



GOOGLE DATA ANALYTICS CAPSTONE

—◇—
Shivam Tewari

Table info

Table ID	basic-bison-378623.googleusercontent.com
Created	Sep 12, 2023, 10:10:42 PM UTC-4
Last modified	Sep 12, 2023, 10:10:42 PM UTC-4
Table expiration	Nov 11, 2023, 9:10:42 PM UTC-5
Data location	US
Default collation	
Default rounding mode	ROUNDING_MODE_UNSPECIFIED
Case insensitive	false
Description	
Labels	
Primary key(s)	

Storage info

Number of rows	541,909
Total logical bytes	46.02 MB
Active logical bytes	46.02 MB
Long term logical bytes	0 B
Total physical bytes	3.01 MB
Active physical bytes	3.01 MB
Long term physical bytes	0 B
Time travel physical bytes	0 B

Case Study: E-commerce Sales Analysis

Objective: Analyze sales data to identify trends, insights, and opportunities for the e-commerce company.

Tools used in this data analysis are SQL, Tableau, and R Programming.

Total # of rows in this dataset: 541,909

Link to dataset:

<https://www.kaggle.com/datasets/carr1e1/ecommerce-data>





SQL - DATA CLEANING & INITIAL EXPLORATION



Using Big Query

data

*cleaning

cleaning

RUN

SAVE QUERY

SHARE

SCHEDULE

MORE

This query will process 46.02 MB when run

1SELECT

2InvoiceNo,

3StockCode,

4Description,

5Quantity,

6InvoiceDate,

7UnitPrice,

8CustomerID,

9Country,

10COUNT(*) AS

11duplicate_count

12FROM

13googledacap.data

14GROUP BY

15InvoiceNo,

16StockCode,

17Description,

18Quantity,

19InvoiceDate,

20UnitPrice,

21CustomerID,

22Country

23HAVING COUNT(*) > 1;

24

Checked for duplicate rows

Press Alt+F1 for Accessibility Option

Query results

SAVE RESULTS

EXPLORE DATA

JOB INFORMATION		RESULTS	JSON	EXECUTION DETAILS	CHART	PREVIEW	EXECUTION GRAPH		
Row	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country	duplicate_count
4	577302	21888	BINGO SET	1	2011-11-18 12:57:00 UTC	3.75	17904	United Kingdom	2
5	577076	21026	SPACE OWL	1	2011-11-17 15:08:00 UTC	1.25	14362	United Kingdom	2
6	569521	21026	SPACE OWL	1	2011-10-04 14:33:00 UTC	1.25	16474	United Kingdom	2
7	536796	21026	SPACE OWL	1	2010-12-02 15:46:00 UTC	1.25	15574	United Kingdom	2
8	536749	22174	PHOTO CUBE	2	2010-12-02 13:49:00 UTC	1.65	17976	United Kingdom	3
9	574040	22174	PHOTO CUBE	4	2011-11-02 13:01:00 UTC	1.65	14974	United Kingdom	2
10	560863	22174	PHOTO CUBE	6	2011-07-21 13:53:00 UTC	1.65	12748	United Kingdom	3

Results per page: 101 – 10 of 4879

PERSONAL HISTORYPROJECT HISTORY

Already on the first page

```
1 SELECT DISTINCT *
2 FROM
3     'basic-bison-378623.googleusercontent.com';
4
5
6
7
8
9
```

Removed duplicate rows

Query results

SAVE RESULTSEXPLORE DATA

JOB INFORMATIONRESULTSJSONEXECUTION DETAILSCHARTPREVIEWEXECUTION GRAPH

Row	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
1	536414	22139	null	56	2010-12-01 11:52:00 UTC	0.0	null	United Kingdom
2	536545	21134	null	1	2010-12-01 14:32:00 UTC	0.0	null	United Kingdom
3	536546	22145	null	1	2010-12-01 14:33:00 UTC	0.0	null	United Kingdom
4	536547	37509	null	1	2010-12-01 14:33:00 UTC	0.0	null	United Kingdom
5	536549	85226A	null	1	2010-12-01 14:34:00 UTC	0.0	null	United Kingdom
6	536550	85044	null	1	2010-12-01 14:34:00 UTC	0.0	null	United Kingdom
7	536552	20950	null	1	2010-12-01 14:34:00 UTC	0.0	null	United Kingdom
8	536553	37461	null	3	2010-12-01 14:35:00 UTC	0.0	null	United Kingdom
9	536554	84670	null	23	2010-12-01 14:35:00 UTC	0.0	null	United Kingdom
10	536589	21777	null	-10	2010-12-01 16:50:00 UTC	0.0	null	United Kingdom
11	536764	84952C	null	-38	2010-12-02 14:42:00 UTC	0.0	null	United Kingdom
12	536765	84952C	null	-38	2010-12-02 14:42:00 UTC	0.0	null	United Kingdom

