

# Terra Coffee Co.

**Business Performance & Marketing Insights**

2019-2022 Business Performance

Hamza Imtiaz - 2024

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# Overview

# Context

This project aims to optimize Terra Coffee Co.'s **product offerings, marketing strategies, and customer retention** efforts by **leveraging sales data insights to increase revenue** across key markets, improve customer satisfaction, and drive larger purchases through targeted campaigns and personalized offers.

The requirements for this project are as follows: Create a **dashboard within Excel** which displays total sales over time, sales by country, and sales by top customers and ensure that there are **filters/slicers** for roast type, package size, and loyalty members as well as a **timeline** slicer.

# Data Source

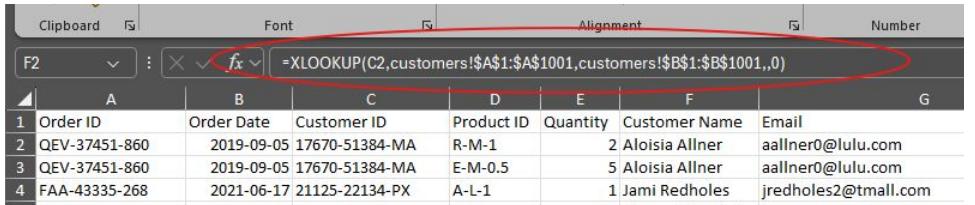
# Data Source

- The dataset consisted of a single .csv file containing three tables:
- The orders table held order details, including order ID, date, and basic customer information
- The customer table stored customer data, such as customer ID, name, and contact details.
- The products table included information on the coffee products, such as product ID, size, roast type, and price

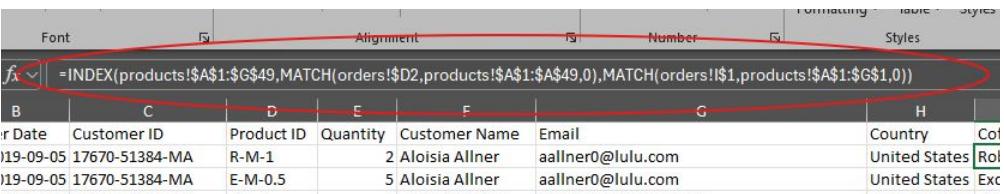
	A	B	C	D	E
1	Order ID	Order Date	Customer ID	Product ID	Quantity
2	QEY-37451-860	2019-09-05	17670-51384-MA	R-M-1	
3	QEY-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	
4	FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	
5	KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	
6	KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	
7	CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	
8	IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	
9	SNZ-65340-705	2022-05-20	21134-81676-FR	L-L-0.2	
10	EZT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	
11	NWQ-70061-912	2019-09-05	61021-27840-ZN	R-M-0.5	
12	BKK-47233-845	2021-03-08	76239-90137-UQ	A-D-1	
13	VQR-01002-970	2020-10-28	49315-21985-BB	E-L-2.5	
14	SZW-48378-399	2022-07-02	34136-36674-OM	R-M-1	
15	ITA-87418-783	2020-05-22	39396-12890-PE	R-D-2.5	
16	GNZ-46006-527	2022-04-05	95875-73336-RG	L-D-0.2	
17	FYQ-78248-319	2022-06-07	25473-43727-BY	R-M-2.5	
18	VAU-44387-624	2019-03-20	99643-51048-IQ	A-M-0.2	
19	RDW-33155-159	2019-10-19	62173-15287-CU	A-L-1	
20	TDZ-59011-211	2019-06-13	57611-05522-ST	R-D-2.5	
21	IDU-25793-399	2020-12-04	76664-37050-DT	A-M-0.2	
22	IDU-25793-399	2020-12-04	76664-37050-DT	E-D-0.2	
23	NUO-20013-488	2020-12-04	03090-88267-BQ	A-D-0.2	
24	UQU-65630-479	2021-01-22	37651-47492-NC	R-M-2.5	
25	FE0-11834-332	2022-02-11	95399-57205-HI	A-D-0.2	
26	TKY-71558-096	2021-09-15	24010-66714-HW	A-M-1	
27	OXY-65322-253	2020-10-24	07591-92789-UA	E-M-0.2	
28	EVP-43500-491	2019-02-20	49231-44455-IC	A-M-0.5	
29	WAG-26945-689	2019-10-08	50124-88608-EO	A-M-0.2	
30	GUE-78005-367	2022-08-03	00000-74011-HZ	A-D-0.5	

# Data Cleaning and Preparation

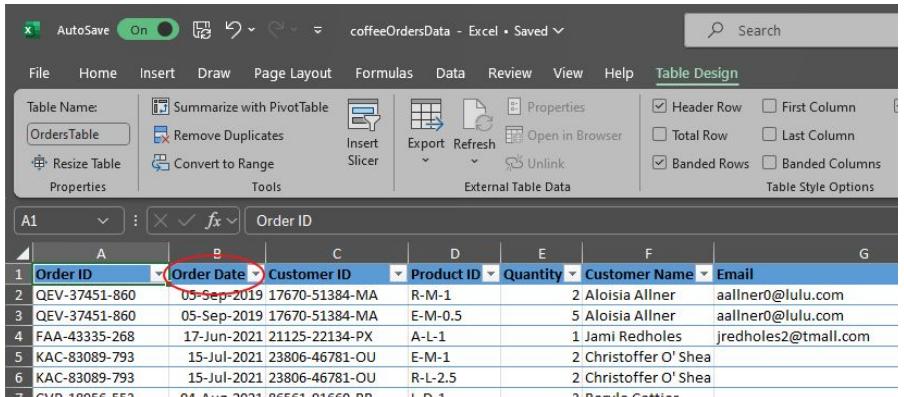
- Several columns in the orders table, including customer name, coffee type, size, and unit price, were missing data.
- To address this, XLOOKUP and INDEX functions were used to match and fill in the missing values from other tables (see appendix).
- Once the data was complete, the date and size columns were reformatted, and the orders table was converted into a pivot table for easier visualization and analysis.



A	B	C	D	E	F	G
1 Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email
2 QEV-37451-860	2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner0@lulu.com
3 QEV-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner0@lulu.com
4 FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@tmall.com
					..	



