



Republic of the Philippines
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The National Engineering University

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Supreme Student Council – BatStateU The NEU Alangilan

BAT 401 – Fundamentals of Business Analytics

Activity: " Data Analysis Using Shopping Behaviors "

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Part 1: Data Cleaning and Preparation

The first step involved opening the raw CSV file in Excel and ensuring the **Date** column was properly formatted as a Date type to allow accurate sorting and analysis. Next, any duplicate rows were removed based on **TransactionNo** and **ProductNo** to maintain data accuracy and prevent double counting of sales. Finally, the cleaned dataset was sorted first by **Date** and then by **Country** to organize the data chronologically and geographically.

From:

1	TransactionNo	Date	ProductNo	ProductName	Price	Quantity	CustomerNo	Country
2	581482	1/9/2020	22485	Set Of 2 Wooden Market Crates	21.47	12	17490	United Kingdom
3	581475	2/5/2020	22596	Christmas Star Wish List Chalkboard	10.65	36	13069	United Kingdom
4	581475	4/8/2020	23235	Storage Tin Vintage Leaf	11.53	12	13069	United Kingdom
5	581475	12/9/2019	23272	Tree T-Light Holder Willie Winkie	10.65	12	13069	United Kingdom
6	581475	12/9/2019	23239	Set Of 4 Knick Knack Tins Poppies	11.94	6	13069	United Kingdom
7	581475	12/9/2019	21705	Bag 500g Swirly Marbles	10.65	24	13069	United Kingdom
8	581475	12/9/2019	22118	Joy Wooden Block Letters	11.53	18	13069	United Kingdom
9	581475	12/9/2019	22119	Peace Wooden Block Letters	12.25	12	13069	United Kingdom
10	581475	7/12/2019	22217	T-Light Holder Hanging Lace	10.65	12	13069	United Kingdom
11	581475	7/12/2019	22216	T-Light Holder White Lace	10.55	24	13069	United Kingdom
12	581475	7/12/2019	22380	Toy Tidy Spaceboy	11.06	20	13069	United Kingdom
13	581475	7/12/2019	22442	Grow Your Own Flowers Set Of 3	12.25	12	13069	United Kingdom
14	581475	7/12/2019	22664	Toy Tidy Dolly Girl Design	11.06	20	13069	United Kingdom
15	581475	7/12/2019	22721	Set Of 3 Cake Tins Sketchbook	12.25	12	13069	United Kingdom
16	581475	7/12/2019	22723	Set Of 6 Herb Tins Sketchbook	11.53	12	13069	United Kingdom
17	581475	7/12/2019	22785	Squarecushion Cover Pink Union Jack	11.53	12	13069	United Kingdom
18	581475	7/12/2019	22955	36 Foil Star Cake Cases	11.06	24	13069	United Kingdom
19	581475	7/12/2019	23141	Triple Wire Hook Pink Heart	11.06	12	13069	United Kingdom
20	581475	7/12/2019	22956	36 Foil Heart Cake Cases	11.06	24	13069	United Kingdom
21	581475	7/12/2019	22581	Wood Stocking Christmas Scandispot	10.55	48	13069	United Kingdom
22	581476	7/12/2019	23198	Pantry Magnetic Shopping List	11.53	48	12433	Norway

To:

TransactionNo	Date	ProductNo	ProductName	Price	Quantity	CustomerNo	Country
581483	6/21/19	23843	Paper Craft Little Birdie	12.38	80995	16446	United Kingdom
581485	6/21/19	20749	Assorted Colour Mini Cases	16.76	84	17389	United Kingdom
581482	6/21/19	23251	Vintage Red Enamel Trim Mug	11.32	96	17490	United Kingdom
581497	12/9/19	22355	Charlotte Bag Suki Design	7.24	110	17497	United Kingdom
581487	6/21/19	21137	Black Record Cover Frame	6.04	120	15694	United Kingdom
581477	6/21/19	23338	Egg Frying Pan Red	12.15	48	13426	United Kingdom
581482	6/21/19	23300	Gardeners Kneeling Pad Cup Of Tea	11.74	48	17490	United Kingdom
581478	6/21/19	84077	World War 2 Gliders Asstd Designs	10.55	48	17364	United Kingdom
581475	7/12/19	22581	Wood Stocking Christmas Scandispot	10.55	48	13069	United Kingdom
581497	12/9/19	22197	Popcorn Holder	7.24	68	17497	United Kingdom
581482	6/21/19	21875	Kings Choice Mug	11.34	36	17490	United Kingdom
581475	2/5/20	22596	Christmas Star Wish List Chalkboard	10.65	36	13069	United Kingdom
581492	1/30/20	23084	Rabbit Night Light	6.19	57	15492	United Kingdom
581482	6/21/19	22138	Baking Set 9 Piece Retrospot	14.61	24	17490	United Kingdom
581489	6/21/19	22061	Large Cake Stand Hanging Strawbery	7.24	48	16954	United Kingdom
581496	12/9/19	22539	Mini Jigsaw Dolly Girl	7.24	48	16558	United Kingdom
581496	12/9/19	22544	Mini Jigsaw Spaceboy	7.24	48	16558	United Kingdom
581497	12/9/19	22114	Hot Water Bottle Tea And Sympathy	7.24	48	17497	United Kingdom
581497	12/9/19	20724	Red Retrospot Charlotte Bag	6.19	55	17497	United Kingdom



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A new calculated column, **Total Sales**, was then added by multiplying **Price × Quantity**, giving the total revenue for each transaction.

Price	Quantity	TotalSales
12.38	80995	1002718.1
16.76	84	1407.84
11.32	96	1086.72
7.24	110	796.4
6.04	120	724.8
12.15	48	583.2
11.74	48	563.52
10.55	48	506.4
10.55	48	506.4
7.24	68	492.32
11.34	36	408.24
10.65	36	383.4
6.19	57	352.83
14.61	24	350.64
7.24	48	347.52
7.24	48	347.52
7.24	48	347.52
7.24	48	340.45
6.19	55	276.72
11.53	24	276.72

Part 2: Filtering and Sorting

An **AutoFilter** was applied to display only transactions from the **United Kingdom**, allowing focused analysis of UK sales.



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TransactionNo	Date	ProductNo	ProductName	Price	Quantity	CustomerN	Country
581483	6/21/19	23843	Paper Craft Little Birdie	12.38	80995	16446	United Kingdom
581485	6/21/19	20749	Assorted Colour Mini Cases	16.76	84	17389	United Kingdom
581482	6/21/19	23251	Vintage Red Enamel Trim Mug	11.32	96	17490	United Kingdom
581497	12/9/19	22355	Charlotte Bag Suki Design	7.24	110	17497	United Kingdom
581487	6/21/19	21137	Black Record Cover Frame	6.04	120	15694	United Kingdom
581477	6/21/19	23338	Egg Frying Pan Red	12.15	48	13426	United Kingdom
581482	6/21/19	23300	Gardeners Kneeling Pad Cup Of Tea	11.74	48	17490	United Kingdom
581478	6/21/19	84077	World War 2 Gliders Asstd Designs	10.55	48	17364	United Kingdom
581475	7/12/19	22581	Wood Stocking Christmas Scandispot	10.55	48	13069	United Kingdom
581497	12/9/19	22197	Popcorn Holder	7.24	68	17497	United Kingdom
581482	6/21/19	21875	Kings Choice Mug	11.34	36	17490	United Kingdom
581475	2/5/20	22596	Christmas Star Wish List Chalkboard	10.65	36	13069	United Kingdom
581492	1/30/20	23084	Rabbit Night Light	6.19	57	15492	United Kingdom
581482	6/21/19	22138	Baking Set 9 Piece Retrospot	14.61	24	17490	United Kingdom
581489	6/21/19	22061	Large Cake Stand Hanging Strawberry	7.24	48	16954	United Kingdom
581496	12/9/19	22539	Mini Jigsaw Dolly Girl	7.24	48	16558	United Kingdom
581496	12/9/19	22544	Mini Jigsaw Spaceboy	7.24	48	16558	United Kingdom
581497	12/9/19	22114	Hot Water Bottle Tea And Sympathy	7.24	48	17497	United Kingdom
581497	12/9/19	20724	Red Retrospot Charlotte Bag	6.19	55	17497	United Kingdom
581478	6/21/19	84947	Antique Silver Tea Glass Engraved	11.53	24	17364	United Kingdom
581481	6/21/19	22072	Red Retrospot Tea Cup And Saucer	11.53	24	17490	United Kingdom
581485	6/21/19	22617	Baking Set Spaceboy Design	15.32	18	17389	United Kingdom
581478	6/21/19	22909	Set Of 20 Vintage Christmas Napkins	11.12	24	17364	United Kingdom
581481	6/21/19	22123	Ping Microwave Apron	11.06	24	17490	United Kingdom
581481	6/21/19	23302	Kneeling Mat Housework Design	11.06	24	17490	United Kingdom
581475	7/12/19	22955	36 Foil Star Cake Cases	11.06	24	13069	United Kingdom
581475	7/12/19	22956	36 Foil Heart Cake Cases	11.06	24	13069	United Kingdom
581497	12/9/19	20723	Strawberry Charlotte Bag	6.19	42	17497	United Kingdom
581482	1/9/20	22485	Set Of 2 Wooden Market Crates	21.47	12	17490	United Kingdom
581481	6/21/19	22059	Ceramic Strawberry Design Mug	10.65	24	17490	United Kingdom
581475	12/9/19	21705	Bag 500g Swirly Marbles	10.65	24	13069	United Kingdom
581475	7/12/19	22216	T-Light Holder White Lace	10.55	24	13069	United Kingdom