Results per page: 501 - 50 of 536641


```

1 SELECT DISTINCT *
2 FROM
3   `basic-bison-378623.googledeap.data`
4 WHERE
5   InvoiceNo IS NOT NULL
6   AND StockCode IS NOT NULL
7   AND Description IS NOT NULL
8   AND Quantity IS NOT NULL
9   AND InvoiceDate IS NOT NULL
10  AND UnitPrice IS NOT NULL
11  AND CustomerID IS NOT NULL
12  AND Country IS NOT NULL
13
14

```

Removing null values

Press Alt+F1 for Accessibility Options

Query results

SAVE RESULTS

EXPLORE DATA



JOB INFORMATION

RESULTS

JSON

EXECUTION DETAILS

CHART

PREVIEW

EXECUTION GRAPH

Row	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
1	537435	M	Manual	2	2010-12-06 16:58:00 UTC	5.95	17920	United Kingdom
2	578017	M	Manual	1	2011-11-22 13:07:00 UTC	1.5	13569	United Kingdom
3	C570301	M	Manual	-1	2011-10-10 12:04:00 UTC	682.05	16900	United Kingdom
4	C569982	M	Manual	-1	2011-10-06 19:39:00 UTC	218.72	15365	United Kingdom
5	541564	M	Manual	10	2011-01-19 11:38:00 UTC	0.38	16904	United Kingdom
6	572682	M	Manual	72	2011-10-25 13:52:00 UTC	0.39	17928	United Kingdom
7	571289	M	Manual	1	2011-10-16 15:27:00 UTC	0.39	15113	United Kingdom
8	C560420	M	Manual	-1	2011-07-18 15:11:00 UTC	1592.49	15369	United Kingdom
9	537377	M	Manual	12	2010-12-06 13:01:00 UTC	0.19	15882	United Kingdom
10	543134	M	Manual	1	2011-02-03 15:28:00 UTC	15.0	15885	United Kingdom
11	544407	M	Manual	1	2011-02-18 13:26:00 UTC	15.0	14606	United Kingdom

Query updated



Results per page: 50

1 - 50 of 401604



```

1 SELECT DISTINCT *
2 FROM
3     `basic-bison-378623.googleusercontent.com`
4 WHERE
5     InvoiceNo IS NOT NULL
6     AND StockCode IS NOT NULL
7     AND Description IS NOT NULL
8     AND Quantity IS NOT NULL
9     AND InvoiceDate IS NOT NULL
10    AND UnitPrice IS NOT NULL
11    AND CustomerID IS NOT NULL
12    AND Country IS NOT NULL;
13
14 SELECT SUM(UnitPrice * Quantity) AS total_sales
15 FROM `basic-bison-378623.googleusercontent.com`;
16
17
18

```

← Query results

JOB INFORMATION		RESULTS	JSON	EXECUTION DETAILS
Row	total_sales			
1	9747747.9340023212			

PERSONAL HISTORY

PROJECT HISTORY

```

1 SELECT DISTINCT *
2 FROM
3     `basic-bison-378623.googleusercontent.com`
4 WHERE
5     InvoiceNo IS NOT NULL
6     AND StockCode IS NOT NULL
7     AND Description IS NOT NULL
8     AND Quantity IS NOT NULL
9     AND InvoiceDate IS NOT NULL
10    AND UnitPrice IS NOT NULL
11    AND CustomerID IS NOT NULL
12    AND Country IS NOT NULL;
13
14 SELECT SUM(UnitPrice * Quantity) AS total_sales
15 FROM `basic-bison-378623.googleusercontent.com`;
16
17 SELECT AVG(UnitPrice * Quantity) AS mean_sales
18 FROM `basic-bison-378623.googleusercontent.com`;
19
20

```

← Query results

JOB INFORMATION		RESULTS	JSON	EXECUTION DETAILS
Row	mean_sales			
1	17.987794876999857			

