Excel Portfolio Project

1. Introduction

This report provides an in-depth analysis of an e-commerce company data, with the goal of guiding about investment and aimed to enhance sales strategies and customer satisfaction. By analysing the online retail transaction data, we will highlight key areas for sales, performance, customer behaviour, and product trends.

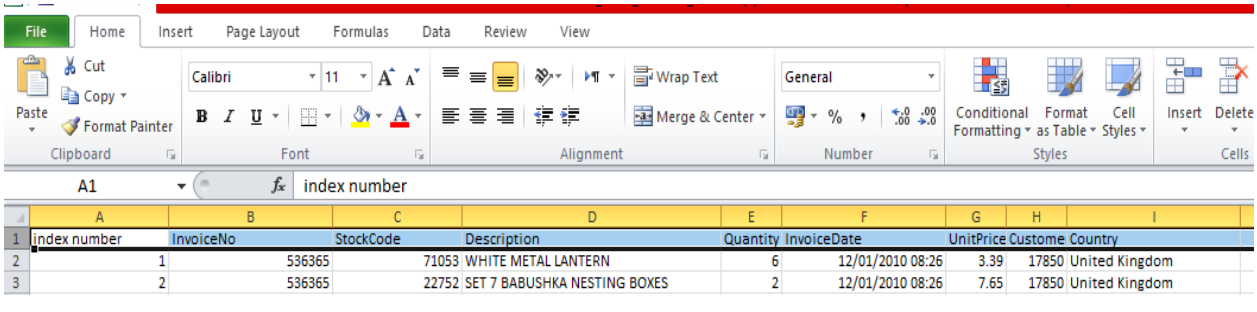
Clean and prepare retail sales data in Excel by fixing errors, creating new features, and organizing it properly. Analyse sales trends, customer behaviour, product performance, and geographical insights through simple calculations and visualizations. Create a clean, professional dashboard with filters to easily explore and update the sales data.

2. Dataset Overview

- Invoice No: Unique identifier for each transaction
- Stock Code: Product/item code
- Description: Product description
- Quantity: Number of items purchased
- Invoice Date: Date and time of transaction
- Unit Price: Price per unit in GBP
- Customer ID: Unique identifier for each customer
- Country: Country of the customer

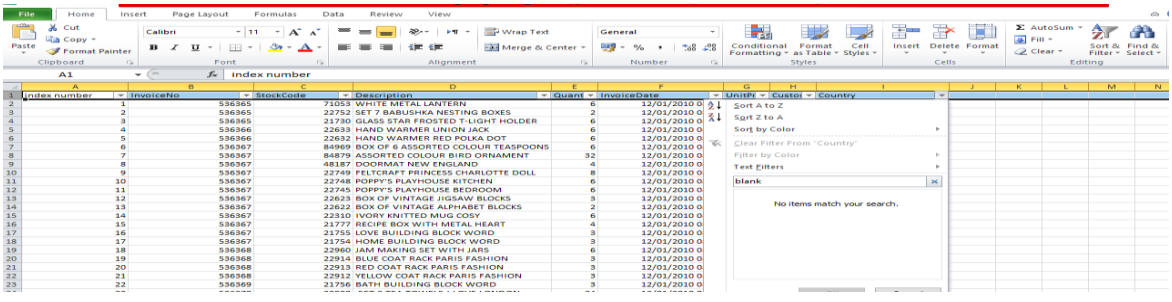
3. Data pre-processing Steps:

- Variable name in first row
- Variable should have distinct and easy to understand names

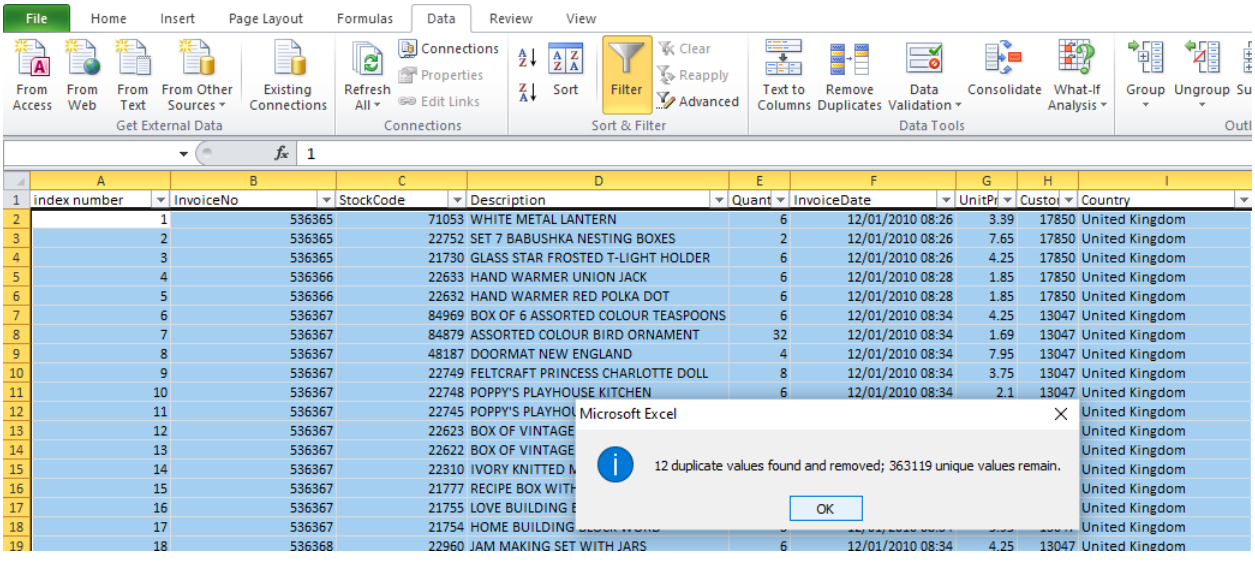


index number	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	Custome	Country
1	536365	71053	WHITE METAL LANTERN	6	12/01/2010 08:26	3.39	17850	United Kingdom
2	536365	22752	SET 7 BABUSHKA NESTING BOXES	2	12/01/2010 08:26	7.65	17850	United Kingdom

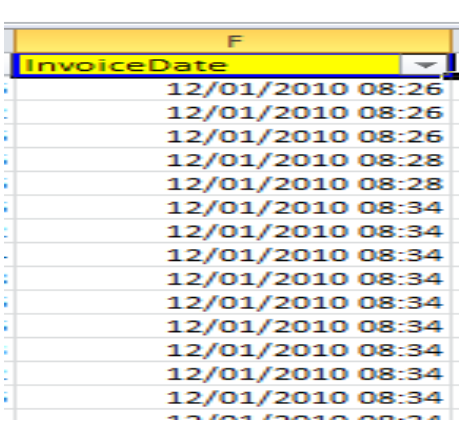
- Remove unnecessary columns
- Eliminate errors and blank rows



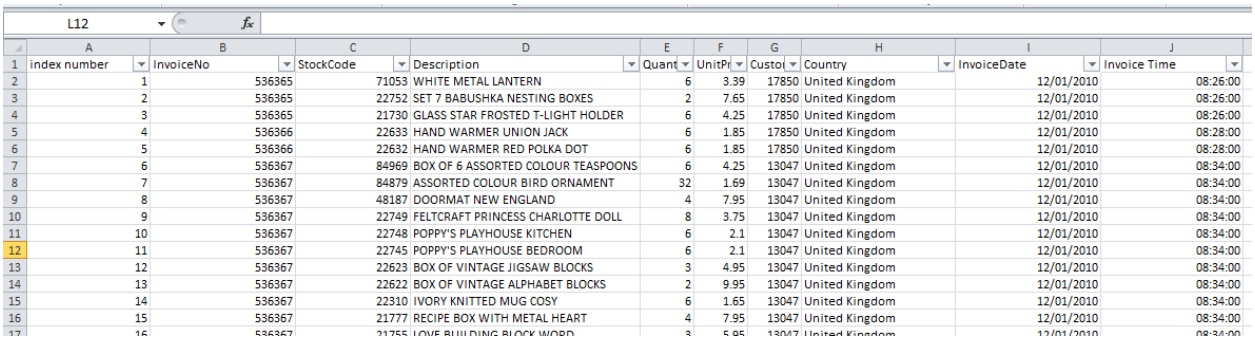
- Remove Duplicates



- Identify the columns with errors:

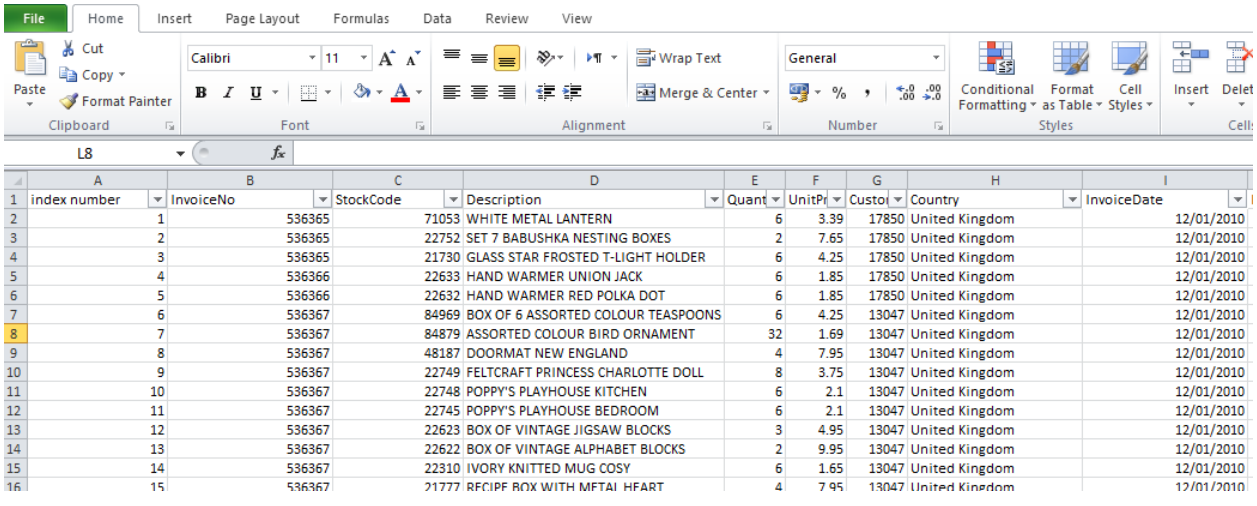


- Clean the column



index number	InvoiceNo	StockCode	Description	Quant	UnitPr	Custo	Country	InvoiceDate	Invoice Time
1	536365	71053	WHITE METAL LANTERN	6	3.39	17850	United Kingdom	12/01/2010	08:26:00
2	536365	22752	SET 7 BABUSHKA NESTING BOXES	2	7.65	17850	United Kingdom	12/01/2010	08:26:00
3	536365	21730	GLASS STAR FROSTED T-LIGHT HOLDER	6	4.25	17850	United Kingdom	12/01/2010	08:26:00
4	536366	22633	HAND WARMER UNION JACK	6	1.85	17850	United Kingdom	12/01/2010	08:28:00
5	536366	22632	HAND WARMER RED POLKA DOT	6	1.85	17850	United Kingdom	12/01/2010	08:28:00
6	536367	84969	BOX OF 6 ASSORTED COLOUR TEASPOONS	6	4.25	13047	United Kingdom	12/01/2010	08:34:00
7	536367	84879	ASSORTED COLOUR BIRD ORNAMENT	32	1.69	13047	United Kingdom	12/01/2010	08:34:00
8	536367	48187	DOORMAT NEW ENGLAND	4	7.95	13047	United Kingdom	12/01/2010	08:34:00
9	536367	22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	3.75	13047	United Kingdom	12/01/2010	08:34:00
10	536367	22748	POPPY'S PLAYHOUSE KITCHEN	6	2.1	13047	United Kingdom	12/01/2010	08:34:00
11	536367	22745	POPPY'S PLAYHOUSE BEDROOM	6	2.1	13047	United Kingdom	12/01/2010	08:34:00
12	536367	22623	BOX OF VINTAGE JIGSAW BLOCKS	3	4.95	13047	United Kingdom	12/01/2010	08:34:00
13	536367	22622	BOX OF VINTAGE ALPHABET BLOCKS	2	9.95	13047	United Kingdom	12/01/2010	08:34:00
14	536367	22310	IVORY KNITTED MUG COSY	6	1.65	13047	United Kingdom	12/01/2010	08:34:00
15	536367	21777	RECIPE BOX WITH METAL HEART	4	7.95	13047	United Kingdom	12/01/2010	08:34:00
16	536367	21755	LOVE BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	12/01/2010	08:34:00

- Convert Invoice Date to proper Date type



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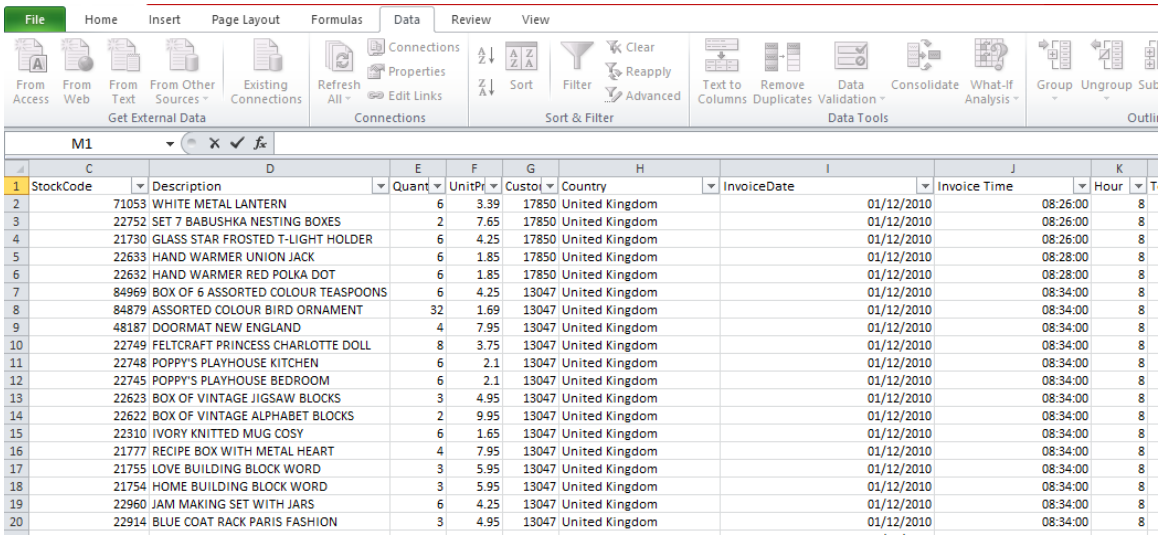
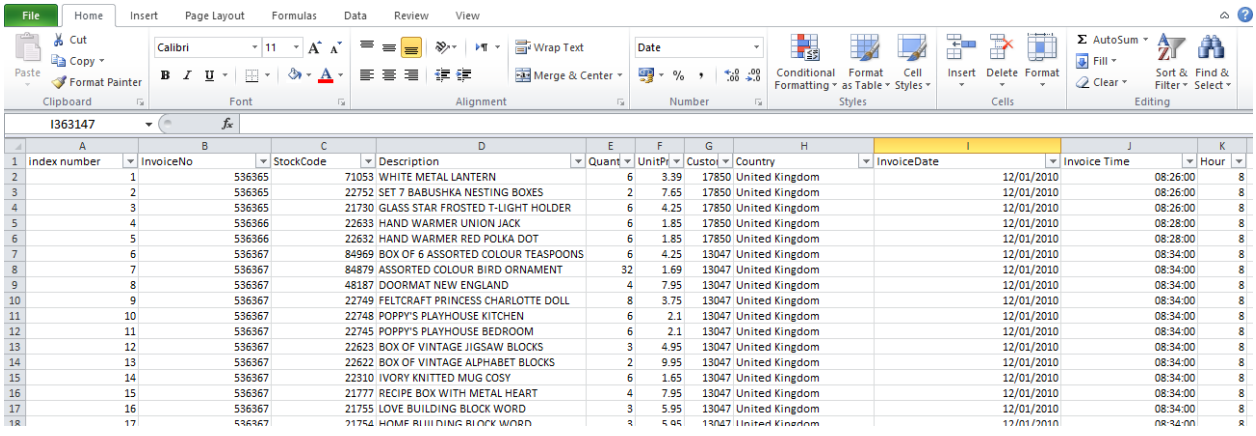
8	536367	48187	DOORMAT NEW ENGLAND	4	7.95	13047	United Kingdom	12/01/2010
9	536367	22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	3.75	13047	United Kingdom	12/01/2010
10	536367	22748	POPPY'S PLAYHOUSE KITCHEN	6	2.1	13047	United Kingdom	12/01/2010
11	536367	22745	POPPY'S PLAYHOUSE BEDROOM	6	2.1	13047	United Kingdom	12/01/2010
12	536367	22623	BOX OF VINTAGE JIGSAW BLOCKS	3	4.95	13047	United Kingdom	12/01/2010
13	536367	22622	BOX OF VINTAGE ALPHABET BLOCKS	2	9.95	13047	United Kingdom	12/01/2010
14	536367	22310	IVORY KNITTED MUG COSY	6	1.65	13047	United Kingdom	12/01/2010
15	536367	21777	RECIPE BOX WITH METAL HEART	4	7.95	13047	United Kingdom	12/01/2010



