Lendo

Challenge Test

Data Analytics Internship

Overview

The aim of these exercises on the following pages is to help us determine how well you might fit in the role. We will:

- Assess your ability to design dashboards
- Assess your ability to work with large datasets but messy at times too
- Assess your Excel capabilities
- Assess your ability to implement SQL and find interesting insights

Feel free to use whatever resource or method you feel you need, but make sure the response is your own.
Provide enough illustration and written description of your output, in whatever medium you are comfortable, to get your point across.

Above all: Have fun!

If this isn't fun, this job probably isn't for you.

Part One

Dashboard

You received a dataset of Covid by Country over time (attached).

Use this dataset to design a nice Dashboard for assessing the Covid infection across countries and see which countries have done well over time. Please use any cloudbase BI or dashboard tool you want to design the dashboard with insightful charts. The tool must use queries.

Part Two

Analysis

You have received another DataSet on airlines flights in the United States, including information about the number, length, and type of delays. The data is reported for individual months at every major airport for every carrier.

As a CEO of a major airline, what does this data tell you about the Covid situation? What do you recommend the CEO to do in terms of changing hubs, routs, managing delays better or any other recommendations?

Please present it in a PowerPoint (or Google Slides) format, you can share your data analysis work if you want

Bonus Question: Do you think there is a way we can use both datasets together to find any insights, even though they are at different times and one dataset only focuses on one country?

I really don't know if you can use both datasets together or not, so feel free to skip this part

Part Three

Data Analysis Skills

In the email, please find attached an Excel sheet for you to complete the following tasks. Please note that only four tasks are mandatory. The rest are optional.

Task 1: In the Task 1 worksheet, the columns with a green background (Total Hours, Hourly Rate, and Total Pay) are the missing parts of the work records that must be completed by writing the three formulas described below:

1. Total Hours write formula to calculate the Total Hours worked that day by using FROM and TO columns
2. Get the hourly rate from the Tables worksheet Work_Code table by using VLOOKUP on the Specialty Code
3. Calculate total pay by Total Hours into Hourly Rate
4. remove the green background on these sheets

Task 2 (Optional):
Complete this report by retrieving a subset of the data from the Task 1-Contract Work worksheet. This subset should include only the records for employees working on Corporate Sales projects who have earned more than $1,000 in a day3. Once you have the subset of data copied from the Contract Work worksheet to the **Total Pay Report** worksheet, apply a subtotal operation to sum the **Total Pay** for each employee. The Task 2-Total Pay Report worksheet has headers in place indicating the columns to be included in the report. You can use copy. Past and VLOOKUP to complete this task