PERSONAL HISTORY

PROJECT HISTORY

Calculated Total Sales and Average Sales


```

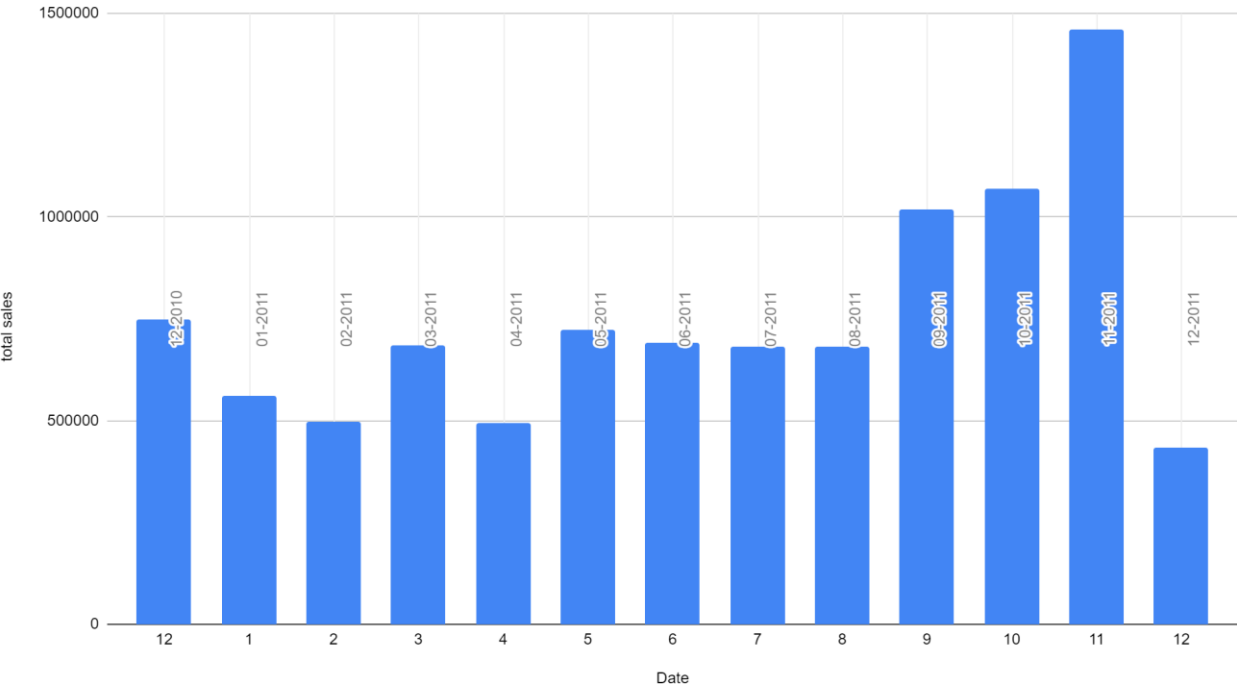
13
14 -----
15
16 SELECT SUM(UnitPrice * Quantity) AS total_sales
17 FROM `basic-bison-378623.googleusercontent.com`;
18
19 -----
20
21 SELECT AVG(UnitPrice * Quantity) AS mean_sales
22 FROM `basic-bison-378623.googleusercontent.com`;
23
24 -----
25
26 SELECT
27   EXTRACT(YEAR FROM InvoiceDate) AS year,
28   EXTRACT(MONTH FROM InvoiceDate) AS month,
29   SUM(UnitPrice * Quantity) AS total_sales
30 FROM `basic-bison-378623.googleusercontent.com`
31 GROUP BY year, month
32 ORDER BY year, month;
33

```


← Query results


JOB INFORMATION					RESULTS	JSON	EXECUTION DETAILS	CHART	PREVIEW
Row	year	month	total_sales						
1	2010	12	748957.01999996754						
2	2011	1	560000.26000001689						
3	2011	2	498062.65000000325						
4	2011	3	683267.07999999967						
5	2011	4	493207.121000003497						
6	2011	5	723333.5099999893						
7	2011	6	691123.12000001559						
8	2011	7	681300.11100002157						
9	2011	8	682680.51000000886						
10	2011	9	1019687.621999973						
11	2011	10	1070704.6699999515						
12	2011	11	1461756.2499997525						
13	2011	12	433668.01000001776						


Total Sales Over Time





Pivot Table and Chart (Sales Over Time)

 cleaning

 RUN

 SAVE QUERY ▾

 SHARE ▾



```
35
36 SELECT country, COUNT(*) AS customer_count
37 FROM `basic-bison-378623.googledeacap.data`
38 GROUP BY country;
```

←

Query results

JOB INFORMATION		RESULTS	JSON	EXECUTION DETAILS
Row	country ▾	customer_count ▾		
1	United Kingdom	495478		
2	Germany	9495		
3	France	8557		
4	EIRE	8196		
5	Spain	2533		
6	Netherlands	2371		
7	Belgium	2069		
8	Switzerland	2002		
9	Portugal	1519		
10	Australia	1259		
11	Norway	1086		
12	Italy	803		
13	Channel Islands	758		