StockCode	Description	Quant	UnitPr	Custo	Country	InvoiceDate	Invoice Time	Hour
71053	WHITE METAL LANTERN	6	3.39	17850	United Kingdom	01/12/2010	08:26:00	8
22752	SET 7 BABUSHKA NESTING BOXES	2	7.65	17850	United Kingdom	01/12/2010	08:26:00	8
21730	GLASS STAR FROSTED T-LIGHT HOLDER	6	4.25	17850	United Kingdom	01/12/2010	08:26:00	8
22633	HAND WARMER UNION JACK	6	1.85	17850	United Kingdom	01/12/2010	08:28:00	8
22632	HAND WARMER RED POLKA DOT	6	1.85	17850	United Kingdom	01/12/2010	08:28:00	8
84969	BOX OF 6 ASSORTED COLOUR TEASPOONS	6	4.25	13047	United Kingdom	01/12/2010	08:34:00	8
84879	ASSORTED COLOUR BIRD ORNAMENT	32	1.69	13047	United Kingdom	01/12/2010	08:34:00	8
48187	DOORMAT NEW ENGLAND	4	7.95	13047	United Kingdom	01/12/2010	08:34:00	8
22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	3.75	13047	United Kingdom	01/12/2010	08:34:00	8
22748	POPPY'S PLAYHOUSE KITCHEN	6	2.1	13047	United Kingdom	01/12/2010	08:34:00	8
22745	POPPY'S PLAYHOUSE BEDROOM	6	2.1	13047	United Kingdom	01/12/2010	08:34:00	8
22623	BOX OF VINTAGE JIGSAW BLOCKS	3	4.95	13047	United Kingdom	01/12/2010	08:34:00	8
22622	BOX OF VINTAGE ALPHABET BLOCKS	2	9.95	13047	United Kingdom	01/12/2010	08:34:00	8
22310	IVORY KNITTED MUG COSY	6	1.65	13047	United Kingdom	01/12/2010	08:34:00	8
21777	RECIPE BOX WITH METAL HEART	4	7.95	13047	United Kingdom	01/12/2010	08:34:00	8
21755	LOVE BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	01/12/2010	08:34:00	8
21754	HOME BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	01/12/2010	08:34:00	8
22960	JAM MAKING SET WITH JARS	6	4.25	13047	United Kingdom	01/12/2010	08:34:00	8
22914	BLUE COAT RACK PARIS FASHION	3	4.95	13047	United Kingdom	01/12/2010	08:34:00	8

