

Shipping Excel Assignment  
By Randy Leon

This document shows how I was able to solve the problem given to me.  
Just to reiterate what the problem is, I was asked to

“... allocate the volume to the appropriate sea freight rate by  
linking the information provided in the "Volume" -tab to the corresponding sea freight rate  
in the "Sea Freight Rates"-tab.”

Origin Port (portcode) ▾	Destination Port (name) ▾	Destination Port (portcode) ▾	Equipment type ▾	Currency ▾	Sea Freight Rate ▾	Volume
CNNBO PT	Bremerhaven	DEBRV PT	20DC	USD	350	?
CNXAM PT	Bremerhaven	DEBRV PT	20DC	USD	350	?
VNSGN PT	Bremerhaven	DEBRV PT	20DC	USD	400	?
INNSA PT	Bremerhaven	DEBRV PT	20DC	USD	300	?

Sample of Sea Freight Rates workbook

Origin Port ▾	Equipment type ▾	Total volume ▾	Destination Port		
			NLRTM PT ▾	DEBRV PT ▾	DEHAM PT ▾
CNNBO PT	20DC	169	85	42	42
CNXAM PT	20DC	112	56	28	28
VNSGN PT	20DC	34	17	9	9

Sample of Volume workbook

As I understood the assignment, there are two workbooks on this spreadsheet, one titled **Sea Freight Rates** and the other titled **Volume**. (snippets shown above)

Volume
?
?
?

Our goal was to populate the above column titled “Volume” in the **Sea Freight Rates** workbook with the appropriate volume.

In both sheets, we have Origin Ports, Destination Ports, and Equipment Types. (Currency was the same for all values in the sheet, so we can disregard it for this exercise)

In the **Volume** workbook, the Destination Port volumes for each combination of Origin Port and Equipment type were tabulated in a row, including the total for each Origin Port and Equipment Type. (The different destination port codes were as follows: NLRTM PT, DEBRV PT, and DEHAM PT)

In order for the **Sea Freight Rates** to have proper volume referenced and populated from the **Volume** workbook, each row needed to contain a unique set of Origin Port, Equipment, and Destination Port, since each set of attributes had a unique set of volume.

In other words, our data was in a **wide** format. In order to reference each unique combination of attributes, we needed to get our data in **long** format.

To put that graphically, we needed to go from this:

Origin Port ▾	Equipment type ▾	Total volume ▾	NLRTM PT ▾	DEBRV PT ▾	DEHAM PT ▾
CNNBO PT	20DC	169	85	42	42

(Wide format)

to this:

Origin+Equipment	Destination Port	Volume
CNNBO PT20DC	NLRTM PT	84.50
CNNBO PT20DC	DEBRV PT	42.25
CNNBO PT20DC	DEHAM PT	42.25

(Long format)

There was also this group of cells, which implied that out of 100% of all volume from an origin port, NLRTM saw 50% of it, while DEBRV and DEHAM saw 25% each.

NLRTM PT	50%
DEBRV PT	25%
DEHAM PT	25%

At first glance this wasn't the case, since 17 divided by 2 is not 9, until I moved the decimal over to find the volume numbers have been rounded.

Total volume ▼	NLRTM PT ▼	DEBRV PT ▼	DEHAM PT ▼
169	85	42	42
112	56	28	28
34	17	9	9
34	17	9	9

Total volume ▼	NLRTM PT ▼	DEBRV PT ▼	DEHAM PT ▼
169.00	84.50	42.25	42.25
112.00	56.00	28.00	28.00
34.00	17.00	8.50	8.50
34.00	17.00	8.50	8.50

In order to make my VLOOKUP formula easier to reference, I concatenated the origin and equipment text fields into a single column titled "ORIGIN+EQUIPMENT" on the **Volume** tab.