Customer Count by Country

Cleaning Up Negative Quantity Values (Before)

```
1 SELECT DISTINCT *
2 FROM
3     `basic-bison-378623.googledatacap.data`
4 WHERE
5     InvoiceNo IS NOT NULL
6     AND StockCode IS NOT NULL
7     AND Description IS NOT NULL
8     AND Quantity IS NOT NULL
9     AND InvoiceDate IS NOT NULL
10    AND UnitPrice IS NOT NULL
11    AND CustomerID IS NOT NULL
12    AND Country IS NOT NULL
13
14
```

Press Alt+F1 for Accessibility Option

Query results

[SAVE RESULTS](#) [EXPLORE DATA](#)

JOB INFORMATION		RESULTS	JSON	EXECUTION DETAILS	CHART	PREVIEW	EXECUTION GRAPH				
Row	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country			
1	537435	M	Manual	2	2010-12-06 16:58:00 UTC	5.95	17920	United Kingdom			
2	578017	M	Manual	1	2011-11-22 13:07:00 UTC	1.5	13569	United Kingdom			
3	C570301	M	Manual	-1	2011-10-10 12:04:00 UTC	682.05	16900	United Kingdom			
4	C569982	M	Manual	-1	2011-10-06 19:39:00 UTC	218.72	15365	United Kingdom			
5	541564	M	Manual	10	2011-01-19 11:38:00 UTC	0.38	16904	United Kingdom			
6	572682	M	Manual	72	2011-10-25 13:52:00 UTC	0.39	17928	United Kingdom			
7	571289	M	Manual	1	2011-10-16 15:27:00 UTC	0.39	15113	United Kingdom			
8	C560420	M	Manual	-1	2011-07-18 15:11:00 UTC	1592.49	15369	United Kingdom			
9	537377	M	Manual	12	2010-12-06 13:01:00 UTC	0.19	15882	United Kingdom			
10	543134	M	Manual	1	2011-02-03 15:28:00 UTC	15.0	15885	United Kingdom			
11	544407	M	Manual	1	2011-02-18 13:26:00 UTC	15.0	14606	United Kingdom			

Query updated

Cleaning Up Negative Quantity Values (After)