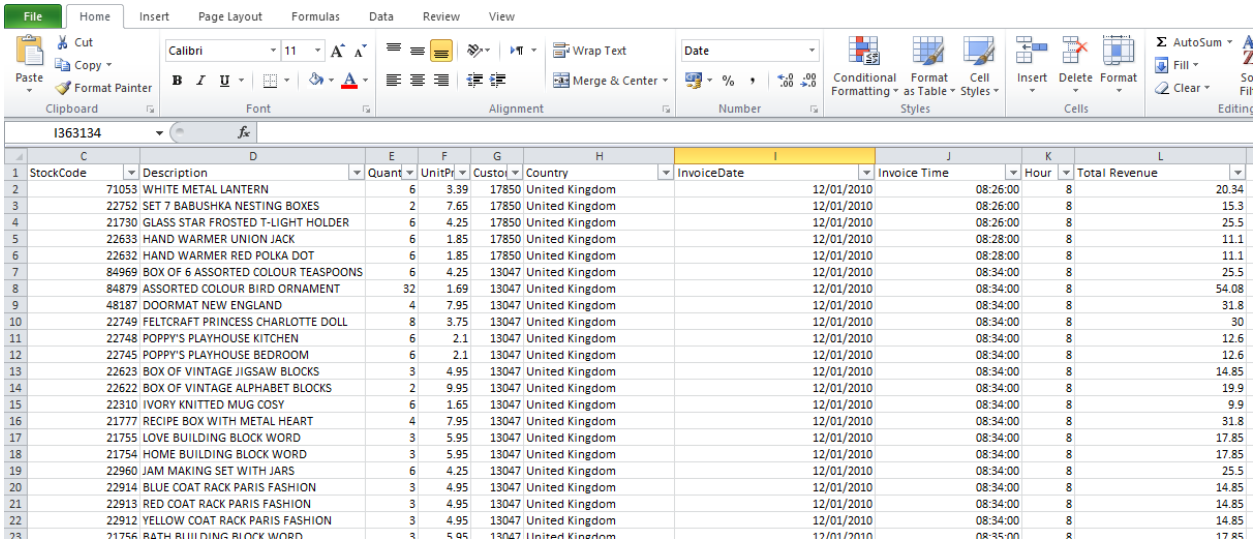
- Extract hour from Invoice Time



index number	InvoiceNo	StockCode	Description	Quant	UnitPr	Custo	Country	InvoiceDate	Invoice Time	Hour
1	536365	71053	WHITE METAL LANTERN	6	3.39	17850	United Kingdom	12/01/2010	08:26:00	8
2	536365	22752	SET 7 BABUSHKA NESTING BOXES	2	7.65	17850	United Kingdom	12/01/2010	08:26:00	8
3	536365	21730	GLASS STAR FROSTED T-LIGHT HOLDER	6	4.25	17850	United Kingdom	12/01/2010	08:26:00	8
4	536366	22633	HAND WARMER UNION JACK	6	1.85	17850	United Kingdom	12/01/2010	08:28:00	8
5	536366	22632	HAND WARMER RED POLKA DOT	6	1.85	17850	United Kingdom	12/01/2010	08:28:00	8
6	536367	84969	BOX OF 6 ASSORTED COLOUR TEASPOONS	6	4.25	13047	United Kingdom	12/01/2010	08:34:00	8
7	536367	84879	ASSORTED COLOUR BIRD ORNAMENT	32	1.69	13047	United Kingdom	12/01/2010	08:34:00	8
8	536367	48187	DOORMAT NEW ENGLAND	4	7.95	13047	United Kingdom	12/01/2010	08:34:00	8
9	536367	22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	3.75	13047	United Kingdom	12/01/2010	08:34:00	8
10	536367	22748	POPPY'S PLAYHOUSE KITCHEN	6	2.1	13047	United Kingdom	12/01/2010	08:34:00	8
11	536367	22745	POPPY'S PLAYHOUSE BEDROOM	6	2.1	13047	United Kingdom	12/01/2010	08:34:00	8
12	536367	22623	BOX OF VINTAGE JIGSAW BLOCKS	3	4.95	13047	United Kingdom	12/01/2010	08:34:00	8
13	536367	22622	BOX OF VINTAGE ALPHABET BLOCKS	2	9.95	13047	United Kingdom	12/01/2010	08:34:00	8
14	536367	22310	IVORY KNITTED MUG COSY	6	1.65	13047	United Kingdom	12/01/2010	08:34:00	8
15	536367	21777	RECIPE BOX WITH METAL HEART	4	7.95	13047	United Kingdom	12/01/2010	08:34:00	8
16	536367	21755	LOVE BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	12/01/2010	08:34:00	8
17	536367	21754	HOME BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	12/01/2010	08:34:00	8

4. Feature Engineering:

- Total Revenue = Unit Price * Quantity



StockCode	Description	Quant	UnitPr	Custo	Country	InvoiceDate	Invoice Time	Hour	Total Revenue
71053	WHITE METAL LANTERN	6	3.39	17850	United Kingdom	12/01/2010	08:26:00	8	20.34
22752	SET 7 BABUSHKA NESTING BOXES	2	7.65	17850	United Kingdom	12/01/2010	08:26:00	8	15.3
21730	GLASS STAR FROSTED T-LIGHT HOLDER	6	4.25	17850	United Kingdom	12/01/2010	08:26:00	8	25.5
22633	HAND WARMER UNION JACK	6	1.85	17850	United Kingdom	12/01/2010	08:28:00	8	11.1
22632	HAND WARMER RED POLKA DOT	6	1.85	17850	United Kingdom	12/01/2010	08:28:00	8	11.1
84969	BOX OF 6 ASSORTED COLOUR TEASPOONS	6	4.25	13047	United Kingdom	12/01/2010	08:34:00	8	25.5
84879	ASSORTED COLOUR BIRD ORNAMENT	32	1.69	13047	United Kingdom	12/01/2010	08:34:00	8	54.08
48187	DOORMAT NEW ENGLAND	4	7.95	13047	United Kingdom	12/01/2010	08:34:00	8	31.8
22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	3.75	13047	United Kingdom	12/01/2010	08:34:00	8	30
22748	POPPY'S PLAYHOUSE KITCHEN	6	2.1	13047	United Kingdom	12/01/2010	08:34:00	8	12.6
22745	POPPY'S PLAYHOUSE BEDROOM	6	2.1	13047	United Kingdom	12/01/2010	08:34:00	8	12.6
22623	BOX OF VINTAGE JIGSAW BLOCKS	3	4.95	13047	United Kingdom	12/01/2010	08:34:00	8	14.85
22622	BOX OF VINTAGE ALPHABET BLOCKS	2	9.95	13047	United Kingdom	12/01/2010	08:34:00	8	19.9
22310	IVORY KNITTED MUG COSY	6	1.65	13047	United Kingdom	12/01/2010	08:34:00	8	9.9
21777	RECIPE BOX WITH METAL HEART	4	7.95	13047	United Kingdom	12/01/2010	08:34:00	8	31.8
21755	LOVE BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	12/01/2010	08:34:00	8	17.85
21754	HOME BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	12/01/2010	08:34:00	8	17.85
22960	JAM MAKING SET WITH JARS	6	4.25	13047	United Kingdom	12/01/2010	08:34:00	8	25.5
22914	BLUE COAT RACK PARIS FASHION	3	4.95	13047	United Kingdom	12/01/2010	08:34:00	8	14.85
22913	RED COAT RACK PARIS FASHION	3	4.95	13047	United Kingdom	12/01/2010	08:34:00	8	14.85
22912	YELLOW COAT RACK PARIS FASHION	3	4.95	13047	United Kingdom	12/01/2010	08:34:00	8	14.85
21756	BATH BUILDING BLOCK WORD	3	5.95	13047	United Kingdom	12/01/2010	08:35:00	8	17.85

- Day of Week from Invoice Date

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StockCode	Description	Quant	UnitPr	Custo	Country	InvoiceDate	Invoice Time	Hour	Total Revenue	weekdays
71053	WHITE METAL LANTERN	6	3.39	17850	United Kingdom	01/12/2010	08:26:00	8	20.34	Wednesday
22752	SET 7 BABUSHKA NESTING BOXES	2	7.65	17850	United Kingdom	01/12/2010	08:26:00	8	15.3	Wednesday
21730	GLASS STAR FROSTED T-LIGHT HOLDER	6	4.25	17850	United Kingdom	01/12/2010	08:26:00	8	25.5	Wednesday
22633	HAND WARMER UNION JACK	6	1.85	17850	United Kingdom	01/12/2010	08:28:00	8	11.1	Wednesday
22632	HAND WARMER RED POLKA DOT	6	1.85	17850	United Kingdom	01/12/2010	08:28:00	8	11.1	Wednesday
84969	BOX OF 6 ASSORTED COLOUR TEASPOONS	6	4.25	13047	United Kingdom	01/12/2010	08:34:00	8	25.5	Wednesday
84879	ASSORTED COLOUR BIRD ORNAMENT	32	1.69	13047	United Kingdom	01/12/2010	08:34:00	8	54.08	Wednesday
48187	DOORMAT NEW ENGLAND	4	7.95	13047	United Kingdom	01/12/2010	08:34:00	8	31.8	Wednesday
22749	FELTCRAFT PRINCESS CHARLOTTE DOLL	8	3.75	13047	United Kingdom	01/12/2010	08:34:00	8	30	Wednesday
22748	POPPY'S PLAYHOUSE KITCHEN	6	2.1	13047	United Kingdom	01/12/2010	08:34:00	8	12.6	Wednesday
22745	POPPY'S PLAYHOUSE BEDROOM	6	2.1	13047	United Kingdom	01/12/2010	08:34:00	8	12.6	Wednesday
22623	BOX OF VINTAGE JIGSAW BLOCKS	3	4.95	13047	United Kingdom	01/12/2010	08:34:00	8	14.85	Wednesday
22622	BOX OF VINTAGE ALPHABET BLOCKS	2	9.95	13047	United Kingdom	01/12/2010	08:34:00	8	19.9	Wednesday
22310	IVORY KNITTED MUG COSY	6	1.65	13047	United Kingdom	01/12/2010	08:34:00	8	9.9	Wednesday

Analysis Questions

General Questions

Which month had the highest sales, and what was the revenue?

