Fenders
Helmets
Hydration Packs
Lights
Locks
Panniers
Pumps
Tires and Tubes

Question 8

Result: Black



COUNT(*)	Color
1295396	Black
313052	Blue
663436	Red
656604	Silver
781532	Yellow

```
SELECT COUNT(*), DimProduct.Color
        FROM FactInternetSales
        JOIN DimProduct on DimProduct.ProductKey = FactInternetSales.ProductKey
        JOIN DimProductSubcategory on DimProductSubcategory.ProductSubcategoryKey = DimProduct.ProductSubcategoryKey
        RIGHT JOIN DimTime on FactInternetSales.OrderDateKey
        WHERE CalendarYear = 2002
        AND DimProductSubcategory.EnglishProductSubcategoryName LIKE '%Bikes%'
        Group by DimProduct.Color
        ORDER BY DimProduct.Color ASC;
```

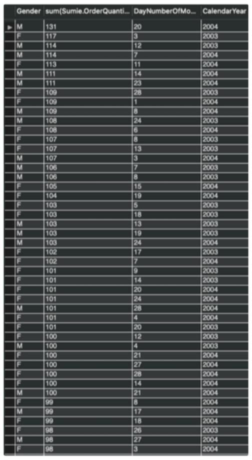
Or

```
SELECT COUNT(*), DimProduct.Color
        FROM FactInternetSales
        JOIN DimProduct on DimProduct.ProductKey = FactInternetSales.ProductKey
        JOIN DimProductSubcategory on DimProductSubcategory.ProductSubcategoryKey =
DimProduct.ProductSubcategoryKey
        RIGHT JOIN DimTime on FactInternetSales.OrderDateKey
        WHERE CalendarYear BETWEEN ‘2001’ AND ‘2004’
        AND DimProductSubcategory.EnglishProductSubcategoryName LIKE '%Bikes%'
        Group by DimProduct.Color
        ORDER BY DimProduct.Color ASC;
```

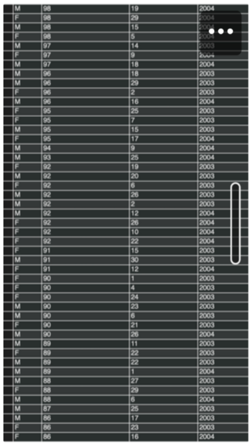
Question 9

Result: The Month of March of the Year 2003 was the highest sum for Females.

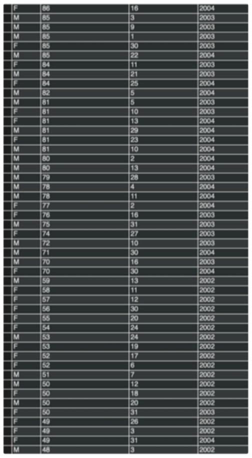
```
SELECT DimCustomer.Gender, sum(Sumie.OrderQuantity), Sumie.DayNumberOfMonth,
Sumie.CalendarYear
FROM (SELECT FactInternetSales.OrderQuantity, FactInternetSales.CustomerKey,
DimTime.DayNumberOfMonth, DimTime.CalendarYear
        FROM FactInternetSales
        JOIN DimProduct ON FactInternetSales.ProductKey = DimProduct.ProductKey
        JOIN DimTime ON FactInternetSales.OrderDateKey = DimTime.TimeKey
        WHERE DimProduct.ProductSubcategoryKey in (1,2,3)
    ) AS Sumie
JOIN DimCustomer ON Sumie.CustomerKey = DimCustomer.CustomerKey
GROUP BY DimCustomer.Gender, Sumie.DayNumberOfMonth, Sumie.CalendarYear
ORDER BY sum(Sumie.OrderQuantity) DESC;
```



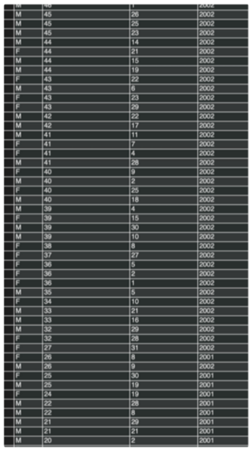
Gender	sum(Sumie.OrderQuanti...	DayNumberOfMo...	CalendarYear
M	131	20	2004
F	117	3	2003
M	114	12	2003
M	114	7	2004
F	113	11	2004
M	111	14	2004
M	111	23	2004
F	109	28	2003
F	109	1	2004
M	109	8	2004
M	108	24	2003
F	108	6	2004
F	107	8	2003
F	107	13	2003
M	107	3	2004
M	106	7	2003
M	106	8	2003
F	105	15	2004
F	104	19	2004
F	103	5	2003
F	103	18	2003
M	103	13	2003
M	103	19	2003
M	103	24	2004
F	102	17	2003
F	102	7	2004
F	101	9	2003
F	101	14	2003
F	101	20	2004
F	101	24	2004
M	101	28	2004
F	101	4	2004
F	101	20	2003
F	100	12	2003
M	100	4	2003
F	100	21	2004
F	100	27	2004
F	100	28	2004
F	100	14	2004
M	100	21	2004
F	99	8	2004
M	99	17	2004
F	99	18	2004
F	98	26	2003
M	98	27	2004
F	98	3	2004