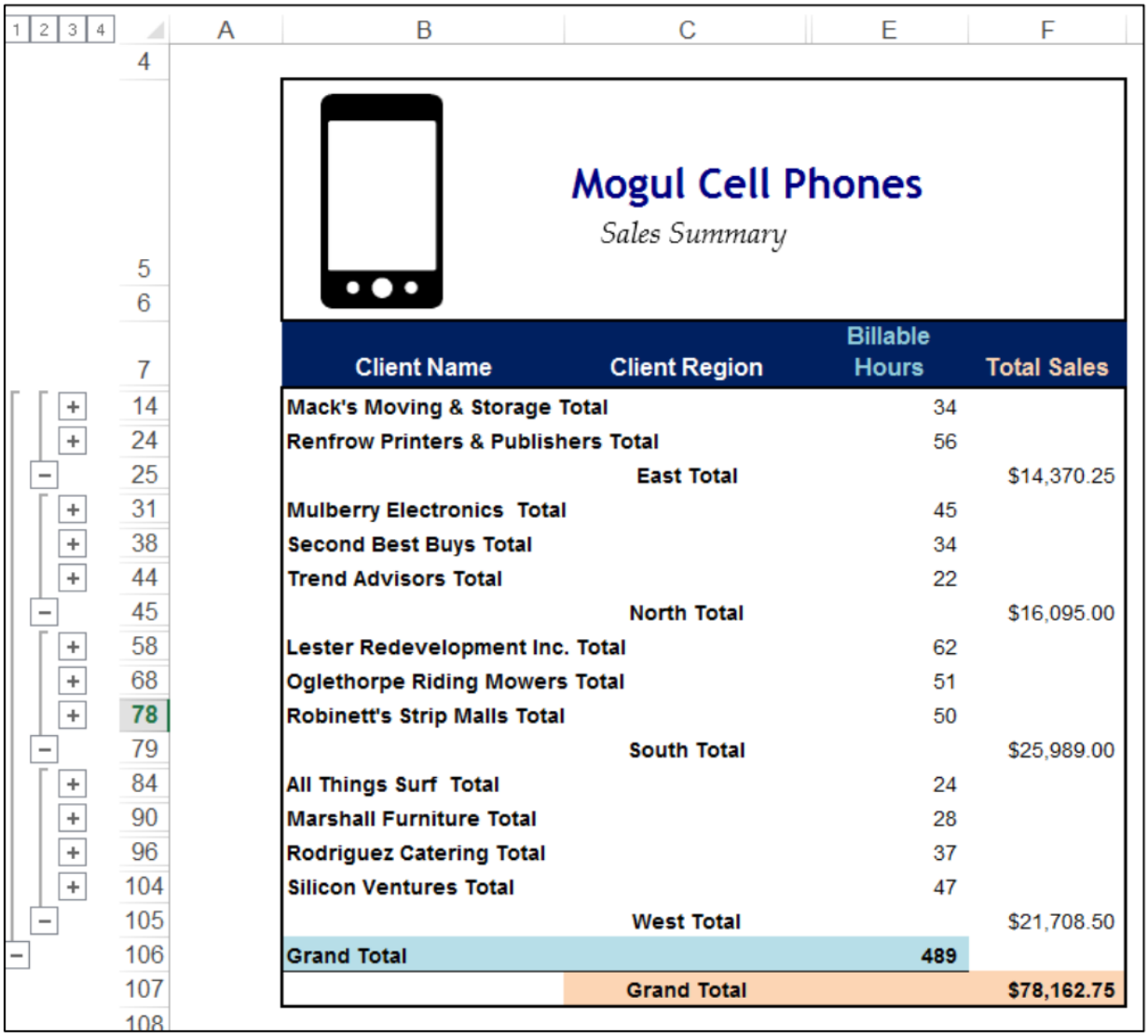
Your Total Pay Report should look like the illustration below