🔍 cleaning

▶ RUN

💾 SAVE QUERY

👤 SHARE

🕒 SCHEDULE

⚙️ MORE

✅ This script will process 82.91 MB when run

1 SELECT

2 InvoiceNo,

3 StockCode,

4 Description,

5 CASE

6 | WHEN Quantity < 0 THEN 0

7 | ELSE Quantity

8 END AS Quantity,

9 InvoiceDate,

10 UnitPrice,

11 CustomerID,

12 Country

Press Alt+F1 for Accessibility Options

← Query results

📄 SAVE RESULTS

📊 EXPLORE DATA

⌵

JOB INFORMATION

RESULTS

JSON

EXECUTION DETAILS

CHART

PREVIEW

EXECUTION GRAPH

Results per page: 50 1 – 50 of 406829 < > >>

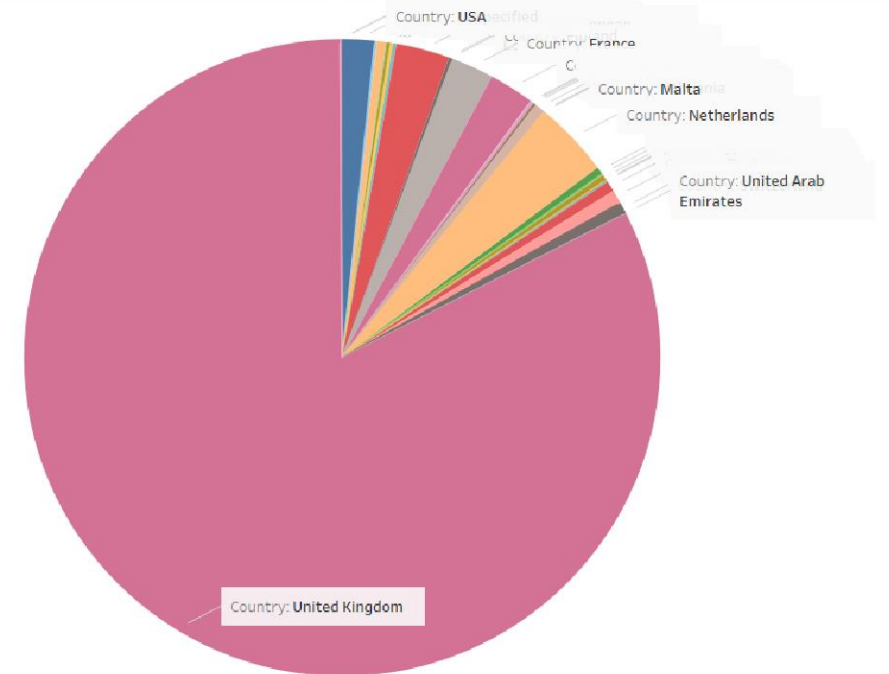


DATA VISUALIZATION



Using Tableau

WHERE SALES ARE COMING FROM





ADVANCED ANALYSIS



Using R Programming

Code	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
	Manual	2	2010-12-06 16:58:00 UTC	5.95	17920	United Kingdom
	Manual	1	2011-11-22 13:07:00 UTC	1.50	13569	United Kingdom
	Manual	0	2011-10-10 12:04:00 UTC	682.05	16900	United Kingdom
	Manual	0	2011-10-06 19:39:00 UTC	218.72	15365	United Kingdom
	Manual	10	2011-01-19 11:38:00 UTC	0.38	16904	United Kingdom
	Manual	72	2011-10-25 13:52:00 UTC	0.39	17928	United Kingdom
	Manual	1	2011-10-16 15:27:00 UTC	0.39	15113	United Kingdom
	Manual	0	2011-07-18 15:11:00 UTC	1592.49	15369	United Kingdom
	Manual	12	2010-12-06 13:01:00 UTC	0.19	15882	United Kingdom
	Manual	1	2011-02-03 15:28:00 UTC	15.00	15885	United Kingdom
	Manual	1	2011-02-18 13:26:00 UTC	15.00	14606	United Kingdom
	Manual	0	2011-08-08 12:56:00 UTC	3.25	14606	United Kingdom
	Manual	456	2011-10-24 10:43:00 UTC	1.50	14607	United Kingdom
	Manual	48	2011-10-24 10:43:00 UTC	1.50	14607	United Kingdom

Showing 1 to 15 of 406,829 entries, 8 total columns

```
>> q <- quantile(cleaned_data$Quantity, c(0.25,
0.75)) > iqr <- 1.5 * (q[2] - q[1]) > cleaned_data <-
cleaned_data[cleaned_data$Quantity >= (q[1] - iqr)
& cleaned_data$Quantity <= (q[2] + iqr), ]
```

Checking and Handling Outliers

	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
1	537435	M	Manual	2	2010-12-06 16:58:00 UTC	5.95	17920	United Kingdom
2	578017	M	Manual	1	2011-11-22 13:07:00 UTC	1.50	13569	United Kingdom
3	C570301	M	Manual	0	2011-10-10 12:04:00 UTC	682.05	16900	United Kingdom
4	C569982	M	Manual	0	2011-10-06 19:39:00 UTC	218.72	15365	United Kingdom
5	541564	M	Manual	10	2011-01-19 11:38:00 UTC	0.38	16904	United Kingdom
7	571289	M	Manual	1	2011-10-16 15:27:00 UTC	0.39	15113	United Kingdom
8	C560420	M	Manual	0	2011-07-18 15:11:00 UTC	1592.49	15369	United Kingdom
9	537377	M	Manual	12	2010-12-06 13:01:00 UTC	0.19	15882	United Kingdom
10	543134	M	Manual	1	2011-02-03 15:28:00 UTC	15.00	15885	United Kingdom
11	544407	M	Manual	1	2011-02-18 13:26:00 UTC	15.00	14606	United Kingdom
12	C562648	M	Manual	0	2011-08-08 12:56:00 UTC	3.25	14606	United Kingdom
16	550469	M	Manual	18	2011-04-18 13:46:00 UTC	0.10	16399	United Kingdom
17	C566187	M	Manual	0	2011-09-09 13:03:00 UTC	110.45	14096	United Kingdom
18	567460	M	Manual	3	2011-09-20 12:30:00 UTC	0.19	15888	United Kingdom
19	567460	M	Manual	6	2011-09-20 12:30:00 UTC	0.85	15888	United Kingdom
20	537208	M	Manual	4	2010-12-05 15:12:00 UTC	0.85	15889	United Kingdom
21	559106	M	Manual	2	2011-07-06 11:10:00 UTC	7.95	15889	United Kingdom
22	C551526	M	Manual	0	2011-05-01 12:38:00 UTC	1.95	16401	United Kingdom
23	551270	M	Manual	1	2011-04-27 12:35:00 UTC	2.55	15891	United Kingdom
24	549468	M	Manual	1	2011-04-08 14:27:00 UTC	1867.86	17940	United Kingdom
25	C554535	M	Manual	0	2011-05-24 17:36:00 UTC	60.00	17940	United Kingdom
26	537199	M	Manual	1	2010-12-05 14:06:00 UTC	0.65	15894	United Kingdom
27	577696	M	Manual	1	2011-11-21 11:57:00 UTC	0.00	16406	United Kingdom
28	C560904	M	Manual	0	2011-07-21 17:51:00 UTC	8.95	14875	United Kingdom
30	577695	M	Manual	1	2011-11-21 11:55:00 UTC	0.42	15645	United Kingdom
31	568050	M	Manual	1	2011-09-23 12:38:00 UTC	1.50	15901	United Kingdom
32	568050	M	Manual	6	2011-09-23 12:38:00 UTC	0.08	15901	United Kingdom