B	C	D	E	F	G	H
Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country
2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner0@lulu.com	United States
2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner0@lulu.com	United States



A	B	C	D	E	F	G
1 Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email
2 QEV-37451-860	05-Sep-2019	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner0@lulu.com
3 QEV-37451-860	05-Sep-2019	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner0@lulu.com
4 FAA-43335-268	17-Jun-2021	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@tmall.com
5 KAC-83089-793	15-Jul-2021	23806-46781-OU	E-M-1	2	Christoffer O' Shea	
6 KAC-83089-793	15-Jul-2021	23806-46781-OU	R-L-2.5	2	Christoffer O' Shea	
7 CVD-10956-552	04-Aug-2021	01660-DB	I-D-1	2	Randie Cottier	

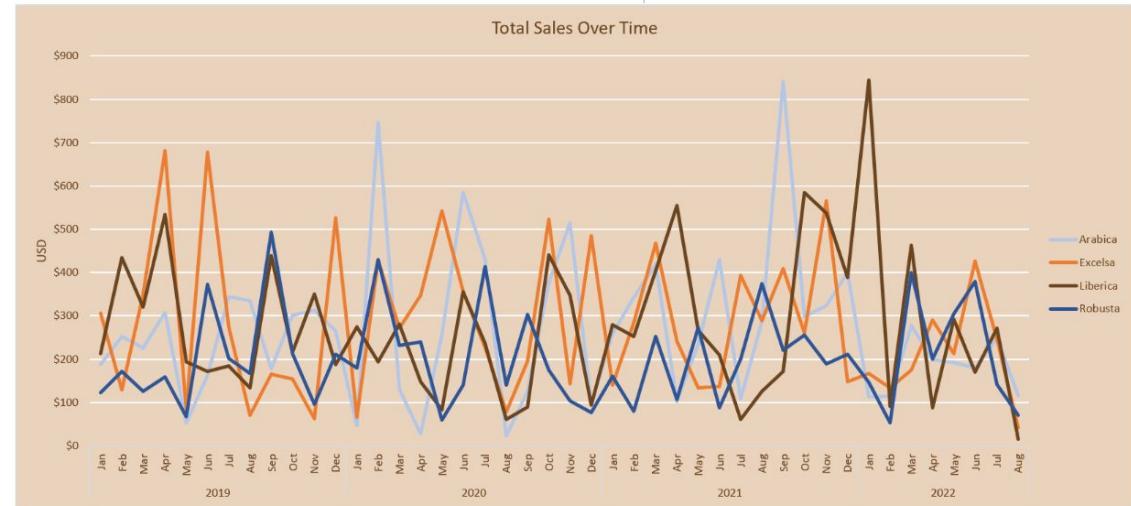
# Insights Deep-Dive

# Sales trends by coffee bean type (Arabica, Liberica, Robusta, Excelsa) over time

Arabica shows **more consistent sales**, peaking during the middle of each year.

Excelsa and Liberica have **higher volatility**, with sharp peaks and dips.

Sales for Robusta appear more stable but have **fewer spikes in revenue**.

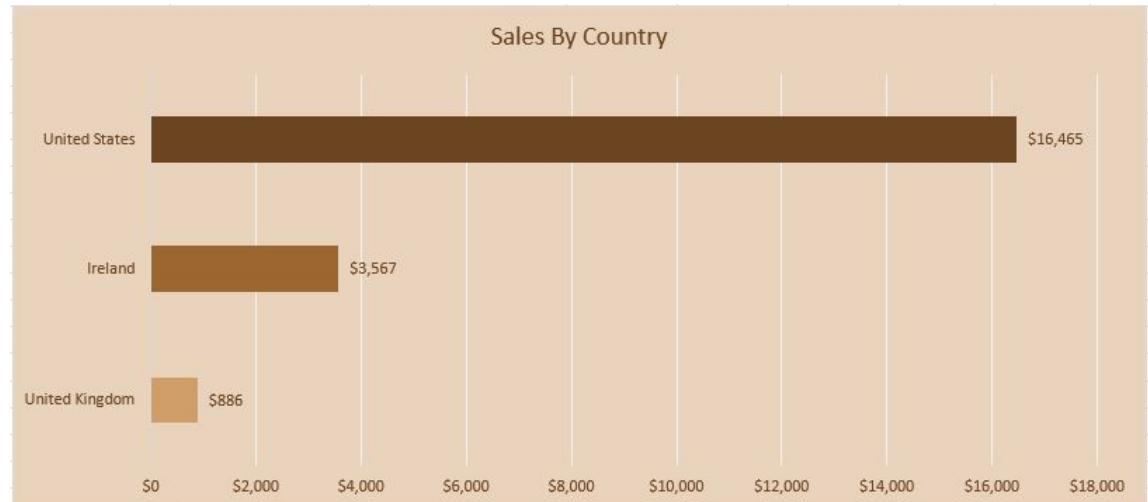


Peak sales months are generally observed in the **middle of the year (summer)**, with fluctuations during other periods.

# Geographic sales distribution by country

The majority of sales come from the United States, far outpacing other countries (\$35.6k), Ireland follows at \$6.6k, and the United Kingdom contributes the least at \$2.7k.

This suggests a **strong presence in the U.S. market**, with room for growth in international markets.

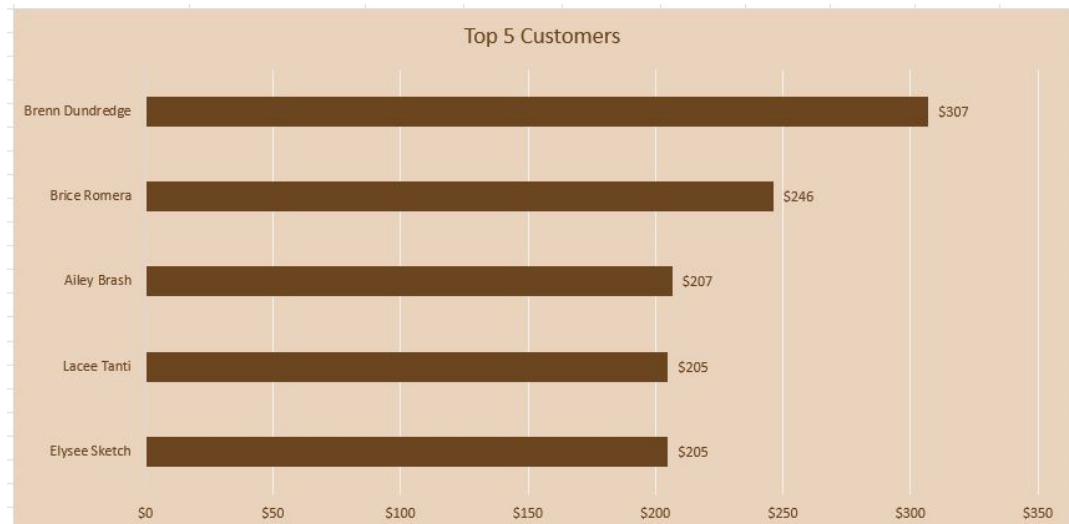


# Customer-driven performance with a focus on top 5 customers

The top customer, Allis Wilmore, contributed \$317, with other top customers contributing between \$278 and \$307.

Customer sales are relatively close in value, suggesting the top customers are spread out in their purchases.

This indicates the potential for a loyalty program or marketing strategy to encourage repeat purchases from high-value customers.