	B	C	D	E	F	G
9	**Employee Name**	**Employee Code**	**Client Name**	**Client Code**	**Date**	**Total Pay**
10	Charles Morton	1	City of Morton, NC	C40	July 1, 2013	$1,600.00
11	**Charles Morton Total**					$1,600.00
12	Arthur Reilly	5	Marshall Furniture	C60	July 10, 2013	$1,500.00
13	Arthur Reilly	5	Renfrow Printers & Publishers	C80	July 11, 2013	$1,700.00
14	**Arthur Reilly Total**					$3,200.00
15	Kate Emerson	9	Tandy's, Inc.	C70	July 17, 2013	$1,600.00
16	Kate Emerson	9	Marshall Furniture	C60	July 16, 2013	$1,300.00
17	**Kate Emerson Total**					$2,900.00
18	Eric Stokes	11	School of the Environment	C50	July 14, 2013	$1,800.00
19	Eric Stokes	11	Mallard & Hernandez, Inc.	C10	July 17, 2013	$1,650.00
20	Eric Stokes	11	Marshall Furniture	C60	July 18, 2013	$2,000.00
21	**Eric Stokes Total**					$5,450.00
22	James Hartigan	15	Mack's Moving & Storage	C20	July 14, 2013	$1,900.00
23	James Hartigan	15	Sanford Booksellers, Ltd.	C90	July 17, 2013	$1,200.00
24	**James Hartigan Total**					$3,100.00
25	Thomas Hoffman	16	School of the Environment	C50	July 18, 2013	$1,400.00
26	**Thomas Hoffman Total**					$1,400.00
27	John Pane	20	School of the Environment	C50	July 23, 2013	$1,350.00
28	John Pane	20	Renfrow Printers & Publishers	C80	July 24, 2013	$1,600.00
29	**John Pane Total**					$2,950.00
30	Pamela Buncombe	29	School of the Environment	C50	July 18, 2013	$1,450.00
31	Pamela Buncombe	29	Rodriguez Catering	C15	July 29, 2013	$1,900.00
32	**Pamela Buncombe Total**					$3,350.00
33	Steven Galloway	33	City of Morton, NC	C40	July 22, 2013	$2,500.00
34	Steven Galloway	33	Rodriguez Catering	C15	July 23, 2013	$1,800.00
35	Steven Galloway	33	Mallard & Hernandez, Inc.	C10	July 27, 2013	$2,000.00
36	Steven Galloway	33	Marshall Furniture	C60	July 28, 2013	$2,050.00
37	Steven Galloway	33	Renfrow Printers & Publishers	C80	July 29, 2013	$1,850.00
38	Steven Galloway	33	Mack's Moving & Storage	C20	July 31, 2013	$1,800.00
39	**Steven Galloway Total**					$12,000.00
40	Peter Walton	34	Sanford Booksellers, Ltd.	C90	July 12, 2013	$2,400.00
41	Peter Walton	34	School of the Environment	C50	July 13, 2013	$2,400.00
42	Peter Walton	34	Tandy's, Inc.	C70	July 14, 2013	$2,600.00
43	Peter Walton	34	Wardell, Mingus, and Krensha	C30	July 30, 2013	$1,100.00
44	**Peter Walton Total**					$8,500.00
45	Jose Naron	37	City of Morton, NC	C40	July 18, 2013	$1,600.00
46	Jose Naron	37	Rodriguez Catering	C15	July 19, 2013	$2,700.00
47	**Jose Naron Total**					$4,300.00
48	Anne Neville	38	Mallard & Hernandez, Inc.	C10	July 27, 2013	$2,500.00
49	**Anne Neville Total**					$2,500.00
50	**Grand Total**					$51,250.00

Task 3 (Optional): Complete the Employee Name Report**,** A list of employee Names appears in Column B. At present, the first and last name for each employee is stored in the same cell. A reference to Cell B10, for example, retrieves the complete name Charles Morton. In this task, parse the data so it's stored with first and last names in separate cells. With this arrangement, each component can be referenced separately.

Task 4 (Optional): In the Task 4- Summarize Sales worksheet there are 82 records capture client and region information, dates, billable hours, and total sales. Each client appears to have multiple records in the data.

In this task, subtotal **Total Sales** by **Client Region** as a sum and subtotal **Billable Hours** by **Client Name**, also as a sum. The result should look as following:



Mogul Cell Phones

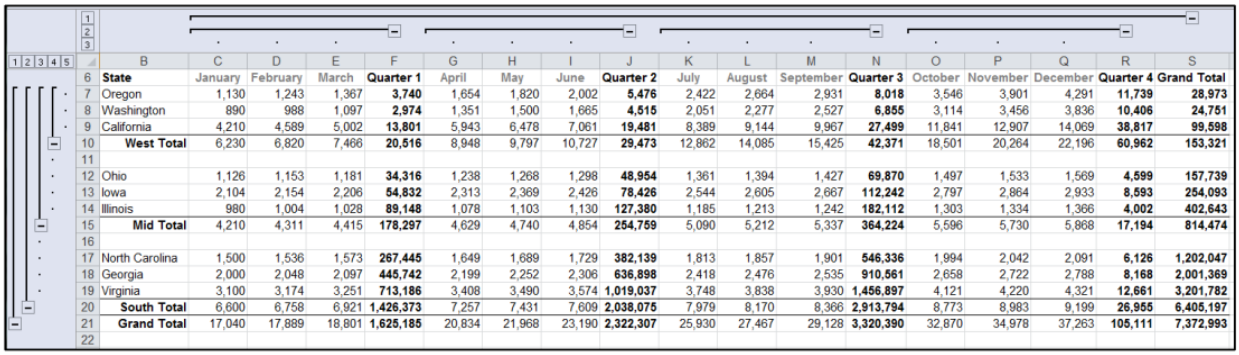
Sales Summary

Client Name	Client Region	Billable Hours	Total Sales
Mack's Moving & Storage Total		34	
Renfrow Printers & Publishers Total		56	
	East Total		$14,370.25
Mulberry Electronics Total		45	
Second Best Buys Total		34	
Trend Advisors Total		22	
	North Total		$16,095.00
Lester Redevelopment Inc. Total		62	
Oglethorpe Riding Mowers Total		51	
Robinett's Strip Malls Total		50	
	South Total		$25,989.00
All Things Surf Total		24	
Marshall Furniture Total		28	
Rodriguez Catering Total		37	
Silicon Ventures Total		47	
	West Total		$21,708.50
Grand Total		489	
	Grand Total		$78,162.75

Task 5 (Optional): Is a bonus task, you can choose not to do it. The Task is to analyze stock returns.
Task 5– Analyze Stock Returns worksheet shows Philip Morris stock returns for the 83 months between 1990 and mid-1997. Use Excel's FREQUENCY array function to find out the number of returns that fall into each of six different value shown in Bin Values

Task 6: Please use task 6 worksheet that contains:
Sales data
From **nine states**
In **three regions**
With **totals** calculated by **month**
And **totals** calculated by **quarter**.

Apply Outline so the data is presented as following:



State	January	February	March	Quarter 1	April	May	June	Quarter 2	July	August	September	Quarter 3	October	November	December	Quarter 4	Grand Total
Oregon	1,130	1,243	1,367	**3,740**	1,654	1,820	2,002	**5,476**	2,422	2,664	2,931	**8,018**	3,546	3,901	4,291	**11,739**	**28,973**
Washington	890	988	1,097	**2,974**	1,351	1,500	1,665	**4,515**	2,051	2,277	2,527	**6,855**	3,114	3,456	3,836	**10,406**	**24,751**
California	4,210	4,589	5,002	**13,801**	5,943	6,478	7,061	**19,481**	8,389	9,144	9,967	**27,499**	11,841	12,907	14,069	**38,817**	**99,598**
West Total	6,230	6,820	7,466	**20,516**	8,948	9,797	10,727	**29,473**	12,862	14,085	15,425	**42,371**	18,501	20,264	22,196	**60,962**	**153,321**
Ohio	1,126	1,153	1,181	**34,316**	1,238	1,268	1,298	**48,954**	1,361	1,394	1,427	**69,870**	1,497	1,533	1,569	**4,599**	**157,739**
Iowa	2,104	2,154	2,206	**54,832**	2,313	2,369	2,426	**78,426**	2,544	2,605	2,667	**112,242**	2,797	2,864	2,933	**8,593**	**254,093**
Illinois	980	1,004	1,028	**89,148**	1,078	1,103	1,130	**127,380**	1,185	1,213	1,242	**182,112**	1,303	1,334	1,366	**4,002**	**402,643**
Mid Total	4,210	4,311	4,415	**178,297**	4,629	4,740	4,854	**254,759**	5,090	5,212	5,337	**364,224**	5,596	5,730	5,868	**17,194**	**814,474**
North Carolina	1,500	1,536	1,573	**267,445**	1,649	1,689	1,729	**382,139**	1,813	1,857	1,901	**546,336**	1,994	2,042	2,091	**6,126**	**1,202,047**
Georgia	2,000	2,048	2,097	**445,742**	2,199	2,252	2,306	**636,898**	2,418	2,476	2,535	**910,561**	2,658	2,722	2,788	**8,168**	**2,001,369**
Virginia	3,100	3,174	3,251	**713,186**	3,408	3,490	3,574	**1,019,037**	3,748	3,838	3,930	**1,456,897**	4,121	4,220	4,321	**12,661**	**3,201,782**
South Total	6,600	6,758	6,921	**1,426,373**	7,257	7,431	7,609	**2,038,075**	7,979	8,170	8,366	**2,913,794**	8,773	8,983	9,199	**26,955**	**6,405,197**
Grand Total	17,040	17,889	18,801	**1,625,185**	20,834	21,968	23,190	**2,322,307**	25,930	27,467	29,128	**3,320,390**	32,870	34,978	37,263	**105,111**	**7,372,993**