Showing 1 to 28 of 375,949 entries, 8 total columns

Code	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
	Manual	2	2010-12-06 16:58:00 UTC	5.95	17920	United Kingdom
	Manual	1	2011-11-22 13:07:00 UTC	1.50	13569	United Kingdom
	Manual	0	2011-10-10 12:04:00 UTC	682.05	16900	United Kingdom
	Manual	0	2011-10-06 19:39:00 UTC	218.72	15365	United Kingdom
	Manual	10	2011-01-19 11:38:00 UTC	0.38	16904	United Kingdom
	Manual	72	2011-10-25 13:52:00 UTC	0.39	17928	United Kingdom
	Manual	1	2011-10-16 15:27:00 UTC	0.39	15113	United Kingdom
	Manual	0	2011-07-18 15:11:00 UTC	1592.49	15369	United Kingdom
	Manual	12	2010-12-06 13:01:00 UTC	0.19	15882	United Kingdom
	Manual	1	2011-02-03 15:28:00 UTC	15.00	15885	United Kingdom
	Manual	1	2011-02-18 13:26:00 UTC	15.00	14606	United Kingdom
	Manual	0	2011-08-08 12:56:00 UTC	3.25	14606	United Kingdom
	Manual	456	2011-10-24 10:43:00 UTC	1.50	14607	United Kingdom
	Manual	48	2011-10-24 10:43:00 UTC	1.50	14607	United Kingdom

Showing 1 to 15 of 406,829 entries, 8 total columns

	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country
1	537435	M	Manual	2	2010-12-06 16:58:00	5.95	17920	United Kingdom
2	578017	M	Manual	1	2011-11-22 13:07:00	1.50	13569	United Kingdom
3	C570301	M	Manual	0	2011-10-10 12:04:00	682.05	16900	United Kingdom
4	C569982	M	Manual	0	2011-10-06 19:39:00	218.72	15365	United Kingdom
5	541564	M	Manual	10	2011-01-19 11:38:00	0.38	16904	United Kingdom
7	571289	M	Manual	1	2011-10-16 15:27:00	0.39	15113	United Kingdom
8	C560420	M	Manual	0	2011-07-18 15:11:00	1592.49	15369	United Kingdom
9	537377	M	Manual	12	2010-12-06 13:01:00	0.19	15882	United Kingdom
10	543134	M	Manual	1	2011-02-03 15:28:00	15.00	15885	United Kingdom
11	544407	M	Manual	1	2011-02-18 13:26:00	15.00	14606	United Kingdom
12	C562648	M	Manual	0	2011-08-08 12:56:00	3.25	14606	United Kingdom
16	550469	M	Manual	18	2011-04-18 13:46:00	0.10	16399	United Kingdom
17	C566187	M	Manual	0	2011-09-09 13:03:00	110.45	14096	United Kingdom
18	567460	M	Manual	3	2011-09-20 12:30:00	0.19	15888	United Kingdom
19	567460	M	Manual	6	2011-09-20 12:30:00	0.85	15888	United Kingdom
20	537208	M	Manual	4	2010-12-05 15:12:00	0.85	15889	United Kingdom
21	559106	M	Manual	2	2011-07-06 11:10:00	7.95	15889	United Kingdom
22	C551526	M	Manual	0	2011-05-01 12:38:00	1.95	16401	United Kingdom
23	551270	M	Manual	1	2011-04-27 12:35:00	2.55	15891	United Kingdom
24	549468	M	Manual	1	2011-04-08 14:27:00	1867.86	17940	United Kingdom
25	C554535	M	Manual	0	2011-05-24 17:36:00	60.00	17940	United Kingdom
26	537199	M	Manual	1	2010-12-05 14:06:00	0.65	15894	United Kingdom
27	577696	M	Manual	1	2011-11-21 11:57:00	0.00	16406	United Kingdom
28	C560904	M	Manual	0	2011-07-21 17:51:00	8.95	14875	United Kingdom
30	577695	M	Manual	1	2011-11-21 11:55:00	0.42	15645	United Kingdom
31	568050	M	Manual	1	2011-09-23 12:38:00	1.50	15901	United Kingdom
32	568050	M	Manual	6	2011-09-23 12:38:00	0.08	15901	United Kingdom