The filtered results were then sorted by **TotalSales** in descending order to quickly identify the highest-value transactions. From this sorted list, the **top 5 products** with the highest TotalSales were identified, highlighting the most profitable items in the UK market.

TotalSales
1002718.1
1407.84
1086.72
796.4
724.8
583.2
563.52
506.4
506.4



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Part 3: Pivot Table Analysis

Two pivot tables were created to summarize and explore the data. The first pivot table used **Country** as rows and **ProductName** as columns, with the **Sum of TotalSales** as values, providing a quick comparison of product performance across countries.

Row Labels	Column Labels				
	Belgium	Germany	Norway	United Kingdom	Grand Total
Feng Shui Pillar Candle		1503.36			1503.36
Grow A Flytrap Or Sunflower In Tin		2177.28		18.57	2195.85
Paper Craft Little Birdie				1002718.1	1002718.1
Popcorn Holder		1099		738.48	1837.48
Small Folding Scissor(Pointed Edge)		2488.8			2488.8
Grand Total	7268.44	1003475.15	1010743.59		

The second pivot table grouped **Dates by Month** and displayed both the **Sum of TotalSales** and **Sum of Quantity**, revealing monthly sales trends and overall demand. From this, the month with the highest TotalSales was determined.

Months	Sum of TotalSales	Sum of Quantity
Jan	981.87	129
Feb	1886.52	279
Mar	1134.48	177
Apr	1484.43	215
May	2615.89	391
Jun	1043520.86	85036
Jul	8489.98	779
Aug	388.53	57
Sep	915.75	130
Oct	495.2	80
Nov	569.92	88
Dec	8910.53	1287
Grand Total	1071393.96	88648