# Filtering by roast type, size, and loyalty program participation

Roast preferences vary significantly across countries, suggesting the need for region-specific marketing strategies (light roast for the U.S. market, dark roast for the Irish market, medium roast for the U.K. market)

There is a clear trend that larger package sizes drive higher sales, making it worthwhile to promote larger sizes to increase revenue in all regions and among key customers.

The United States is the strongest market for both loyalty and non-loyalty members, but non-loyalty members contribute more to overall sales.

Loyalty members contribute to more stable sales over time, while non-loyalty members drive larger but less frequent purchases.

Ireland shows a slightly stronger response from loyalty members, suggesting a potential growth opportunity in this market.

# Recommendations

# Key Recommendations

## Tailor Marketing and Product Offerings by Region

- Develop region-specific campaigns (e.g., special promotions, influencer marketing, localized ads) that highlight the most popular roast in each country.

## Promote Larger Package Sizes to Boost Sales

- Expand the range of larger package options and make them more prominent in both online and in-store displays.
- Highlight savings or value-added offers for larger sizes to push customers toward higher-volume purchases.

## Strengthen Loyalty Program

- Strengthen the loyalty program to increase membership revenue and boost sales by introducing exclusive benefits for members, such as:
  - Early access to new roasts or limited editions.
  - Tiered rewards for more frequent or high-volume purchases.
  - Personalized offers based on purchase history (e.g., discounts on their favorite roast or size).

**Conclusion:** By focusing on regional preferences, promoting larger sizes, and optimizing the loyalty program, Terra Coffee Co. can continue to grow sales and better meet customer needs. Leveraging these data-driven insights will help create more personalized marketing efforts, boost customer retention, and expand the company's reach in underperforming markets.

# Technical Process

Dataset stats:

- Orders tab has 1000 unique rows
- Customers tab has 1000 unique rows
- Products tab has 48 unique rows
- Data ranges from 2019 to 2022

The analysis used a orders table with the following key dimensions:

- **Coffee Type:** arabica, excelsa, liberica, robusta
- **Roast Type:** light, medium, dark
- **Country:** United States, Ireland, United Kingdom
- **Product ID**
- **Customer ID**

The technical process included:

- Cleaning and preparing the data in **Excel**
- Calculating metrics and extracting insights in **Excel**
- Building a self-service dashboard for visualization in **Excel**

# Appendix

# Appendix A

The customer info in the raw data file was empty so I needed to populate these columns manually.

The XLOOKUP function was used to match and populate the customer info data. Customer ID was used as the primary key in the function to match the data from the other tabs.

	A	B	C	D	E	F	G	H
1	Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country
2	QEV-37451-860	2019-09-05	17670-51384-MA	R-M-1	2			
3	QEV-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5			
4	FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1			
5	KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	2			
6	KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	2			
7	CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	3			
8	IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	3			
9	SNZ-65340-705	2022-05-20	21134-81676-FR	L-L-0.2	1			
10	EZT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	3			
11	NWQ-70061-912	2019-09-05	61021-27840-ZN	R-M-0.5	1			
12	BKK-47233-845	2021-03-08	76239-90137-UQ	A-D-1	4			
13	VQR-01002-970	2020-10-28	49315-21985-BB	E-L-2.5	5			
14	SZW-48378-399	2022-07-02	34136-36674-OM	R-M-1	5			
15	ITA-87418-783	2020-05-22	39396-12890-PE	R-D-2.5	2			
16	GNZ-46006-527	2022-04-05	95875-73336-RG	L-D-0.2	3			
17	FYQ-78248-319	2022-06-07	25473-43727-BY	R-M-2.5	5			
18	VAU-44387-624	2019-03-20	99643-51048-IQ	A-M-0.2	6			
19	RDW-33155-159	2019-10-19	62173-15287-CU	A-L-1	6			
20	TDZ-59011-211	2019-06-13	57611-05522-ST	R-D-2.5	4			
21	IDU-25793-399	2020-12-04	76664-37050-DT	A-M-0.2	5			
22	IDU-25793-399	2020-12-04	76664-37050-DT	E-D-0.2	4			
23	NUO-20013-488	2020-12-04	03090-88267-BQ	A-D-0.2	6			
24	UQU-65630-479	2021-01-22	37651-47492-NC	R-M-2.5	4			
25	FEO-11834-332	2022-02-11	95399-57205-HI	A-D-0.2	4			
26	TKY-71558-098	2021-09-15	24010-66714-HW	A-M-1	1			
27	OXY-65322-253	2020-10-24	07591-92789-UA	E-M-0.2	3			
28	EVP-43500-491	2019-02-20	49231-44455-IC	A-M-0.5	4			
29	WAG-26945-689	2019-10-08	50124-88608-EO	A-M-0.2	5			
30	GUE-38005-357	2022-02-03	80080-74014-HZ	A-D-0.5	2			

	A	B	C	D	E	F	G	H
1	Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country
2	QEV-37451-860	2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner@lulu.com	United States
3	QEV-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner@lulu.com	United States
4	FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@mail.com	United States
5	KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	2	Christoffer O'Shee		Ireland
6	KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	2	Christoffer O'Shee		Ireland
7	CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	3	Berlye Cottier		United States
8	IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	3	Shaylyn Lobe	slobe6@nifty.com	United States
9	SNZ-65340-705	2022-05-20	21134-81676-FR	L-L-0.2	1	Melvin Wharfe		Ireland
10	EZT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	3	Guthrey Petracci	gpetracci@livejournal.com	United States
11	NWQ-70061-912	2019-09-05	61021-27840-ZN	R-M-0.5	1	Rodger Raven	raven7@ed.gov	United States
12	BKK-47233-845	2021-03-08	76239-90137-UQ	A-D-1	4	Ferrell Ferber	fieber@businesswire.com	United States
13	VQR-01002-970	2020-10-28	49315-21985-BB	E-L-2.5	5	Duky Phizackerly	dphizackerly@utexas.edu	United States
14	SZW-48378-399	2022-07-02	34136-36674-OM	R-M-1	5	Rosalene Scholar	rscholar@nyu.edu	United States
15	ITA-87418-783	2020-05-22	39396-12890-PE	R-D-2.5	2	Terence Vanyutin	tvanyutin@wix.com	United States
16	GNZ-46006-527	2022-04-05	95875-73336-RG	L-D-0.2	3	Patrice Trobe	ptrobee@wunderground.com	United States
17	FYQ-78248-319	2022-06-07	25473-43727-BY	R-M-2.5	5	Llywelyn Oscroft	loscroff@ebay.co.uk	United States
18	VAU-44387-624	2019-03-20	99643-51048-IQ	A-M-0.2	6	Minni Alabaster	malabaster@hexun.com	United States
19	RDW-33155-159	2019-10-19	62173-15287-CU	A-L-1	6	Rhianon Broxup	rbroxup@jimdo.com	United States
20	TDZ-59011-211	2019-06-13	57611-05522-ST	R-D-2.5	4	Pall Redford	predford@ow.ly	Ireland
21	IDU-25793-399	2020-12-04	76664-37050-DT	A-M-0.2	5	Aurea Corradino	accorradino@harvard.edu	United States
22	IDU-25793-399	2020-12-04	76664-37050-DT	E-D-0.2	4	Aurea Corradino	accorradino@harvard.edu	United States
23	NUO-20013-488	2020-12-04	03090-88267-BQ	A-D-0.2	6	Avrit Davidowsky	adavidowsky@netvibes.com	United States
24	UQU-65630-479	2021-01-22	37651-47492-NC	R-M-2.5	4	Annabel Antuk	aantukm@kickstarter.com	United States
25	FEO-11834-332	2022-02-11	95399-57205-HI	A-D-0.2	4	Jorge Kleinetert	jkleinetert@timesonline.co.uk	United States
26	TKY-71558-098	2021-09-15	24010-66714-HW	A-M-1	1	Chrisy Blofeld	cblofeldo@amazon.co.uk	United States
27	OXY-65322-253	2020-10-24	07591-92789-UA	E-M-0.2	3	Culley Farris		United States
28	EVP-43500-491	2019-02-20	49231-44455-IC	A-M-0.5	4	Seleny Shales	sshalesq@umich.edu	United States
29	WAG-26945-689	2019-10-08	50124-88608-EO	A-M-0.2	5	Vivie Danneil	vdanneil@mtv.com	Ireland
30	GUE-38005-357	2022-02-03	80080-74014-HZ	A-D-0.5	2	Tristan Tuck		United States