Task 7:

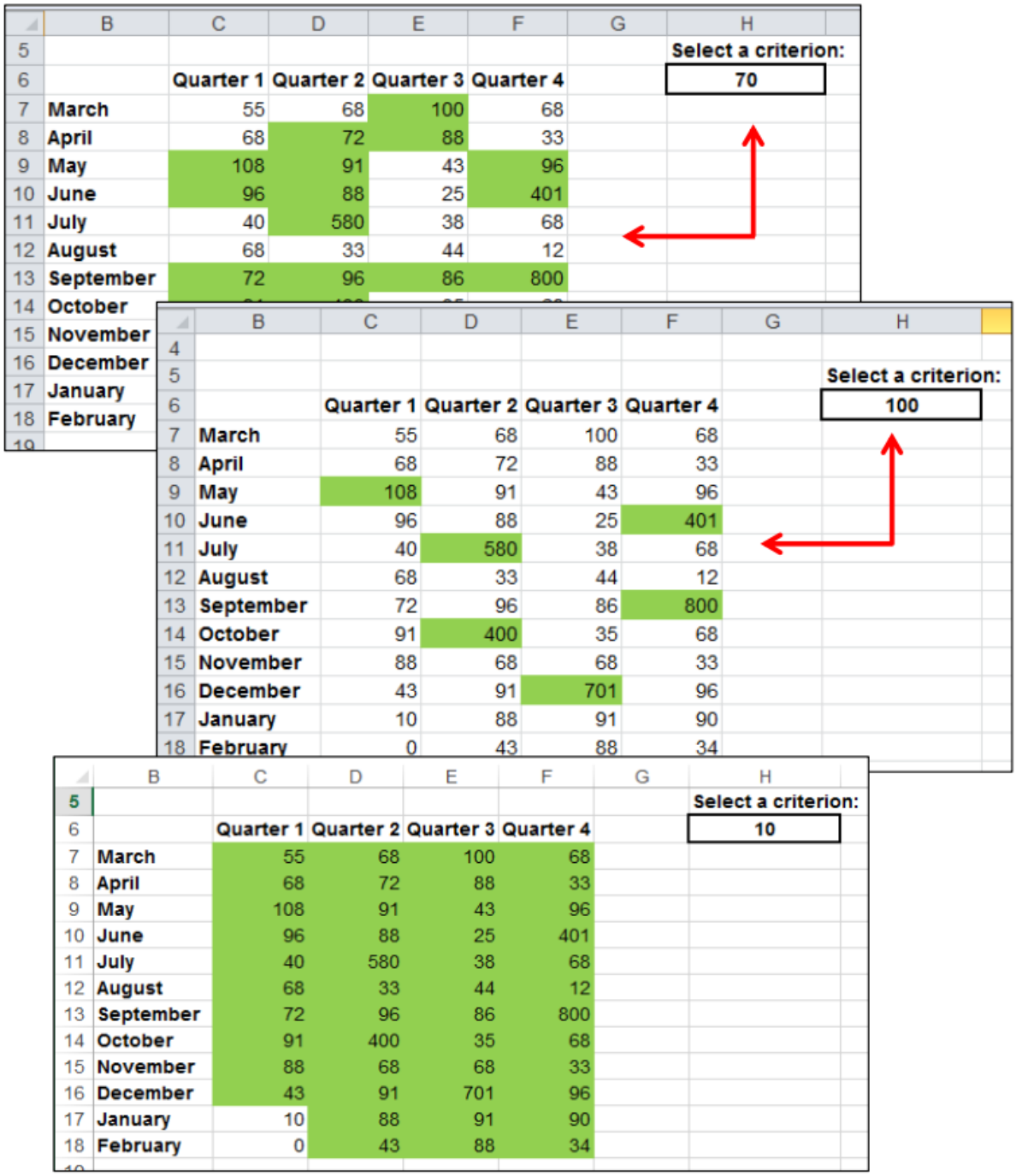
Part 1: Please use task 7 sheet to apply **Data Validation** date rangeC7:F18. Use the **Data Validation** dialog to specify that:

- All the values should be whole numbers, and that
- All values should be less than or equal to 100

-Circle in the invalid data and take screen shot of the answer and paste it below in the excel sheet

	B	C	D	E	F
6		**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
7	**March**	55	68	100	68
8	**April**	68	72	88	33
9	**May**	108	91	43	96
10	**June**	96	88	25	401
11	**July**	40	580	38	68
12	**August**	68	33	44	12
13	**September**	72	96	86	800
14	**October**	91	400	35	68
15	**November**	88	68	68	33
16	**December**	43	91	701	96
17	**January**	10	88	91	90
18	**February**	0	43	88	34

Part 2: Apply a Data Validation on the cell H6 to make it a drop down list of Cells J7:J16 and the apply conditional formatting on the data range of C7:F18 and apply Custom Lendo Blue color to it, so by changing Cell H6 different cells get highlighted as shown below:



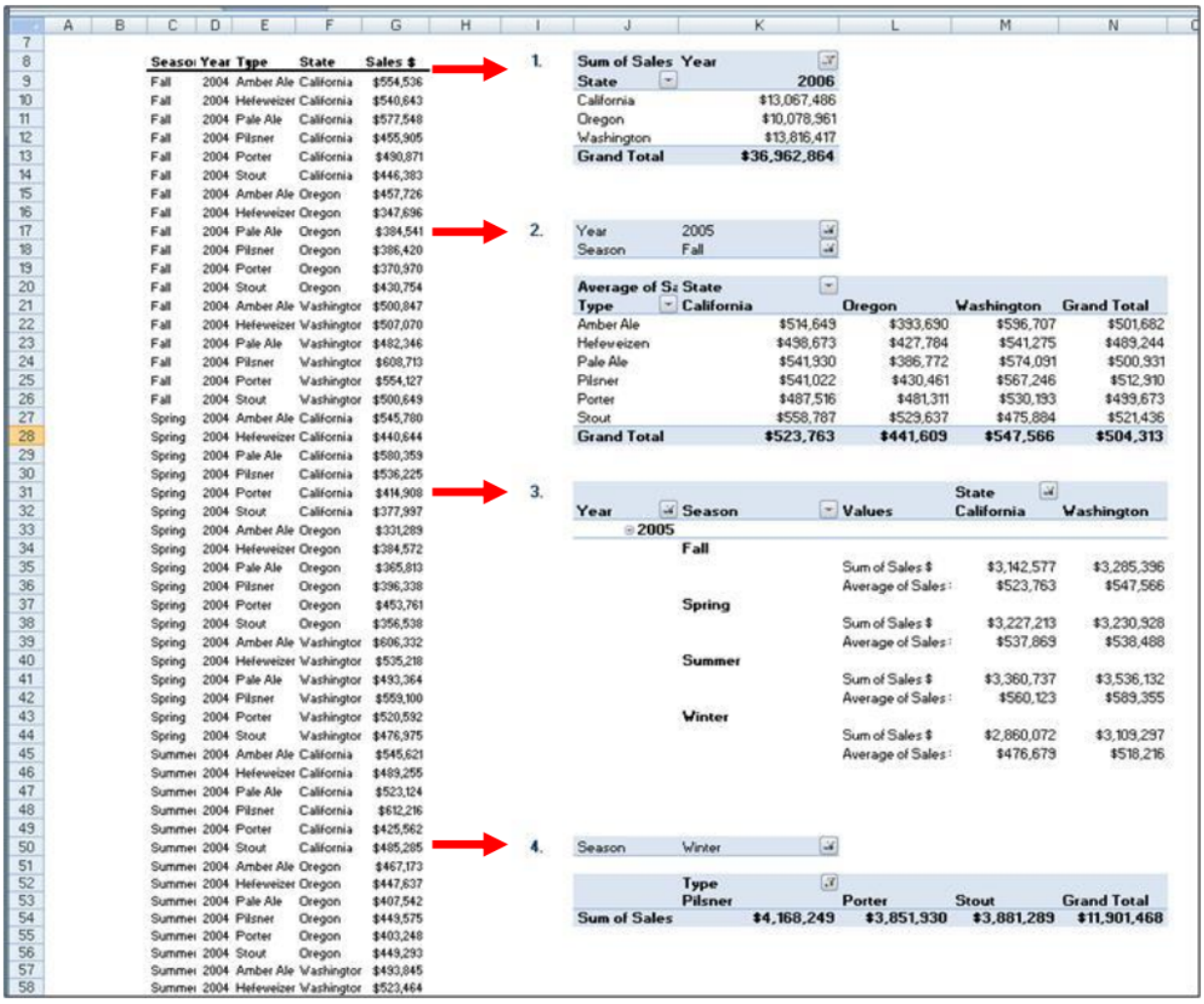
	B	C	D	E	F	G	H
5							Select a criterion:
6		Quarter 1	Quarter 2	Quarter 3	Quarter 4		70
7	March	55	68	100	68		
8	April	68	72	88	33		
9	May	108	91	43	96		
10	June	96	88	25	401		
11	July	40	580	38	68		