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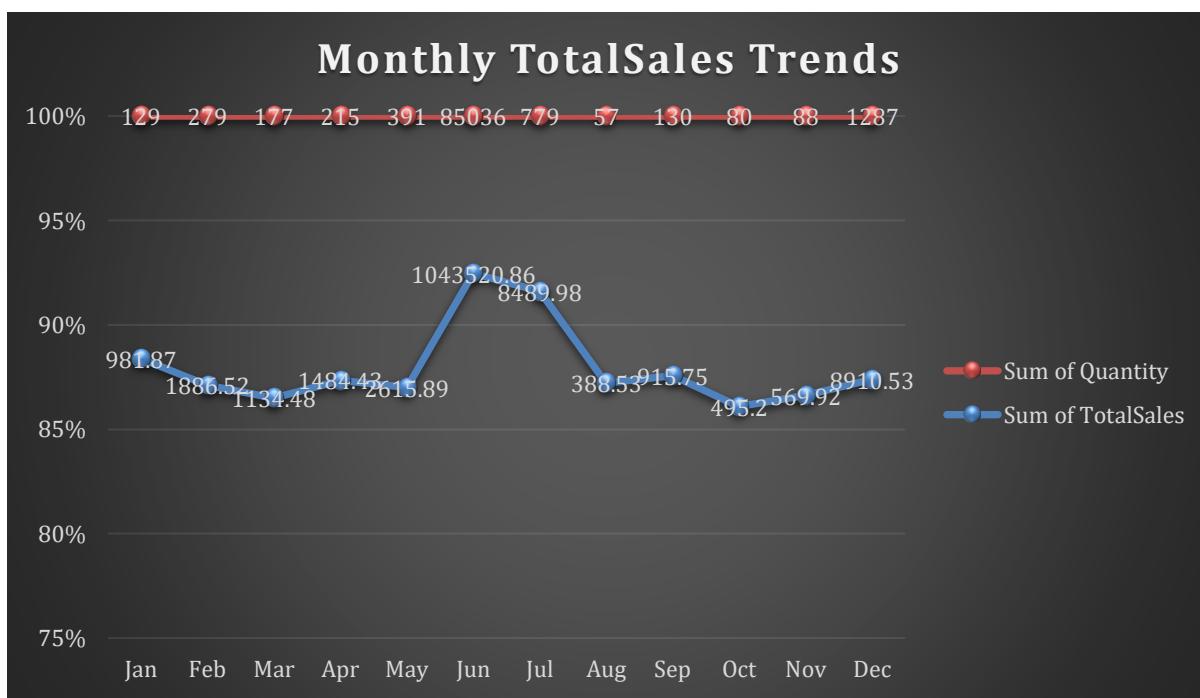
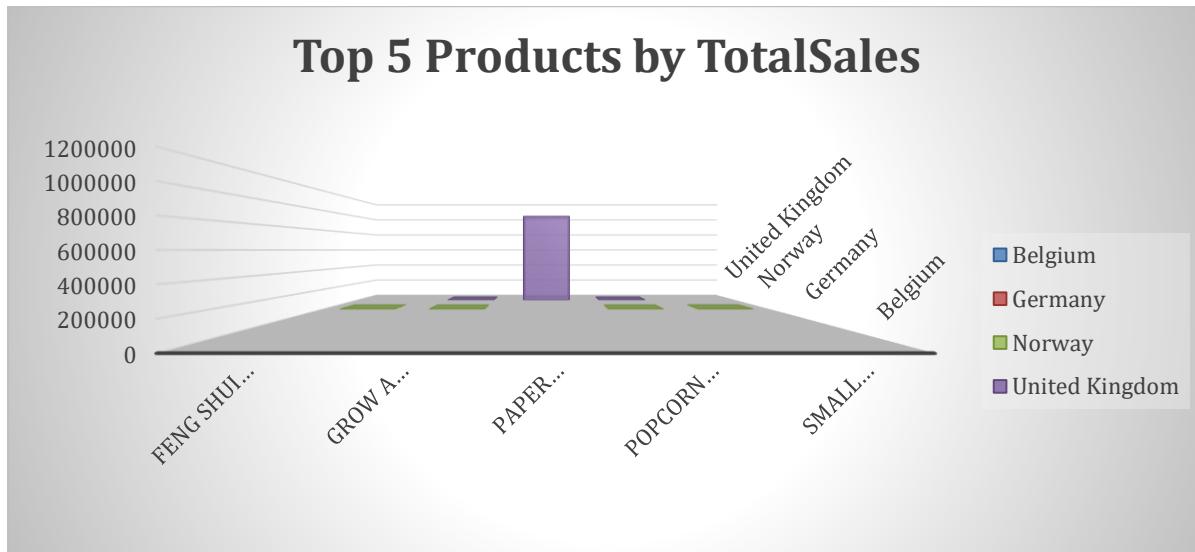
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Part 4: Data Visualization