Showing 1 to 28 of 375,949 entries, 8 total columns

Format Invoice Date

```
> cleaned_data$InvoiceDate <- as.POSIXct(cleaned_data$InvoiceDate, format="%Y-%m-%d %H:%M:%S")
```

Total Sales per Invoice Number

	InvoiceNo	StockCode	Description	Quantity	InvoiceDate	UnitPrice	CustomerID	Country	TotalSales
1182	551697	POST	POSTAGE	1	2011-05-03 13:46:00	8142.75	16029	United Kingdom	8142.75
446	573077	M	Manual	1	2011-10-27 14:13:00	4161.06	12536	France	4161.06
448	573080	M	Manual	1	2011-10-27 14:20:00	4161.06	12536	France	4161.06
339	571751	M	Manual	1	2011-10-19 11:18:00	3949.32	12744	Singapore	3949.32
197	569382	M	Manual	1	2011-10-03 16:44:00	3155.95	15502	United Kingdom	3155.95
416	562946	M	Manual	1	2011-08-11 09:38:00	2500.00	15581	United Kingdom	2500.00
328	548813	M	Manual	1	2011-04-04 13:03:00	2382.92	12744	Singapore	2382.92
340	571751	M	Manual	1	2011-10-19 11:18:00	2118.74	12744	Singapore	2118.74
331	548820	M	Manual	1	2011-04-04 13:04:00	2053.07	12744	Singapore	2053.07
279	566927	M	Manual	1	2011-09-15 15:20:00	2033.10	17846	United Kingdom	2033.10
24	549468	M	Manual	1	2011-04-08 14:27:00	1867.86	17940	United Kingdom	1867.86
92	546328	M	Manual	1	2011-03-11 10:19:00	1687.17	14911	EIRE	1687.17
93	546329	M	Manual	1	2011-03-11 10:22:00	1687.17	14911	EIRE	1687.17
6329	580727	DOT	DOTCOM POSTAGE	1	2011-12-05 17:17:00	1599.26	14096	United Kingdom	1599.26
6328	579196	DOT	DOTCOM POSTAGE	1	2011-11-28 15:54:00	1526.76	14096	United Kingdom	1526.76
6326	576339	DOT	DOTCOM POSTAGE	1	2011-11-14 15:27:00	1500.36	14096	United Kingdom	1500.36
6327	578270	DOT	DOTCOM POSTAGE	1	2011-11-23 13:39:00	1270.06	14096	United Kingdom	1270.06
330	548813	M	Manual	1	2011-04-04 13:03:00	1252.95	12744	Singapore	1252.95
392	554155	M	Manual	1	2011-05-23 11:26:00	1241.98	12757	Portugal	1241.98
393	554301	M	Manual	1	2011-05-23 14:46:00	1241.98	12757	Portugal	1241.98
173	548913	M	Manual	1	2011-04-05 09:45:00	1136.30	12669	France	1136.30
6325	575607	DOT	DOTCOM POSTAGE	1	2011-11-10 12:37:00	908.16	14096	United Kingdom	908.16
6324	573576	DOT	DOTCOM POSTAGE	1	2011-10-31 14:09:00	901.58	14096	United Kingdom	901.58
6318	567656	DOT	DOTCOM POSTAGE	1	2011-09-21 14:40:00	878.55	14096	United Kingdom	878.55
241	565377	M	Manual	1	2011-09-02 15:12:00	852.80	18087	United Kingdom	852.80
363	576389	M	Manual	1	2011-11-15 10:05:00	850.50	12748	United Kingdom	850.50
336440	545414	84078A	SET/4 WHITE RETRO STORAGE CUBES	24	2011-03-02 12:43:00	34.95	12980	United Kingdom	838.80