# Appendix B

Additionally, the product info in the raw data file was empty so I needed to populate these columns manually.

The INDEX function was used to populate the customer information columns using Customer ID once again as the primary key to match between tabs.

A	B	C	D	E	F	G	H	I	J	K	L	M
1 Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country	Coffee Type	Roast Type	Size	Unit Price	Sales
2 QEV-37451-860	2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner@lulu.com	United States	Rob	M	1	9.95	
3 QEV-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner@lulu.com	United States					0.5
4 FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@gmail.com	United States	Exc	M	1	12.95	
5 KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	2	Christoffer O'Shea		Ireland					1
6 KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	2	Christoffer O'Shea		Ireland	Ara	L	2.5	27.485	
7 CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	3	Beryle Cottier		United States					Lib
8 IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	3	Shaylynn Lobe	slobe6@nifty.com	United States	Lib	D	1	12.95	
9 SNZ-65340-705	2022-05-20	21134-81676-FR	L-L-0.2	1	Melvin Wharfe		Ireland					Exc
10 EJT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	3	Guthrey Petracci	gpetracci8@livejournal.com	United States	Rob	M	0.5	7.29	

coffeeOrdersData - Excel - Saved

Hamza

=INDEX(products!\$A\$1:\$G\$49,MATCH(orders!\$D2,products!\$A\$1:\$A\$49,0),MATCH(orders!\$1,products!\$A\$1:\$G\$1,0))

A	B	C	D	E	F	G	H	I	J	K	L	M
1 Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country	Coffee Type	Roast Type	Size	Unit Price	Sales
2 QEV-37451-860	2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner@lulu.com	United States	Rob	M	1	9.95	
3 QEV-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner@lulu.com	United States	Exc	M	0.5	8.25	
4 FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@gmail.com	United States	Ara	L	1	12.95	
5 KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	2	Christoffer O'Shea		Ireland	Exc	M	1	13.75	
6 KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	2	Christoffer O'Shea		Ireland	Rob	L	2.5	27.485	
7 CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	3	Beryle Cottier		United States	Lib	D	1	12.95	
8 IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	3	Shaylynn Lobe	slobe6@nifty.com	United States	Exc	D	0.5	7.29	
9 SNZ-65340-705	2022-05-20	21134-81676-FR	L-L-0.2	1	Melvin Wharfe		Ireland	Lib	L	0.2	4.755	
10 EJT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	3	Guthrey Petracci	gpetracci8@livejournal.com	United States	Rob	M	0.5	5.97	
11 NWQ-70061-912	2019-09-05	61021-27840-ZN	R-M-0.5	1	Rodger Raven	raven9@ed.gov	United States	Rob	M	0.5	5.97	
12 BKK-47233-845	2021-03-08	76239-90137-UQ	A-D-1	4	Ferrell Ferber	fferbera@businesswire.com	United States	Ara	D	1	9.95	

# Appendix C

A simple unit price x quantity sold calculation was performed to populate the sales column.

The screenshot shows a Microsoft Excel spreadsheet titled "coffeeOrdersData". The table contains columns for Order ID, Order Date, Customer ID, Product ID, Quantity, Customer Name, Email, Country, Coffee Type, Roast Type, Size, Unit Price, and Sales. A formula in cell M11, "=L2\*E2", is highlighted with a red arrow, indicating it was used to calculate the Sales value for that row. The Sales column is labeled "N" at the top.

Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country	Coffee Type	Roast Type	Size	Unit Price	Sales			
QEY-37451-860	2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner0@lulu.com	United States	Rob	M	11	9.95	=L2*E2			
QEY-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner0@lulu.com	United States	Exc	M	0.5	8.25	41.25			
FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@tmall.com	United States	Ara	L	1	12.95	12.95			
KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	2	Christoffer O'Shea		Ireland	Exc	M	1	13.75	27.5			
KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	2	Christoffer O'Shea		Ireland	Rob	L	2.5	27.485	54.97			
CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	3	Beryle Cottier		United States	Lib	D	1	12.95	38.85			
IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	3	Shaylynn Lobe	slobe6@nifty.com	United States	Exc	D	0.5	7.29	21.87			
SNZ-24030-705	2022-05-20	21134-81676-FR	L-L-0.2	1	Melvin Wharfe		Ireland	Lib	L	0.2	4.755	4.755			
EZT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	3	Guthrey Petracci	gpetracci8@livejournal.com	United States	Rob	M	0.5	5.97	17.91			
NWQ-70061-912	2019-09-05	61021-27840-ZN	R-M-0.5	1	Rodger Raven	rraven9@ed.gov	United States	Rob	M	0.5	5.97	5.97			
BKK-44373-845	2021-03-08	76239-90137-UQ	A-A-1	4	Ferrell Ferber	fferbera@businesswire.com	United States	Ara	D	1	9.95	39.8			
VQR-01002-970	2020-10-28	49315-21985-BB	E-L-2.5	5	Duky Phizackerly	dphizackerlyb@utexas.edu	United States	Exc	L	2.5	34.155	170.8			
SZW-48378-399	2022-07-02	34136-36674-OM	R-M-1	5	Rosalene Scholar	rscholarc@nyu.edu	United States	Rob	M	1	9.95	49.75			
ITA-87418-783	2020-05-22	39396-12890-PF	R-D-2.5	2	Terence Vanyutin	tvanyutin@wix.com	United States	Rob	D	2.5	20.585	41.17			
GNZ-46006-527	2022-04-05	95875-73336-RG	L-D-0.2	3	Patrice Trobe	ptrobee@wunderground.com	United States	Lib	D	0.2	3.885	11.66			
FYQ-78248-319	2022-06-07	25473-43727-BY	R-M-2.5	5	Lilywellyn Oscroft	loscroft@ebay.co.uk	United States	Rob	M	2.5	22.885	114.4			
VAU-44387-624	2019-03-20	99643-51048-IQ	A-M-0.2	6	Minni Alabaster	malabaster@hexun.com	United States	Ara	M	0.2	3.375	20.25			
RDW-33155-159	2019-10-19	612173-15287-CU	A-L-1	6	Rhianon Broxup	rbroxup@jimdo.com	United States	Ara	L	1	12.95	77.7			
TDZ-59011-211	2019-06-13	57611-05522-ST	R-D-2.5	4	Pall Redford	predfordi@ow.ly	Ireland	Rob	D	2.5	20.585	82.34			
IDU-25793-399	2020-12-04	76664-37050-DT	A-M-0.2	5	Aurea Corradino	acorradino@harvard.edu	United States	Ara	M	0.2	3.375	16.88			
IDU-25793-399	2020-12-04	76664-37050-DT	E-D-0.2	4	Aurea Corradino	acorradino@harvard.edu	United States	Exc	D	0.2	3.645	14.58			
NUO-20013-488	2020-12-04	03090-98267-BQ	A-D-0.2	6	Avrit Davidowsky	adavidowsky@netvibes.com	United States	Ara	D	0.2	2.985	17.91			
UQU-65630-479	2021-01-22	37651-47492-NC	R-M-2.5	4	Annabel Antuk	aatunkt@kickstarter.com	United States	Rob	M	2.5	22.885	91.54			
FEO-11834-332	2022-02-11	95395-57205-HI	A-D-0.2	4	Iorgo Kleinert	ikleinertn@timesonline.co.uk	United States	Ara	D	0.2	2.985	11.94			
TKY-71558-096	2021-09-15	24010-66714-HW	A-M-1	1	Chrysie Blofeld	cblofeldo@amazon.co.uk	United States	Ara	M	1	11.25	11.25			
OXY-65322-253	2020-10-24	70591-92789-UA	E-M-0.2	3	Culley Farris		United States	Exc	M	0.2	4.125	12.38			
EVP-43500-491	2019-02-20	49231-44455-IC	A-M-0.5	4	Selene Shales	sshalesq@umich.edu	United States	Ara	M	0.5	6.75	27			
WAG-26945-689	2019-10-08	50124-88608-EO	A-M-0.2	5	Vivie Dannell	vdannell@mtv.com	Ireland	Ara	M	0.2	3.375	16.88			
GHE-70005-767	2020-09-02	90099-70104-HZ	A-D-0.5	2	The website <a href="http://www.coffeeshop.com">www.coffeeshop.com</a> is not available.										

# Appendix D

A series of IF functions were used to convert abbreviations in the columns to their full names.

N	Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country	Coffee Type	Roast Type	Size	Unit Price	Sale!	Coffee Type Name	Roast Type Name
1	QEY-37451-860	2019-09-05	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner@lulu.com	United States	Rob	M	1	9.95	19.9	Robusta	Medium
2	QEY-37451-860	2019-09-05	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner@lulu.com	United States	Exc	M	0.5	8.25	41.25	Excelsa	Medium
3	FAA-43335-268	2021-06-17	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@mail.com	United States	Ara	L	1	12.95	12.95	Arabica	Light
4	KAC-83089-793	2021-07-15	23806-46781-OU	E-M-1	2	Christoffer O' Shee		Ireland	Exc	M	1	13.75	27.5	Excelsa	Medium
5	KAC-83089-793	2021-07-15	23806-46781-OU	R-L-2.5	2	Christoffer O' Shee		Ireland	Rob	L	2.5	27.485	54.97	Robusta	Light
6	CVP-18956-553	2021-08-04	86561-91660-RB	L-D-1	3	Berlyle Cottier		United States	Lib	D	1	12.95	38.85	Liberica	Dark
7	IPP-31994-879	2022-01-21	65223-29612-CB	E-D-0.5	3	Shaylynn Lobe	slobe6@nifty.com	United States	Exc	D	0.5	7.29	21.87	Excelsa	Dark
8	SNZ-65340-705	2022-05-20	21134-81676-FR	L-L-0.2	1	Melvin Wharfe		Ireland	Lib	L	0.2	4.755	4.755	Liberica	Light
9	EZT-46571-659	2019-01-02	03396-68805-ZC	R-M-0.5	3	Guthrey Petracci	gpetracci8@livejournal.com	United States	Rob	M	0.5	5.97	17.91	Robusta	Medium
10	NWO-70061-912	2019-09-05	61021-27840-ZN	R-M-0.5	1	Rodger Raven	rraven9@ed.gov	United States	Rob	M	0.5	5.97	5.97	Robusta	Medium
11	BKWR-47233-845	2021-03-08	76239-90137-UQ	A-D-1	4	Ferrell Ferber	fferber@businesswire.com	United States	Ara	D	1	9.95	39.8	Arabica	Dark
12	VQR-01002-970	2020-10-28	49315-21985-BB	E-L-2.5	5	Duky Phizackerly	dphizackerly@utexas.edu	United States	Exc	L	2.5	34.155	170.8	Excelsa	Light
13	SZW-48378-399	2022-07-02	34136-36674-OM	R-M-1	5	Rosalene Scholar	rscolarc@nyu.edu	United States	Rob	M	1	9.95	49.75	Robusta	Medium
14	ITA-87418-783	2020-05-22	39396-12890-PE	R-D-2.5	2	Terence Vanyutin	tvanyutin@wix.com	United States	Rob	D	2.5	20.585	41.17	Robusta	Dark
15	GNZ-46006-527	2022-04-05	95875-73336-RG	L-D-0.2	3	Patrice Trobe	petrobe@underground.com	United States	Lib	D	0.2	3.885	11.66	Liberica	Dark
16	FYQ-78248-319	2022-06-07	25473-43727-BY	R-M-2.5	5	Llywelyn Oscroft	loscroft@ebay.co.uk	United States	Rob	M	2.5	22.885	114.4	Robusta	Medium
17	VAU-44387-624	2019-03-20	99643-51048-IQ	A-M-0.2	6	Minni Alabaster	malabasterg@hexun.com	United States	Ara	M	0.2	3.375	20.25	Arabica	Medium
18	RDW-33155-159	2019-10-19	62173-15287-CU	A-L-1	6	Rhianon Broxup	rbroxup@jimdo.com	United States	Ara	L	1	12.95	77.7	Arabica	Light
19	TDZ-59011-211	2019-06-13	57611-05522-ST	R-D-2.5	4	Pall Redford	predord@ow.ly	Ireland	Rob	D	2.5	20.585	82.34	Robusta	Dark
20	IDU-25793-399	2020-12-04	76664-37050-DT	A-M-0.2	5	Aurea Corradino	acorradinoj@harvard.edu	United States	Ara	M	0.2	3.375	16.88	Arabica	Medium
21	IDU-25793-399	2020-12-04	76664-37050-DT	E-D-0.2	4	Aurea Corradino	acorradinoj@harvard.edu	United States	Exc	D	0.2	3.645	14.58	Excelsa	Dark
22	NUO-20013-488	2020-12-04	03090-88267-BQ	A-D-0.2	6	Arvit Davidowsky	adavidowsky@netvibes.com	United States	Ara	D	0.2	2.985	17.91	Arabica	Dark
23	UQU-65630-479	2021-01-22	37651-47492-NC	R-M-2.5	4	Annabel Antuk	aantukm@kickstarter.com	United States	Rob	M	2.5	22.885	91.54	Robusta	Medium
24	FEO-11834-332	2022-02-11	95399-57205-HI	A-D-0.2	4	Iorgo Kleinert	ikleinert@timesonline.co.uk	United States	Ara	D	0.2	2.985	11.94	Arabica	Dark
25	TKY-71558-096	2021-05-19	24010-66714-HW	A-M-1	1	Chrisy Blofeld	cblofeld@amazon.co.uk	United States	Ara	M	1	11.25	11.25	Arabica	Medium
26	OXY-65322-253	2020-10-24	07591-92789-UA	E-M-0.2	3	Culley Farris		United States	Exc	M	0.2	4.125	12.38	Excelsa	Medium
27	EVP-43500-491	2019-02-20	49231-44455-IC	A-M-0.5	4	Selene Shales	sshalesq@umich.edu	United States	Ara	M	0.5	6.75	27	Arabica	Medium
28	WAG-26945-689	2019-10-08	50124-88608-EO	A-M-0.2	5	Vivie Danneil	vdanneil@mtv.com	Ireland	Ara	M	0.2	3.375	16.88	Arabica	Medium
29	GLW-70095-767	2022-09-03	00000-74014-HZ	A-D-0.5	3	The Sips Collective	thesipscollective@outlook.com	Ireland	Rob	D	0.5	5.07	17.01	Arabica	Dark