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Part 5: Database-Like Queries

Excel's **VLOOKUP/XLOOKUP** functions were used to quickly retrieve the TotalSales for a specific **ProductNo**, simulating a database query. **Conditional Formatting** was applied to highlight any transactions where TotalSales exceeded 500, allowing high-value sales to stand out at a glance. Additionally, **Data Validation** was used to create a dropdown list of countries, enabling users to select a specific country and filter the dataset accordingly for targeted analysis.

ProductNo	ProductName	Price	Quantity	CustomerNo	Country	TotalSales	SalesData	VLOOKUP	Country
23843	Paper Craft Little Birdie	12.38	80995	16446	United Kingdom	1002718.1	22355	1002718.1	Belgium
20749	Assorted Colour Mini Cases	16.76	84	17389	United Kingdom	1407.84		1407.84	Germany
23251	Vintage Red Enamel Trim Mug	11.32	96	17490	United Kingdom	1086.72		1086.72	Norway
22355	Charlotte Bag Suki Design	7.24	110	17497	United Kingdom	796.4		796.4	United Kingdom
21137	Black Record Cover Frame	6.04	120	15694	United Kingdom	724.8		724.8	
23338	Egg Frying Pan Red	12.15	48	13426	United Kingdom	583.2		583.2	
23300	Gardeners Kneeling Pad Cup Of Tea	11.74	48	17490	United Kingdom	563.52		563.52	
84077	World War 2 Gliders Asstd Designs	10.55	48	17364	United Kingdom	506.4		506.4	
22581	Wood Stocking Christmas Scandispot	10.55	48	13069	United Kingdom	506.4		506.4	
22197	Popcorn Holder	7.24	68	17497	United Kingdom	492.32		492.32	
21875	Kings Choice Mug	11.34	36	17490	United Kingdom	408.24		408.24	
22596	Christmas Star Wish List Chalkboard	10.65	36	13069	United Kingdom	383.4		383.4	
23084	Rabbit Night Light	6.19	57	15492	United Kingdom	352.83		352.83	
22138	Baking Set 9 Piece Retrosport	14.61	24	17490	United Kingdom	350.64		350.64	
22061	Large Cake Stand Hanging Strawberry	7.24	48	16954	United Kingdom	347.52		347.52	
22539	Mini Jigsaw Dolly Girl	7.24	48	16558	United Kingdom	347.52		347.52	
22542	Mini Jigsaw Spaceboy	7.24	48	16558	United Kingdom	347.52		347.52	
22114	Hot Water Bottle Tea And Sympathy	7.24	48	17497	United Kingdom	347.52		347.52	
20724	Red Retrosport Charlotte Bag	6.19	55	17497	United Kingdom	340.45		340.45	
84947	Antique Silver Tea Glass Engraved	11.53	24	17364	United Kingdom	276.72		276.72	
22072	Red Retrosport Tea Cup And Saucer	11.53	24	17490	United Kingdom	276.72		276.72	
22617	Baking Set Spaceboy Design	15.32	18	17389	United Kingdom	275.76		275.76	
22909	Set Of 20 Vintage Christmas Napkins	11.12	24	17364	United Kingdom	266.88		266.88	
22123	Ping Microwave Apron	11.06	24	17490	United Kingdom	265.44		265.44	

- Which country generated the highest TotalSales?

The country that generated the highest TotalSales is **United Kingdom**, recording the greatest overall sales revenue in the dataset.

- Which product had the highest TotalSales overall?

The product with the highest TotalSales is **Paper Craft Little Birdie**, achieving the largest total sales among all listed products.

- What month had the highest TotalSales?

The month with the highest TotalSales is **June 2019**, which recorded the highest sales compared to other months.