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Quant	UnitPr	Custor	Country	InvoiceDate	Invoice Time	Hour	Total Revenue	weekdays	Month	Year
6	3.39	17850	United Kingdom	01/12/2010	08:26:00	8	20.34	Wednesday	December	2010
2	7.65	17850	United Kingdom	01/12/2010	08:26:00	8	15.3	Wednesday	December	2010
6	4.25	17850	United Kingdom	01/12/2010	08:26:00	8	25.5	Wednesday	December	2010
6	1.85	17850	United Kingdom	01/12/2010	08:28:00	8	11.1	Wednesday	December	2010
6	1.85	17850	United Kingdom	01/12/2010	08:28:00	8	11.1	Wednesday	December	2010
6	4.25	13047	United Kingdom	01/12/2010	08:34:00	8	25.5	Wednesday	December	2010
32	1.69	13047	United Kingdom	01/12/2010	08:34:00	8	54.08	Wednesday	December	2010
4	7.95	13047	United Kingdom	01/12/2010	08:34:00	8	31.8	Wednesday	December	2010
8	3.75	13047	United Kingdom	01/12/2010	08:34:00	8	30	Wednesday	December	2010
6	2.1	13047	United Kingdom	01/12/2010	08:34:00	8	12.6	Wednesday	December	2010
6	2.1	13047	United Kingdom	01/12/2010	08:34:00	8	12.6	Wednesday	December	2010
3	4.95	13047	United Kingdom	01/12/2010	08:34:00	8	14.85	Wednesday	December	2010
2	9.95	13047	United Kingdom	01/12/2010	08:34:00	8	19.9	Wednesday	December	2010
6	1.65	13047	United Kingdom	01/12/2010	08:34:00	8	9.9	Wednesday	December	2010
4	7.95	13047	United Kingdom	01/12/2010	08:34:00	8	31.8	Wednesday	December	2010
3	5.95	13047	United Kingdom	01/12/2010	08:34:00	8	17.85	Wednesday	December	2010
3	5.95	13047	United Kingdom	01/12/2010	08:34:00	8	17.85	Wednesday	December	2010
6	4.25	13047	United Kingdom	01/12/2010	08:34:00	8	25.5	Wednesday	December	2010
3	4.95	13047	United Kingdom	01/12/2010	08:34:00	8	14.85	Wednesday	December	2010

Total Revenue	Month
168469.6	December

Row Labels	Sum of Total Revenue
Australia	134070.62
EIRE	242698.34
France	173532.12
Germany	190201.94
Japan	35975.17
Netherlands	269330.18
Spain	43046.19
Sweden	35128.05
Switzerland	48109.33
United Kingdom	6623368.43
Grand Total	**7795460.37**

- **Which top 10 countries sold the most products?**

Row Labels	Sum of Total Revenue
Australia	134070.62
EIRE	242698.34
France	173532.12
Germany	190201.94
Japan	35975.17
Netherlands	269330.18
Spain	43046.19
Sweden	35128.05
Switzerland	48109.33
United Kingdom	6623368.43
Grand Total	**7795460.37**

Sum of Total Revenue	Column Labels															
Row Labels	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Australia	122.39	505.38	338.7	1012.2	172.75	1402.5		868.24		1371.3		3201.6				902.56	
EIRE	1495.35	11009.62	4335.9	13339.04	699.5	18138.48	234.15	6850.4	579.15	6242.9		33418.08				6090.72	
France	1312.03	6984.66	3896.88	10926.52	1445.7	20715.66	67.76	8685.12	440.28	13277.8	4.29	36149.76		35.7	63	3524.8	
Germany	1300.13	6841.12	4394.85	12566.56	1300.35	21645.42	75.6	9729.2	417.15	12641.2	4.62	43716.72			426	4763.04	
Japan	79.17			32		135.6		142.24				278.16				114.24	
Netherlands	625.63	713.8	153.9	1449.8	10.5	856.68		1109.6	22.95	367.4		7556.88				4158.08	
Spain	1483.31	3308.48	1716.54	3004.12	333.6	5993.7	123.9	2011.52	312.57	1956	46.75	9027.6		357		827.68	
Sweden	24.9	68.9	118.8	183	134	522.54		494.4	125.1	312		1369.2			105.75	269.44	
Switzerland	121.45	1581.3	732.9	2898	113.75	5153.34	89.25	2176.48	298.35	1506.2		9327.24			44.25	1618.08	
United Kingdom	261852.15	425126.96	212743.98	379071.76	73510.05	472064.16	14664.86	185222.48	19888.38	322538.5	5371.41	856914.24	3763.63	5953.08	10428.3	113234.88	2111
Grand Total	**268416.51**	**456140.22**	**228432.45**	**424483**	**77720.2**	**546628.08**	**15255.52**	**217289.68**	**22083.93**	**360213.3**	**5427.07**	**1000959.48**	**3763.63**	**6345.78**	**11067.3**	**135503.52**	**2111**

- **At what time of day do we have the highest sales?**

G6

	A	B	C
1	Invoice Time	weekdays	Total R
2	09:15:00	Friday	168469.6

Row Labels	Sum of Total Revenue
12	1242804.06
10	1147215.06
13	1033712
11	989880
14	890857
15	876195.53
9	767528.28
16	418078.98
8	250770.98
17	209146.39
18	99683.51
19	41974.41
7	28951.45
20	18546.68
6	4.25
Grand Total	**8015349.54**

Sum
Value
Row:

- **Are there specific days where the number of items sold peaks or dips significantly?**

	A	B
3	Row Labels	Sum of Quantity
4	Sunday	427515
5	Monday	699496
6	Friday	767109
7	Wednesday	880530
8	Tuesday	931442
9	Thursday	1061320
10	Grand Total	4767412

3	Row Labels	Sum of Quantity
4	Sunday	427515
5	Monday	699496
6	Friday	767109
7	Wednesday	880530
8	Tuesday	931442
9	Thursday	1061320
10	Grand Total	4767412

3	Row Labels	Sum of Quantity
4	Thursday	1061320
5	Tuesday	931442
6	Wednesday	880530
7	Friday	767109
8	Monday	699496
9	Sunday	427515
10	Grand Total	4767412

	A	B
3	Row Labels	Sum of Quantity
4	Thursday	1061320
5	Tuesday	931442
6	Wednesday	880530
7	Friday	767109
8	Monday	699496
9	Sunday	427515
10	Grand Total	4767412

- **Which top 10 products sold the most?**

Row Labels	Sum of Total Revenue
PAPER CRAFT , LITTLE BIRDIE	168469.6
REGENCY CAKESTAND 3 TIER	142592.95
MEDIUM CERAMIC TOP STORAGE JAR	81416.73
PARTY BUNTING	68844.33
ASSORTED COLOUR BIRD ORNAMENT	56580.34
RABBIT NIGHT LIGHT	51346.2
CHILLI LIGHTS	46286.51
PAPER CHAIN KIT 50'S CHRISTMAS	42660.83
PICNIC BASKET WICKER 60 PIECES	39619.5
BLACK RECORD COVER FRAME	39064.55
Grand Total	**736881.54**

Sales and Revenue Insights

- **What is the total revenue over time? (daily and monthly trends)**

Row Labels	Sum of Total Revenue
Sunday	714758.55
Friday	1359019.69
Thursday	1779385.88
Wednesday	1421640.06
Tuesday	1538127.41
Monday	1202417.95
Grand Total	**8015349.54**

Row Labels	Sum of Total Revenue
January	497482.21
February	396318.22
March	526068.4
April	405226.48
May	599736.66
June	603411.25
July	531686.3
August	580852.33
September	878833.62
October	939738.89
November	1057634.25
December	998360.93
Grand Total	**8015349.54**