# Appendix E

The date and size columns were re-formatted for viewer ease and the data was formatted into a table to facilitate the creation of pivot table visualizations.

Order ID	Order Date	Customer ID	Product ID	Quantity	Customer Name	Email	Country	Coffee Type	Roast Type	Size	Unit Price	Sales	Coffee Type Name	Roast Type
QEY-37451-860	03-Sep-2019	17670-51384-MA	R-M-1	2	Aloisia Allner	aallner0@lulu.com	United States	Rob	M	1.0 kg	\$9.95	\$19.90	Robusta	Medium
QEY-37451-860	05-Sep-2019	17670-51384-MA	E-M-0.5	5	Aloisia Allner	aallner0@lulu.com	United States	Exc	M	0.5 kg	\$8.25	\$41.25	Excelsa	Medium
FAA-43353-268	17-Jun-2021	21125-22134-PX	A-L-1	1	Jami Redholes	jredholes2@tmall.com	United States	Ara	L	1.0 kg	\$12.95	\$12.95	Arabica	Light
KAC-83089-793	15-Jul-2021	23806-46781-OU	E-M-1	2	Christoffer O' Shea		Ireland	Exc	M	1.0 kg	\$13.75	\$27.50	Excelsa	Medium
KAC-83089-793	15-Jul-2021	23806-46781-OU	R-L-2.5	2	Christoffer O' Shea		Ireland	Rob	L	2.5 kg	\$27.49	\$54.97	Robusta	Light
CVP-18956-553	04-Aug-2021	86561-91660-RB	L-D-1	3	Berlye Cottier		United States	Lib	D	1.0 kg	\$12.95	\$38.85	Liberica	Dark
IPP-31994-879	21-Jan-2022	65223-29612-CB	E-D-0.5	3	Shaylynn Lobe	slobe6@nifty.com	United States	Exc	D	0.5 kg	\$7.29	\$21.87	Excelsa	Dark
SNZ-65340-705	20-May-2022	21134-81676-FR	F-L-0.2	1	Melvin Wharfe		Ireland	Lib	L	0.2 kg	\$4.76	\$4.76	Liberica	Light
EZT-46571-659	02-Jan-2019	03396-68805-ZC	R-M-0.5	3	Guthrey Petracci	gpetracci8@livejournal.com	United States	Rob	M	0.5 kg	\$5.97	\$17.91	Robusta	Medium
NWQ-70061-912	05-Sep-2019	61021-7840-ZN	R-M-0.5	1	Rodger Raven	raven9@ed.gov	United States	Rob	M	0.5 kg	\$5.97	\$5.97	Robusta	Medium
BKK-47233-845	08-Mar-2021	76239-90137-UQ	A-D-1	4	Ferrill Ferber	fferber@businesswire.com	United States	Ara	D	1.0 kg	\$9.95	\$39.80	Arabica	Dark
VQR-01002-970	28-Oct-2020	49315-21985-BB	E-L-2.5	5	Duky Phizackerly	dphizackerlyb@utexas.edu	United States	Exc	L	2.5 kg	\$34.16	\$170.78	Excelsa	Light
SZW-25793-399	02-Jul-2022	34136-36674-DM	R-M-1	5	Rosalene Scholar	rscholarac@nyu.edu	United States	Rob	M	1.0 kg	\$9.95	\$49.75	Robusta	Medium
ITA-87418-783	22-May-2020	39396-12890-PE	R-D-2.5	2	Terence Vanyutin	tvanyutind@wix.com	United States	Rob	D	2.5 kg	\$20.59	\$41.17	Robusta	Dark
GNZ-46006-527	05-Apr-2022	95875-73336-RG	L-D-0.2	3	Patrice Trobe	ptrobee@wunderground.com	United States	Lib	D	0.2 kg	\$3.89	\$11.66	Liberica	Dark
FYQ-78248-319	07-Jun-2022	25473-43272-BY	R-M-2.5	5	Llywelyn Oscroft	loscroft@ebay.co.uk	United States	Rob	M	2.5 kg	\$22.89	\$114.43	Robusta	Medium
VAU-44387-624	20-Mar-2019	99643-51048-IQ	A-M-0.2	6	Minni Alabaster	malabasterg@hexun.com	United States	Ara	M	0.2 kg	\$3.38	\$20.25	Arabica	Medium
RDW-33155-159	19-Oct-2019	62173-15287-CU	A-L-1	6	Rhianon Broxup	rbroxup@jimdo.com	United States	Ara	L	1.0 kg	\$12.95	\$77.70	Arabica	Light
TDZ-59011-211	13-Jun-2019	57611-05522-ST	R-D-2.5	4	Pall Redford	predford@ow.ly	Ireland	Rob	D	2.5 kg	\$20.59	\$82.34	Robusta	Dark
IDU-25793-399	04-Dec-2020	76664-37050-DT	A-M-0.2	5	Aurea Corradino	acorradinoj@harvard.edu	United States	Ara	M	0.2 kg	\$3.38	\$16.88	Arabica	Medium
IDU-25793-399	04-Dec-2020	76664-37050-DT	E-D-0.2	4	Aurea Corradino	acorradinoj@harvard.edu	United States	Exc	D	0.2 kg	\$3.65	\$14.58	Excelsa	Dark
NNU-20013-488	04-Dec-2020	03090-88267-BQ	A-D-0.2	6	Arvit Davidowsky	adavidowsky@netvibes.com	United States	Ara	D	0.2 kg	\$2.99	\$17.91	Arabica	Dark
UUU-65630-479	22-Jan-2021	37651-47492-NC	R-M-2.5	4	Annabel Antuk	aantukm@kickstarter.com	United States	Rob	M	2.5 kg	\$22.89	\$91.54	Robusta	Medium
FE0-11834-332	11-Feb-2022	95395-57205-HI	A-D-0.2	4	Iorgo Kleinet	ikleinertn@timesonline.co.uk	United States	Ara	D	0.2 kg	\$2.99	\$11.94	Arabica	Dark
TKY-71558-096	15-Sep-2021	24010-66714-HW	A-M-1	1	Chrisy Blofeld	cblofeld@amazon.co.uk	United States	Ara	M	1.0 kg	\$11.25	\$11.25	Arabica	Medium
OXY-65322-253	24-Oct-2020	07591-92789-UA	E-M-0.2	3	Culley Farris		United States	Exc	M	0.2 kg	\$4.13	\$12.38	Excelsa	Medium
EVP-43500-491	20-Feb-2019	49231-44455-IC	A-M-0.5	4	Selenie Shales	sshalesq@umich.edu	United States	Ara	M	0.5 kg	\$6.75	\$27.00	Arabica	Medium
WAG-26945-689	08-Oct-2019	50124-88608-EO	A-M-0.2	5	Vivie Danneil	danneilr@mtv.com	Ireland	Ara	M	0.2 kg	\$3.38	\$16.88	Arabica	Medium