12	August	68	33	44	12		
13	September	72	96	86	800		
14	October						
15	November						
16	December						
17	January						
18	February						

	B	C	D	E	F	G	H
4							
5							Select a criterion:
6		Quarter 1	Quarter 2	Quarter 3	Quarter 4		100
7	March	55	68	100	68		
8	April	68	72	88	33		
9	May	108	91	43	96		
10	June	96	88	25	401		
11	July	40	580	38	68		
12	August	68	33	44	12		
13	September	72	96	86	800		
14	October	91	400	35	68		
15	November	88	68	68	33		
16	December	43	91	701	96		
17	January	10	88	91	90		
18	February	0	43	88	34		

	B	C	D	E	F	G	H
5							Select a criterion:
6		Quarter 1	Quarter 2	Quarter 3	Quarter 4		10
7	March	55	68	100	68		
8	April	68	72	88	33		
9	May	108	91	43	96		
10	June	96	88	25	401		
11	July	40	580	38	68		
12	August	68	33	44	12		
13	September	72	96	86	800		
14	October	91	400	35	68		
15	November	88	68	68	33		
16	December	43	91	701	96		
17	January	10	88	91	90		
18	February	0	43	88	34		

Please make sure the color is Lendo Logo blue color

Task 8: Please use task 8 sheet to clear four Pivot Tables in the same format, view, filter and number format