- **Which products generate the highest sales revenue?**

3	Row Labels	Sum of Total Revenue
4	PAPER CRAFT , LITTLE BIRDIE	168469.6
5	REGENCY CAKESTAND 3 TIER	142592.95
6	MEDIUM CERAMIC TOP STORAGE JAR	81416.73
7	PARTY BUNTING	68844.33
8	ASSORTED COLOUR BIRD ORNAMENT	56580.34
9	RABBIT NIGHT LIGHT	51346.2
10	CHILLI LIGHTS	46286.51
11	PAPER CHAIN KIT 50'S CHRISTMAS	42660.83
12	PICNIC BASKET WICKER 60 PIECES	39619.5
13	BLACK RECORD COVER FRAME	39064.55
14	JUMBO BAG PINK POLKADOT	37289.59
15	DOORMAT KEEP CALM AND COME IN	35913.85
16	SPOTTY BUNTING	35539.25
17	WOOD BLACK BOARD ANT WHITE FINISH	34478.01

- **What are the top-selling products by quantity sold?**

3	Row Labels	Sum of Quantity
4	PAPER CRAFT , LITTLE BIRDIE	80995
5	MEDIUM CERAMIC TOP STORAGE JAR	77916
6	WORLD WAR 2 GLIDERS ASSTD DESIGNS	54415
7	ASSORTED COLOUR BIRD ORNAMENT	35362
8	PACK OF 72 RETROSPOT CAKE CASES	33693
9	POPCORN HOLDER	30931
10	RABBIT NIGHT LIGHT	27202

Customer Behaviour

1. **What is the average revenue generated per customer?**

3	Row Labels	Average of Total Revenue
4	12346	77183.6
5	12347	22.55216049
6	12348	53.23111111
7	12349	20.18264706
8	12350	19.84615385
9	12352	18.06894737
10	12353	22.25
11	12354	18.64561404
12	12355	40.34444444
13	12356	43.75690909
14	12357	45.70663793
15	12358	34.186
16	12359	25.74721992
17	12360	17.80134454
18	12361	19.43333333
19	12362	18.52569672
20	12363	24
21	12364	15.112

2. **What percentage of customers makes repeat purchases?**

3	Row Labels	Sum of Total Revenue	StdDev of InvoiceNo
4	12346	77183.6	#DIV/0!
5	12347	3653.45	14641.80267
6	12348	1437.24	7910.937268
7	12349	1372.42	0
8	12350	258	0
9	12352	1373.24	12468.65435
10	12353	89	0
11	12354	1062.8	0
12	12355	363.1	0
13	12356	2406.63	7229.498644
14	12357	5301.97	0
15	12358	341.86	10397.56282
16	12359	6205.08	12647.86956
17	12360	2118.36	7678.247908
18	12361	174.9	0
19	12362	4520.27	10763.43958
20	12363	552	6708.930276
21	12364	1133.4	7019.425967
22	12365	283.94	0

3. **How frequently do customers make purchases on average?**

2							
3	Row Labels	Min of InvoiceDate	Max of InvoiceDate	Count of CustomerID	Sum of Field2		frequency
4	17754	40626	40886	68	373		96.83378016
5	17428	40518	40886	307	373		
6	17389	40555	40886	186	373		
7	16954	40527	40886	50	373		
8	17581	40514	40886	407	373		
9	17001	40528	40886	157	373		
10	18102	40519	40886	423	373		

Product Analysis

1. **Which products generate the highest revenue?**

3	Row Labels	Sum of Total Revenue
4	PAPER CRAFT , LITTLE BIRDIE	168469.6
5	REGENCY CAKESTAND 3 TIER	142592.95
6	MEDIUM CERAMIC TOP STORAGE JAR	81416.73
7	PARTY BUNTING	68844.33
8	ASSORTED COLOUR BIRD ORNAMENT	56580.34
9	RABBIT NIGHT LIGHT	51346.2
10	CHILLI LIGHTS	46286.51
11	PAPER CHAIN KIT 50'S CHRISTMAS	42660.83
12	PICNIC BASKET WICKER 60 PIECES	39619.5
13	BLACK RECORD COVER FRAME	39064.55
14	JUMBO BAG PINK POLKADOT	37289.59
15	DOORMAT KEEP CALM AND COME IN	35913.85
16	SPOTTY BUNTING	35539.25
17	WOOD BLACK BOARD ANT WHITE FINISH	34478.01
18	SET OF 3 CAKE TINS PANTRY DESIGN	33347.8
19	JAM MAKING SET WITH JARS	32662.97
20	VICTORIAN GLASS HANGING T-LIGHT	28776.51
21	HEART OF WICKER LARGE	28520.95
22	HEART OF WICKER SMALL	28228.64
23	LUNCH BAG RED RETROSPOT	28048.45
24	SET OF 3 REGENCY CAKE TINS	26625.68

2. **What are the best-selling products in each country?**

2		
3	Row Labels	Sum of Total Revenue
4	⊟ **Australia**	**134070.62**
5	RABBIT NIGHT LIGHT	3375.84
6	SET OF 6 SPICE TINS PANTRY DESIGN	2082
7	RED TOADSTOOL LED NIGHT LIGHT	1987.2
8	SET OF 3 CAKE TINS PANTRY DESIGN	1983.2
9	REGENCY CAKESTAND 3 TIER	1978.2
10	RED HARMONICA IN BOX	1810.8
11	DOLLY GIRL LUNCH BOX	1689.6

Time Series Trends

1. **How does revenue vary month to month?**

Row Labels	Sum of Total Revenue
February	396318.22
April	405226.48
January	497482.21
March	526068.4
July	531686.3
August	580852.33
May	599736.66
June	603411.25
September	878833.62
October	939738.89
December	998360.93
November	1057634.25
Grand Total	**8015349.54**

Row Labels	Sum of Total Revenue
November	1057634.25
December	998360.93
October	939738.89
September	878833.62
June	603411.25
May	599736.66
August	580852.33
July	531686.3
March	526068.4
January	497482.21
April	405226.48
February	396318.22
Grand Total	**8015349.54**

2. **Which days of the week have the highest sales?**

Row Labels	Sum of Total Revenue
Thursday	1779385.88
Tuesday	1538127.41
Wednesday	1421640.06
Friday	1359019.69
Monday	1202417.95
Sunday	714758.55
Grand Total	**8015349.54**

3. **What time of day sees the most purchases?**

Row Labels	Sum of Total Revenue
Thursday	**1779385.88**
06:20:00	4.25
07:37:00	385.14
07:40:00	3978.99
07:42:00	337.5
07:43:00	500
07:48:00	160.6
07:49:00	668
07:52:00	459.45

Geographical Insights

1. **Which countries have the highest average order value?**

3	Row Labels	Sum of Total Revenue
4	Australia	134070.62
5	Austria	7662.53
6	Bahrain	452.1
7	Belgium	34840.58
8	Brazil	1069.65
9	Canada	2729.66
10	Channel Islands	18286.69
11	Cyprus	11826.98
12	Czech Republic	664.58
13	Denmark	17044.87
14	EIRE	242698.34
15	European Community	999.85
16	Finland	12036.11
17	France	173532.12
18	Germany	190201.94
19	Greece	4200.28
20	Iceland	3653.45
21	Israel	6817.71
22	Italy	14707.22
23	Japan	35975.17
24	Lebanon	1663.58
25	Lithuania	1439.06
26	Malta	1767.85
27	Netherlands	269330.18
28	Norway	28841.68
29	Poland	6489.71
30	Portugal	25222.23
31	RSA	949.56
32	Saudi Arabia	145.92