Origin Port ▼	Equipment type ▼	Total volume ▼	ORIGIN+EQUIPMEN ▼
CNNBO PT	20DC	169	CNNBO PT20DC
CNXAM PT	20DC	112	CNXAM PT20DC
VNSGN PT	20DC	34	VNSGN PT20DC
INNSA PT	20DC	34	INNSA PT20DC

I knew the task was to turn our data from wide to long format, I'll admit I needed a quick YouTube refresher on a quick and easy way to accomplish this. [Reshape your Data in Excel Without VBA Code or Pivot Tables](#)

In her video, she made use of an offset function to generate two tables that would be properly transposed. I decided to mirror her solution with my own two tables that would become the columns of my long data set.

The new data set would feature four columns:

"Origin+Equipment" - concatenated Origin Port and Equipment Type

The Destination Port Code - the same three codes copied over and over until the end of the dataset.

"Origin+Equipment+Dport" - another column that concatenates my first column with the second column.(needed for later)

"Volume" - every numeric value for volume of every combination of Origin Port, Equipment, and Destination Port

1

4

4

4

Origin+Equipment+Dport
CNNBO PT20DCDEBRV PT
CNXAM PT20DCDEBRV PT
VNSGN PT20DCDEBRV PT
INNSA PT20DCDEBRV PT
CNSNZ PT20DCDEBRV PT
CNSGH PT20DCDEBRV PT
CNFZH PT20DCDEBRV PT
IDSUB PT20DCDEBRV PT
INMAA PT20DCDEBRV PT
CNYTN PT20DCDEBRV PT
BDCGP PT20DCDEBRV PT
KHKOS PT20DCDEBRV PT
MMRGN PT20DCDEBRV PT

Origin Port (portcode) ▾	Destination Port (name) ▾	Destination Port (portcode) ▾	Equipment type ▾	Currency ▾	Sea Freight Rate ▾	Volume	Origin+Equipment+Dport
CNBO PT	Bremerhaven	DEBRV PT	20DC	USD	350	42.25	CNBO PT20DCDEBRV PT
CNXAM PT	Bremerhaven	DEBRV PT	20DC	USD	350	28.00	CNXAM PT20DCDEBRV PT
VNSGN PT	Bremerhaven	DEBRV PT	20DC	USD	400	8.50	VNSGN PT20DCDEBRV PT
INNSA PT	Bremerhaven	DEBRV PT	20DC	USD	300	8.50	INNSA PT20DCDEBRV PT
CNSNZ PT	Bremerhaven	DEBRV PT	20DC	USD	350	8.75	CNSNZ PT20DCDEBRV PT
CNSGH PT	Bremerhaven	DEBRV PT	20DC	USD	350	2.75	CNSGH PT20DCDEBRV PT
CNFZH PT	Bremerhaven	DEBRV PT	20DC	USD	450	3.00	CNFZH PT20DCDEBRV PT
IDSUB PT	Bremerhaven	DEBRV PT	20DC	USD	350	2.25	IDSUB PT20DCDEBRV PT

Origin Port (name)	Origin Port (portcode)	Destination Port (name)	Destination Port (portcode)	Equipment type	Currency	Sea Freight Rate	Volume	Origin+Equipment+Dport
NINGBO	CNNBO PT	Bremerhaven	DEBRV PT	20DC	USD	350	42.25	CNNBO PT20DCDEBRV PT
XIAMEN	CNXAM PT	Bremerhaven	DEBRV PT	20DC	USD	350	28.00	CNXAM PT20DCDEBRV PT
HO CHI MINH CITY	VNSGN PT	Bremerhaven	DEBRV PT	20DC	USD	400	8.50	VNSGN PT20DCDEBRV PT
NHAVA SHEVA	INNSA PT	Bremerhaven	DEBRV PT	20DC	USD	300	8.50	INNSA PT20DCDEBRV PT
SHENZHEN	CNSNZ PT	Bremerhaven	DEBRV PT	20DC	USD	350	8.75	CNSNZ PT20DCDEBRV PT

Attached to the submission of this document will be the completed version of my spreadsheet.

Randy Leon - 11/21/2022