M	98	19	2004
F	98	29	2004
M	98	15	2004
F	98	5	2004
M	97	14	2003
F	97	9	2004
M	97	18	2004
M	96	18	2003
M	96	29	2003
F	96	2	2003
M	96	16	2004
F	95	25	2003
F	95	7	2003
M	95	15	2003
F	95	17	2004
M	94	9	2004
M	93	25	2004
F	92	19	2003
M	92	20	2003
F	92	6	2003
M	92	26	2003
M	92	2	2003
M	92	12	2004
F	92	26	2004
F	92	10	2004
F	92	22	2004
F	91	15	2003
M	91	30	2003
F	91	12	2004
F	90	1	2003
F	90	4	2003
F	90	24	2003
M	90	23	2003
M	90	6	2003
F	90	21	2003
M	90	26	2004
M	89	11	2003
F	89	22	2003
M	89	22	2003
M	89	1	2004
M	88	27	2003
F	88	29	2003
M	88	6	2004
M	87	25	2003
M	86	17	2003
F	86	23	2003
F	86	16	2004



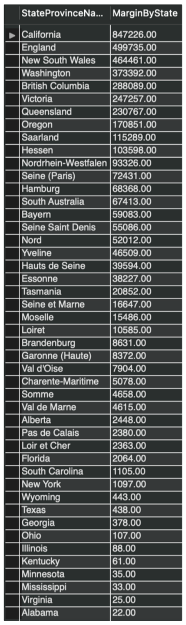
F	86	16	2004
M	85	3	2003
M	85	9	2003
M	85	1	2003
F	85	30	2003
M	85	22	2004
F	84	11	2003
M	84	21	2003
F	84	25	2004
M	82	5	2004
M	81	5	2003
F	81	10	2003
F	81	13	2004
M	81	29	2004
F	81	23	2004
M	81	10	2004
M	80	2	2004
M	80	13	2004
M	79	28	2003
M	78	4	2004
M	78	11	2004
F	77	2	2004
F	76	16	2003
M	75	31	2003
F	74	27	2003
M	72	10	2003
M	71	30	2004
M	70	16	2003
F	70	30	2004
M	59	13	2002
F	58	11	2002
F	57	12	2002
F	56	30	2002
F	55	20	2002
F	54	24	2002
M	53	24	2002
F	53	19	2002
F	52	17	2002
F	52	6	2002
M	51	7	2002
M	50	12	2002
F	50	18	2002
M	50	20	2002
F	50	31	2003
F	49	26	2002
F	49	3	2002
F	49	31	2004
M	48	3	2002



M	46	1	2002
M	45	26	2002
M	45	25	2002
M	45	23	2002
M	44	14	2002
F	44	21	2002
M	44	15	2002
M	44	19	2002
F	43	22	2002
M	43	6	2002
F	43	23	2002
F	43	29	2002
M	42	22	2002
M	42	17	2002
M	41	11	2002
F	41	7	2002
F	41	4	2002
M	41	28	2002
F	40	9	2002
M	40	2	2002
F	40	25	2002
M	40	18	2002
M	39	4	2002
F	39	15	2002
M	39	30	2002
M	39	10	2002
F	38	8	2002
F	37	27	2002
F	36	5	2002
F	36	2	2002
F	36	1	2002
M	35	5	2002
F	34	10	2002
M	33	21	2002
M	33	16	2002
M	32	29	2002
F	32	28	2002
F	27	31	2002
F	26	8	2001
M	26	9	2002
F	25	30	2001
M	25	19	2001
F	24	19	2001
M	22	28	2001
M	22	8	2001
M	21	29	2001
M	21	21	2001
M	20	2	2001

Question 10

```
SELECT StateProvinceName, SUM(SalesAmount - TotalProductCost) AS MarginByState
        FROM FactInternetSales
                JOIN DimCustomer ON DimCustomer.CustomerKey =
FactInternetSales.CustomerKey
                JOIN DimGeography ON DimGeography.GeographyKey =
DimCustomer.GeographyKey
                JOIN DimTime ON DimTime.TimeKey = FactInternetSales.OrderDateKey
                        WHERE DimTime.CalendarYear = '2004'
GROUP BY StateProvinceName
ORDER BY MarginByState DESC;
```



	StateProvinceNa...	MarginByState
▶	California	847226.00
	England	499735.00
	New South Wales	464461.00
	Washington	373392.00
	British Columbia	288089.00
	Victoria	247257.00
	Queensland	230767.00
	Oregon	170851.00
	Saarland	115289.00
	Hessen	103598.00
	Nordrhein-Westfalen	93326.00
	Seine (Paris)	72431.00
	Hamburg	68368.00
	South Australia	67413.00
	Bayern	59083.00
	Seine Saint Denis	55086.00
	Nord	52012.00
	Yveline	46509.00
	Hauts de Seine	39594.00
	Essonne	38227.00
	Tasmania	20852.00
	Seine et Marne	16647.00
	Moselle	15486.00
	Loiret	10585.00
	Brandenburg	8631.00
	Garonne (Haute)	8372.00
	Val d'Oise	7904.00
	Charente-Maritime	5078.00
	Somme	4658.00
	Val de Marne	4615.00
	Alberta	2448.00
	Pas de Calais	2380.00
	Loir et Cher	2363.00
	Florida	2064.00
	South Carolina	1105.00
	New York	1097.00
	Wyoming	443.00
	Texas	438.00
	Georgia	378.00
	Ohio	107.00
	Illinois	88.00
	Kentucky	61.00
	Minnesota	35.00
	Mississippi	33.00
	Virginia	25.00
	Alabama	22.00

Result: The State with the highest Profit Margin for the AW database is California.