2. **What is the top-selling product in each region?**

3	Row Labels	Sum of Total Revenue
4	⊟ **Australia**	**134070.62**
5	RABBIT NIGHT LIGHT	3375.84
6	SET OF 6 SPICE TINS PANTRY DESIGN	2082
7	RED TOADSTOOL LED NIGHT LIGHT	1987.2
8	SET OF 3 CAKE TINS PANTRY DESIGN	1983.2
9	REGENCY CAKESTAND 3 TIER	1978.2
10	RED HARMONICA IN BOX	1810.8
11	DOLLY GIRL LUNCH BOX	1689.6
12	MINI PAINT SET VINTAGE	1630.8
13	SPACEBOY LUNCH BOX	1584
14	RED RETROSPOT ROUND CAKE TINS	1503.6
15	SET OF 6 SOLDIER SKITTLES	1416
16	HOMEMADE JAM SCENTED CANDLES	1354.8
17	FELTCRAFT PRINCESS OLIVIA DOLL	1301.76
18	FELTCRAFT CHRISTMAS FAIRY	1260
19	SET OF 3 REGENCY CAKE TINS	1232.75
20	PARTY BUNTING	1150.25

3. **What is the revenue breakdown by country?**

=GETPIVOTDATA("Sum of Total Revenue",A3)/GETPIVOTDATA("Count of index number",A3)

	A	B	C	D	E	F
1						
2						
3	Row Labels	Sum of Total Revenue	Count of index number			
4	Australia	134070.62	1121	22.073616		
5	Austria	7662.53	359			
6	Bahrain	452.1	13			
7	Belgium	34840.58	1798			
8	Brazil	1069.65	28			
9	Canada	2729.66	126			
10	Channel Islands	18286.69	705			
11	Cyprus	11826.98	572			

4. Are some countries more price-sensitive (lower average unit price)?

1				
2				
3	Row Labels	Sum of Total Revenue	Sum of Quantity	
4	Australia	134070.62	82095	1.681279
5	Austria	7662.53	4601	
6	Bahrain	452.1	230	
7	Belgium	34840.58	21139	
8	Brazil	1069.65	323	
9	Canada	2729.66	2399	
10	Channel Islands	18286.69	8587	

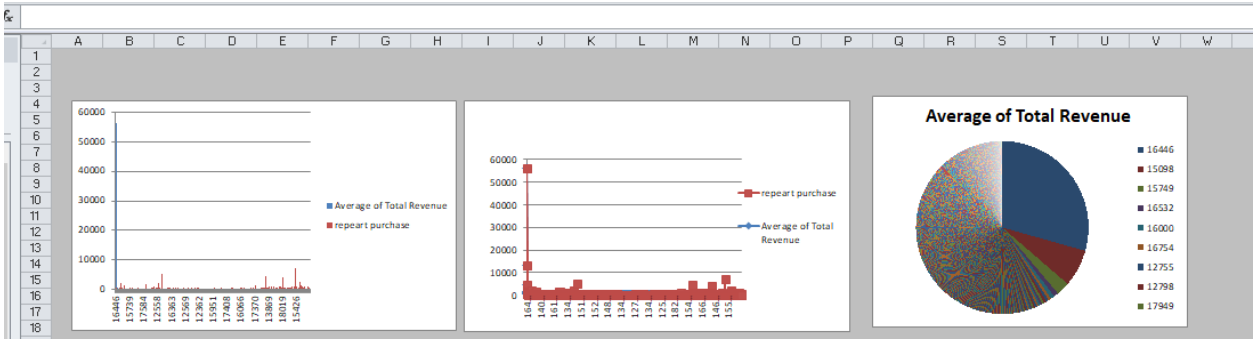
3	Row Labels	Sum of Total Revenue	Sum of Quantity	
4	Australia	134070.62	82095	1.6331155
5	Austria	7662.53	4601	1.6654053
6	Bahrain	452.1	230	1.9656522
7	Belgium	34840.58	21139	1.6481659
8	Brazil	1069.65	323	3.3116099
9	Canada	2729.66	2399	1.1378324
10	Channel Islands	18286.69	8587	2.1295784
11	Cyprus	11826.98	5711	2.0709123
12	Czech Republic	664.58	598	1.1113378
13	Denmark	17044.87	7641	2.2307119
14	EIRE	242698.34	131470	1.8460359
15	European Community	999.85	446	2.2418161
16	Finland	12036.11	8503	1.4155133
17	France	173532.12	106432	1.6304506
18	Germany	190201.94	111640	1.7037078
19	Greece	4200.28	1482	2.834197
20	Iceland	3653.45	2137	1.7096163

Deliverable:

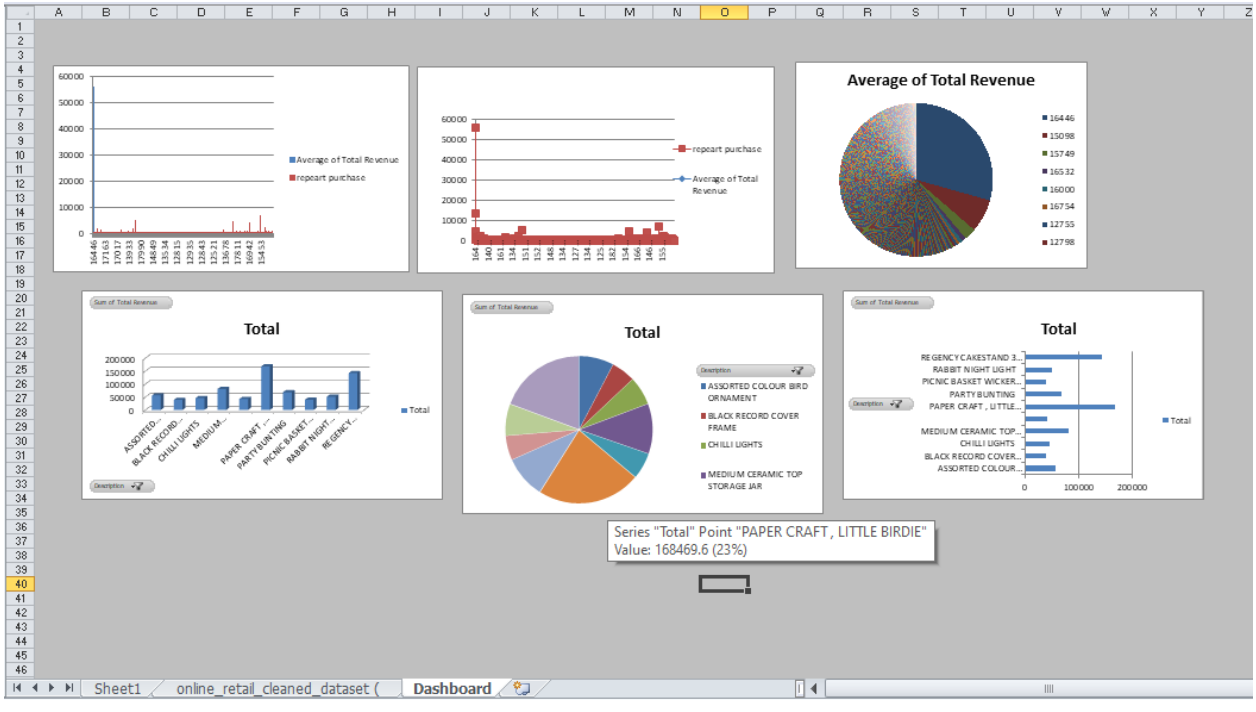
Create a comprehensive dashboard to visualize key metrics and trends. Make a comprehensive Report on it. You can include given metrics:

Metrics:

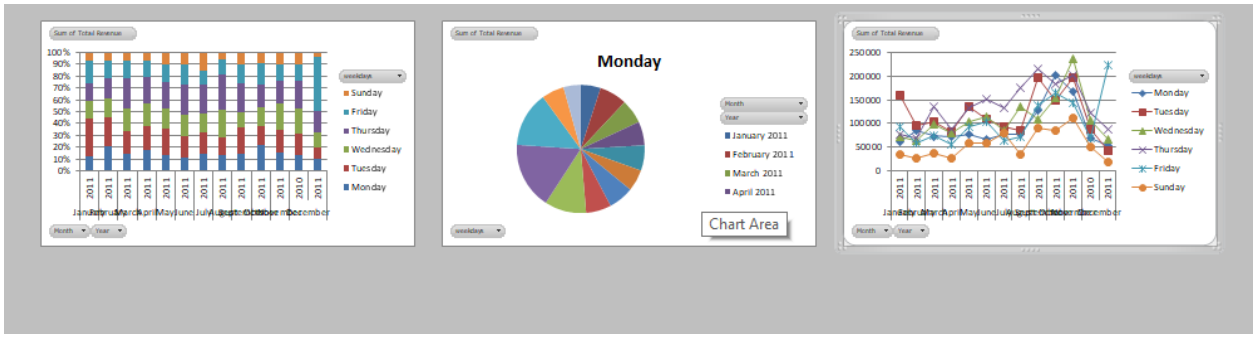
- **Customer behaviour metrics (average revenue, repeat purchases, purchase frequency)**



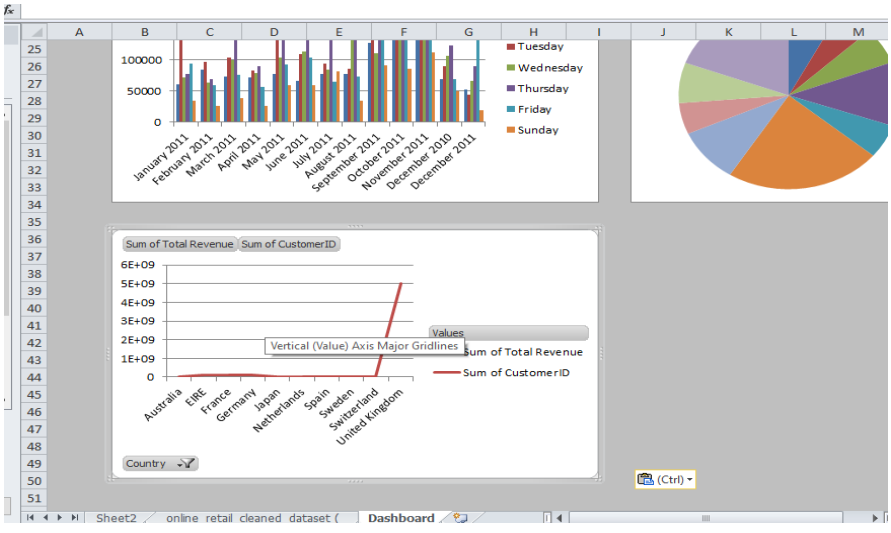
- **Product performance metrics (top-selling products, revenue)**

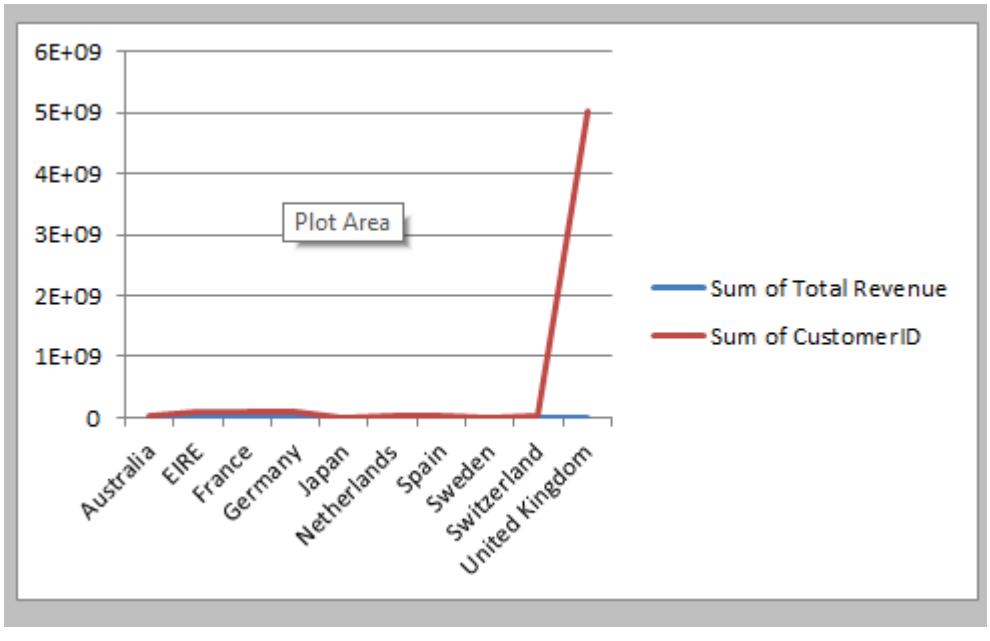


● **Time series trends (monthly transactions, daily revenue, seasonal patterns)**

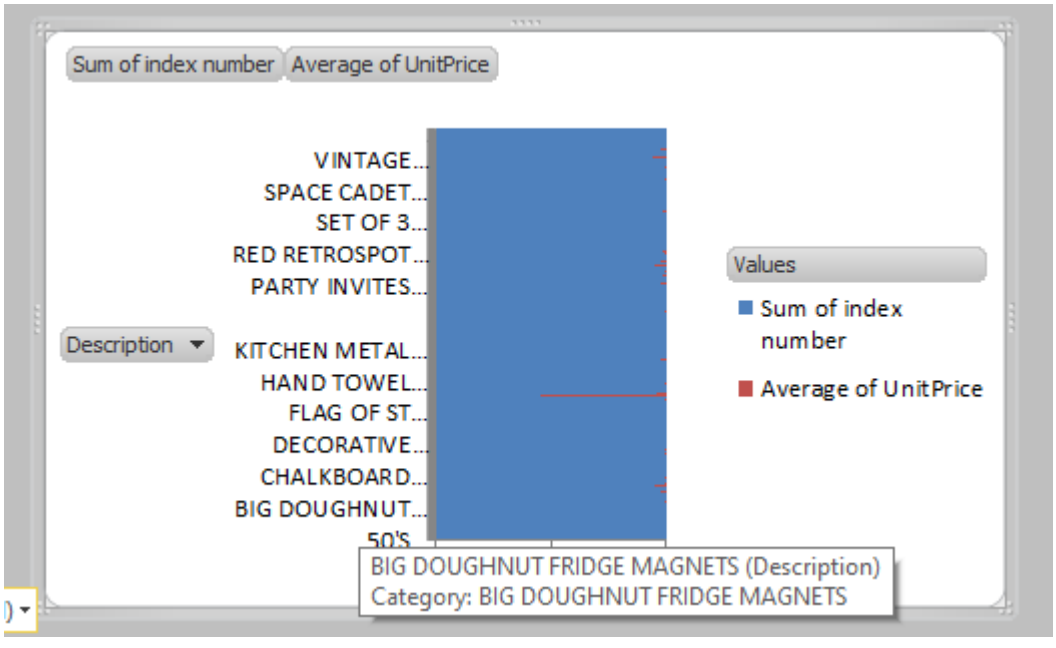


● **Geographical insights (top countries by sales, average order value)**





- **Sales efficiency metrics (products per invoice, average unit price)**


Sum of index number
Average of UnitPrice
VINTAGE...
SPACE CADET...
SET OF 3...
RED RETROSPOT...
PARTY INVITES...
Description
KITCHEN METAL...
HAND TOWEL...
FLAG OF ST...
DECORATIVE...
CHALKBOARD...
BIG DOUGHNUT...
50'S
BIG DOUGHNUT FRIDGE MAGNETS (Description)
Category: BIG DOUGHNUT FRIDGE MAGNETS
Values
Sum of index number
Average of UnitPrice