# Appendix D

This screenshot captures the total sales tab which holds the pivot table and visualizations including two sliders, a timeline, and a line chart.

Screenshot of the 'coffeeOrdersData' Excel sheet showing the 'Total Sales' tab. The sheet contains a pivot table and several data visualizations.

**Pivot Table Data:**

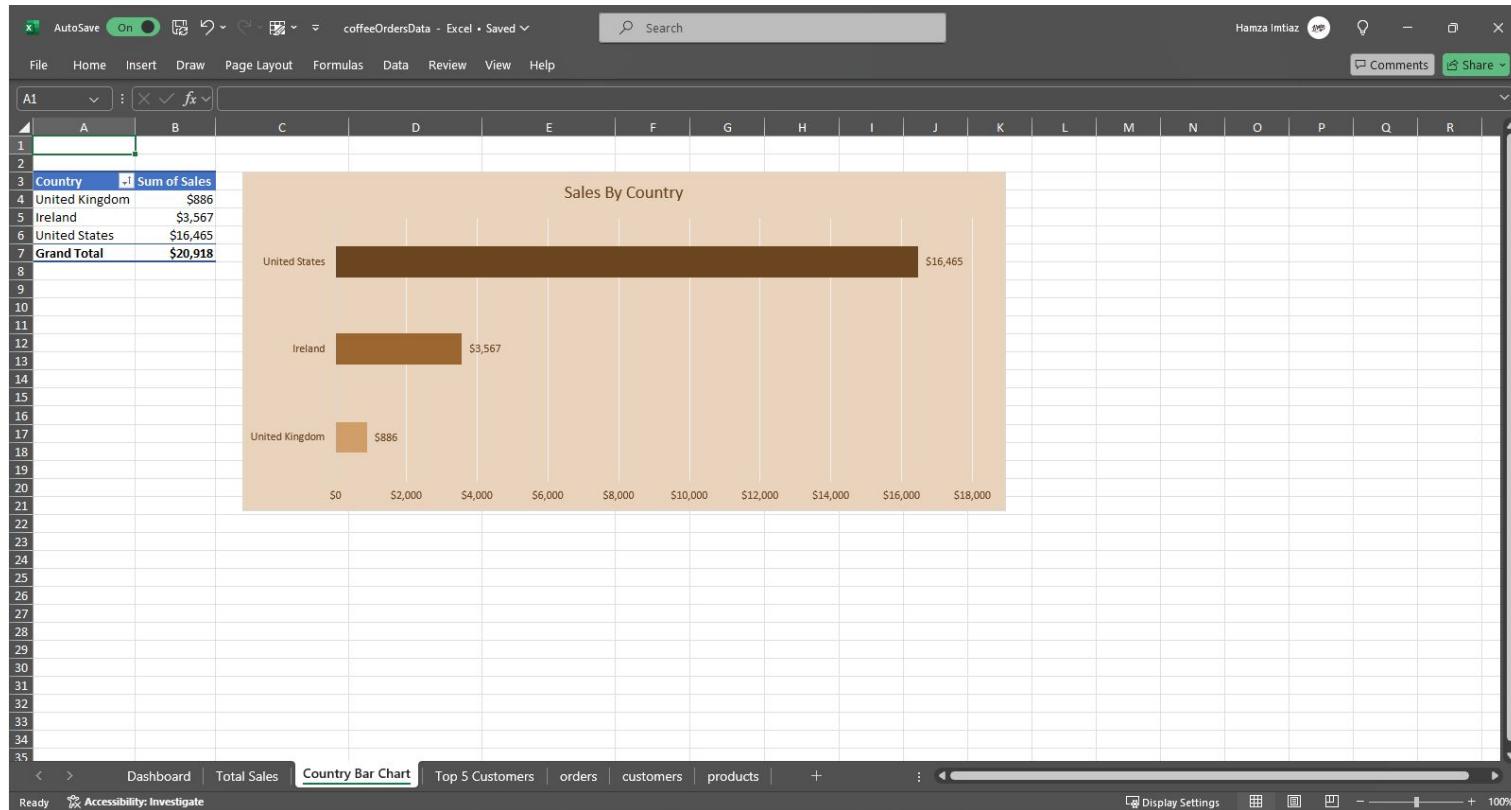
		Sum of Sales	Coffee Type Name	Arabica	Excelsa	Liberica	Robusta	Grand Total	
5	5	2019	Years (Order Date)	Jan	\$187	\$306	\$213	\$123	\$829
6	6			Feb	\$252	\$129	\$434	\$172	\$987
7	7			Mar	\$225	\$349	\$321	\$126	\$1,021
8	8			Apr	\$307	\$681	\$534	\$159	\$1,681
9	9			May	\$54	\$83	\$194	\$68	\$399
10	10			Jun	\$163	\$678	\$171	\$372	\$1,385
11	11			Jul	\$345	\$274	\$184	\$201	\$1,004
12	12			Aug	\$335	\$71	\$134	\$166	\$706
13	13			Sep	\$179	\$166	\$439	\$495	\$1,277
14	14			Oct	\$302	\$154	\$216	\$214	\$885
15	15			Nov	\$313	\$63	\$351	\$96	\$823
16	16			Dec	\$266	\$527	\$187	\$211	\$1,190
17	17	2019 Total			\$2,927	\$3,481	\$3,378	\$2,401	\$12,187
18	18	2020		Jan	\$47	\$66	\$275	\$179	\$567
19	19			Feb	\$745	\$429	\$194	\$430	\$1,798
20	20			Mar	\$130	\$271	\$281	\$232	\$915
21	21			Apr	\$27	\$347	\$148	\$240	\$762
22	22			May	\$255	\$542	\$83	\$59	\$939
23	23			Jun	\$585	\$357	\$355	\$141	\$1,438
24	24			Jul	\$431	\$227	\$236	\$415	\$1,309
25	25			Aug	\$23	\$78	\$61	\$140	\$300
26	26			Sep	\$126	\$195	\$89	\$303	\$713
27	27			Oct	\$376	\$523	\$441	\$174	\$1,515
28	28			Nov	\$515	\$143	\$347	\$104	\$1,109
29	29			Dec	\$96	\$485	\$94	\$77	\$752
30	30	2020 Total			\$3,356	\$3,663	\$2,604	\$2,493	\$12,118
31	31	2021		Jan	\$258	\$140	\$280	\$160	\$838
32	32			Feb	\$342	\$284	\$252	\$81	\$959
33	33			Mar	\$418	\$468	\$405	\$253	\$1,545
34	34			Apr	\$102	\$242	\$555	\$106	\$1,006
35	35			May	\$235	\$133	\$267	\$273	\$908
36	36			Jun	\$430	\$136	\$210	\$88	\$865
37	37			Jul	\$109	\$394	\$61	\$199	\$763
38	38			Aug	\$288	\$289	\$126	\$374	\$1,076
39	39			Sep	\$841	\$410	\$171	\$221	\$1,644