Season	Year	Type	State	Sales $
Fall	2004	Amber Ale	California	$554,536
Fall	2004	Hefeweizen	California	$540,643
Fall	2004	Pale Ale	California	$577,548
Fall	2004	Pilsner	California	$455,905
Fall	2004	Porter	California	$490,871
Fall	2004	Stout	California	$446,383
Fall	2004	Amber Ale	Oregon	$457,726
Fall	2004	Hefeweizen	Oregon	$347,696
Fall	2004	Pale Ale	Oregon	$384,541
Fall	2004	Pilsner	Oregon	$386,420
Fall	2004	Porter	Oregon	$370,970
Fall	2004	Stout	Oregon	$430,754
Fall	2004	Amber Ale	Washington	$500,847
Fall	2004	Hefeweizen	Washington	$507,070
Fall	2004	Pale Ale	Washington	$482,346
Fall	2004	Pilsner	Washington	$608,713
Fall	2004	Porter	Washington	$554,127
Fall	2004	Stout	Washington	$500,649
Spring	2004	Amber Ale	California	$545,780
Spring	2004	Hefeweizen	California	$440,644
Spring	2004	Pale Ale	California	$580,359
Spring	2004	Pilsner	California	$536,225
Spring	2004	Porter	California	$414,908
Spring	2004	Stout	California	$377,997
Spring	2004	Amber Ale	Oregon	$331,289
Spring	2004	Hefeweizen	Oregon	$384,572
Spring	2004	Pale Ale	Oregon	$365,813
Spring	2004	Pilsner	Oregon	$396,338
Spring	2004	Porter	Oregon	$453,761
Spring	2004	Stout	Oregon	$356,538
Spring	2004	Amber Ale	Washington	$606,332
Spring	2004	Hefeweizen	Washington	$535,218
Spring	2004	Pale Ale	Washington	$493,364
Spring	2004	Pilsner	Washington	$559,100
Spring	2004	Porter	Washington	$520,592
Spring	2004	Stout	Washington	$476,975
Summer	2004	Amber Ale	California	$545,621
Summer	2004	Hefeweizen	California	$489,255
Summer	2004	Pale Ale	California	$523,124
Summer	2004	Pilsner	California	$612,216
Summer	2004	Porter	California	$425,562
Summer	2004	Stout	California	$485,285
Summer	2004	Amber Ale	Oregon	$467,173
Summer	2004	Hefeweizen	Oregon	$447,637
Summer	2004	Pale Ale	Oregon	$407,542
Summer	2004	Pilsner	Oregon	$449,575
Summer	2004	Porter	Oregon	$403,248
Summer	2004	Stout	Oregon	$449,293
Summer	2004	Amber Ale	Washington	$493,845
Summer	2004	Hefeweizen	Washington	$523,464

1.

Sum of Sales	Year
State	2006
California	$13,067,486
Oregon	$10,078,961
Washington	$13,816,417
Grand Total	**$36,962,864**

2.

Year	2005
Season	Fall

Average of Sa	State			
Type	California	Oregon	Washington	Grand Total
Amber Ale	$514,649	$393,690	$596,707	$501,682
Hefeweizen	$498,673	$427,784	$541,275	$489,244
Pale Ale	$541,930	$386,772	$574,091	$500,931
Pilsner	$541,022	$430,461	$567,246	$512,910
Porter	$487,516	$481,311	$530,193	$499,673
Stout	$558,787	$529,637	$475,884	$521,436
Grand Total	**$523,763**	**$441,609**	**$547,566**	**$504,313**

3.

Year	Season	Values	State	
			California	Washington
2005				
	Fall			
		Sum of Sales $	$3,142,577	$3,285,396
		Average of Sales	$523,763	$547,566
	Spring			
		Sum of Sales $	$3,227,213	$3,230,928
		Average of Sales	$537,869	$538,488
	Summer			
		Sum of Sales $	$3,360,737	$3,536,132
		Average of Sales	$560,123	$589,355
	Winter			
		Sum of Sales $	$2,860,072	$3,109,297
		Average of Sales	$476,679	$518,216

4.

Season	Winter

	Type			
	Pilsner	Porter	Stout	Grand Total
Sum of Sales	**$4,168,249**	**$3,851,930**	**$3,881,289**	**$11,901,468**