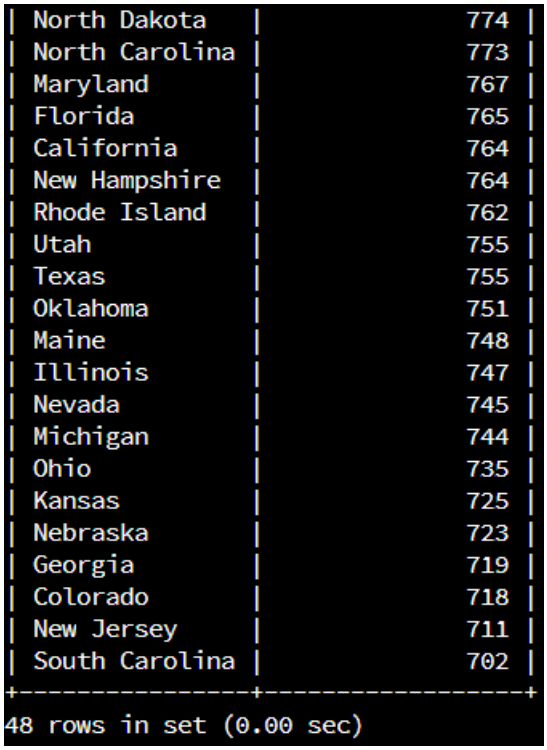
Southern New Hampshire University

DAD 220 Data Analysis RMA Report

Frequency of returns by state

I ran a query against the database designed to count the total number of returns sorted by state. The states are listed below in order of descending return counts, with the state that had the most returns at the top and the state with the least returns at the bottom. The output was too large to be captured with one screenshot, which is why the "North Dakota" entry is listed twice; to show that no entries are missing between the images below. The states averaged around 800 returns each. Massachusetts was at the top with 972 and South Carolina was at the bottom with 702. If we take this list and cross reference it with a list that shows the number of orders or sales per state, we would be able to see which states have the highest rate of returns. A high rate of returns could warrant corrective action regarding the business strategy employed by the locations in that state.

State	Returns_By_State
Massachusetts	972
Arkansas	844
Oregon	840
West Virginia	837
Alabama	836
Idaho	822
Mississippi	821
Connecticut	821
Tennessee	819
Delaware	811
Kentucky	809
Montana	808
Wisconsin	807
New Mexico	807
Iowa	804
Indiana	802
Pennsylvania	802
South Dakota	797
Louisiana	794
Minnesota	794
Wyoming	786
Vermont	785
Hawaii	783
New York	782
Washington	781
Missouri	777
Arizona	775
North Dakota	774



North Dakota	774
North Carolina	773
Maryland	767
Florida	765
California	764
New Hampshire	764
Rhode Island	762
Utah	755
Texas	755
Oklahoma	751
Maine	748
Illinois	747
Nevada	745
Michigan	744
Ohio	735
Kansas	725
Nebraska	723
Georgia	719
Colorado	718
New Jersey	711
South Carolina	702

48 rows in set (0.00 sec)

For any members present who are familiar with the mysql database, I used the following command to produce the above output:

```
SELECT Collaborators.State,
COUNT(*) AS Returns_By_State
FROM Collaborators
INNER JOIN Orders
ON Collaborators.CollaboratorID = Orders.CustomerID
INNER JOIN RMA
ON Orders.OrderID = RMA.OrderID
GROUP BY 1
ORDER BY Returns_By_State
DESC;
```

Analyzing the percentage of returns by product type.

Now we'll be looking at the total number of returns sorted by product description rather than state. However, the total number of returns by description is hardly useful information on its own, so we'll also be looking at the total number of orders by description and using that to generate a return percentage. The output below shows a count of total returns, total orders, and a percentage based on those two numbers sorted by product description.

Description	Orders_by_Description	Returns_by_Description	Return_Rate
Basic Switch 10/100/1000 BaseT 8 port	4284	4246	99.1130
Enterprise Switch 10GigE SFP+ 48 port	4329	4287	99.0298
Enterprise Switch 10GigE SFP+ 24 Port	4275	4231	98.9708
Enterprise Switch 40GigE SFP+ 48 port	6186	6118	98.9007
Advanced Switch 10 GigE Copper/Fiber 44 port coppe	4174	4124	98.8021
Basic Switch 10/100/1000 BaseT 48 port	8385	8282	98.7716
Advanced Switch 10GigE Copper 24 port	4178	4122	98.6596
Enterprise Switch 40GigE SFP+ 24 port	2152	2121	98.5595
Basic Switch 10/100/1000 BaseT 24 port	34	33	97.0588

9 rows in set (3 min 30.39 sec)

The product that had the highest return rate was the "Basic Switch 10/100/1000 BaseT 8 port" at 99.1130%, while the product with the lowest return rate was the "Basic Switch 10/100/1000 BaseT 24 port" at 97.0588%. The items with a lower return rate indicate that customers are likely satisfied with their product, since the item was purchased and not returned. While the "Basic Switch 10/100/1000 BaseT 24 port" does have the lowest return rate, it is important to realize that this item only had thirty four orders total. Customer satisfaction may not be accurately reflecting due to the small sample size. However, looking at sample size along with return rates, we can clearly see an issue that needs addressing with the "Basic Switch 10/100/1000 BaseT 8 port". The "Basic Switch 10/100/1000 BaseT 8 port" has the highest return rate, over 99%, with an order size of just over four thousand, while the "Basic Switch

10/100/1000 BaseT 48 port" has a 98.7716% return rate with nearly twice as many orders. This indicates that the "Basic Switch 10/100/1000 BaseT 48 port" is a solid product in comparison to the "Basic Switch 10/100/1000 BaseT 8 port", and differences between the two in terms of manufacturing and advertisement should be noted. The items with a low return rate and high order count should be examined and emulated, so that the other less successful items can replicate that success.

For any members present who are familiar with the mysql database, I used the following command to produce the above output:

```
SELECT Orders.Description,
COUNT(DISTINCT Orders.OrderID) AS Orders_by_Description,
COUNT(DISTINCT RMA.RMAID) AS Returns_by_Description,
(COUNT(DISTINCT RMA.RMAID)/COUNT(DISTINCT Orders.OrderID) * 100) AS
Return_Rate
FROM Orders
LEFT JOIN RMA
ON Orders.OrderID = RMA.OrderID
GROUP BY 1
ORDER BY Return_Rate
DESC;
```