**Visualizations:**

- Order Date Timeline:** A slider-based timeline from JAN 2019 to MAR 2022.
- Total Sales Over Time Line Chart:** A line chart showing sales over time for four coffee types: Arabica (orange), Excelsa (blue), Liberica (red), and Robusta (green). The Y-axis ranges from \$100 to \$900 USD.
- Filter Options:** Includes sliders for Roast Type (Dark, Light, Medium), Loyalty Card (No, Yes), and Size (0.2 kg, 0.5 kg, 1.0 kg, 2.5 kg).

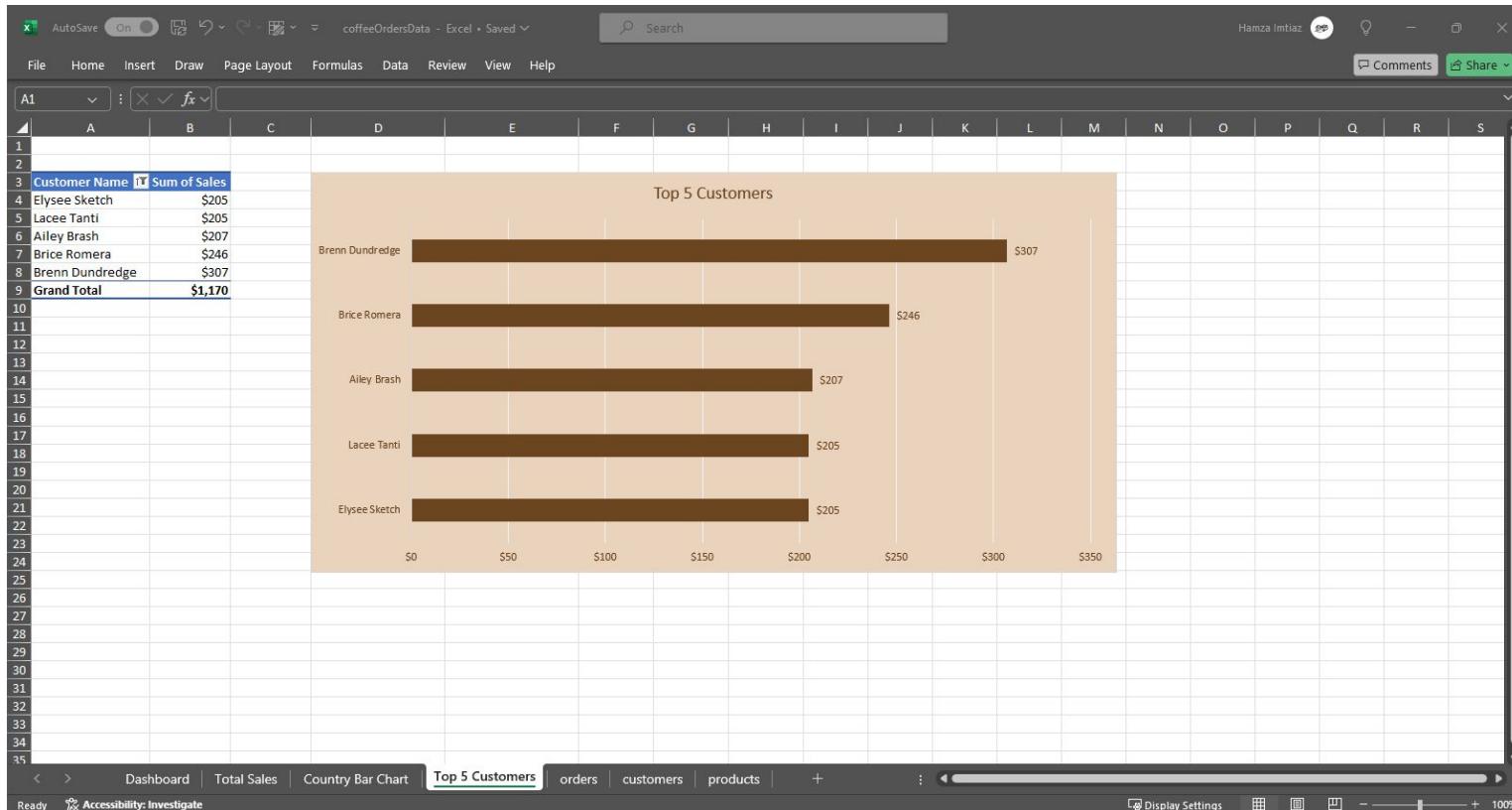
# Appendix E

This screenshot captures the sales by country tab which holds the pivot table and a bar chart.



# Appendix F

This screenshot captures the top 5 customers tab which holds the pivot table and a bar chart.



# Thank you!