Showing 1 to 28 of 375,949 entries, 9 total columns

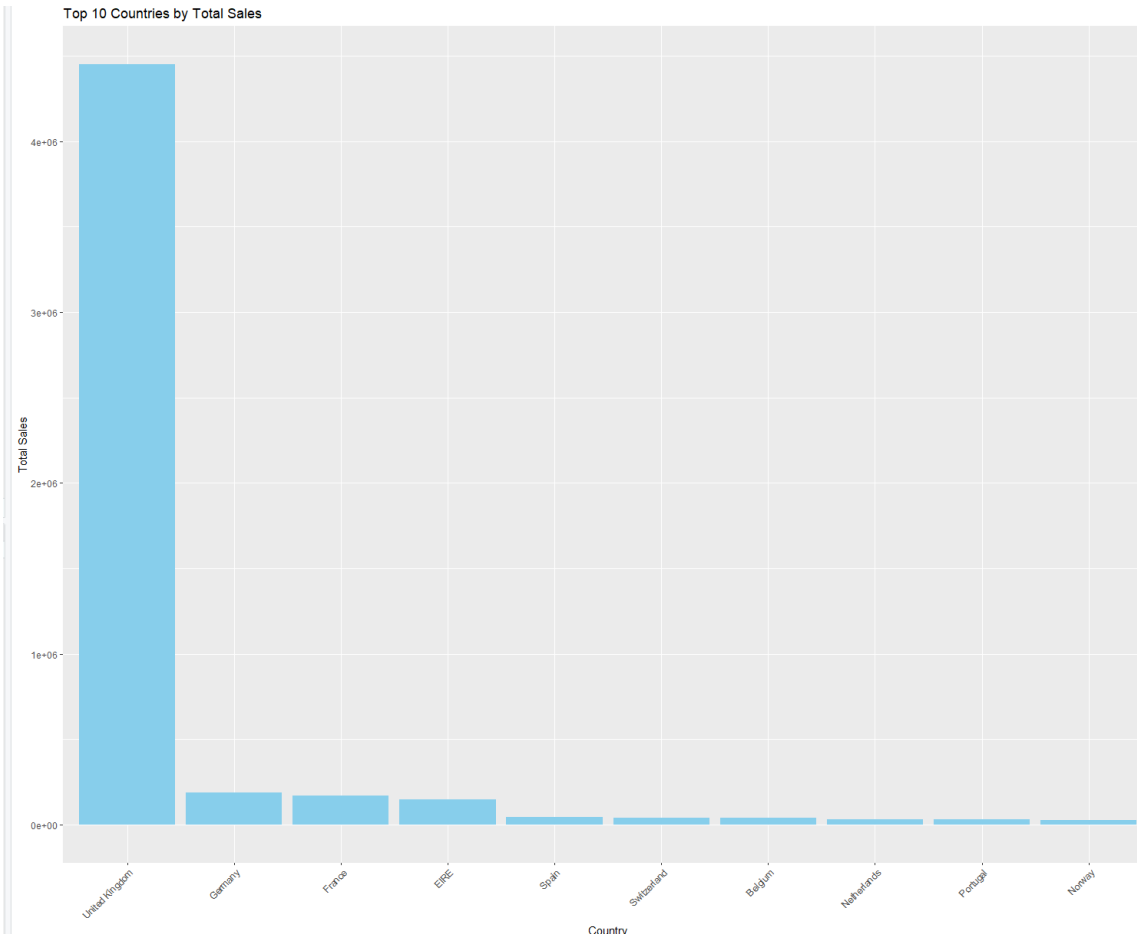
```
> cleaned_data$TotalSales <- cleaned_data$Quantity * cleaned_data$UnitPrice
```

Total Sales and Unique Customers

<code>total_sales</code>	<code>5326594.354</code>
<code>unique_customers</code>	<code>4288L</code>

```
> total_sales <- sum(cleaned_data$TotalSales)
> unique_customers <- length(unique(cleaned_data$CustomerID))
```

Top 10 Countries by Total Sales



```
ggplot(top_countries, aes(x=reorder(Country, -x), y=x)) + +  
  geom_bar(stat="identity", fill="skyblue") +  
  + xlab("Country") + + ylab("Total Sales") +  
  + ggtitle("Top 10 Countries by Total Sales") +  
  + theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

Conclusion

After analysis of the provided dataset using SQL, Tableau, and R Programming, it is evident that the primary driver of sales for the company lies within the United Kingdom. Through examination of the InvoiceNo, StockCode, Description, Quantity, InvoiceDate, UnitPrice, CustomerID, and Country columns, a clear pattern has emerged, highlighting the substantial revenue generated from customers based in the UK. These findings underscore the critical importance of prioritizing the UK market for our marketing and revenue generation efforts. By concentrating our resources and strategies on this region, we can capitalize on the existing customer base, optimize marketing campaigns, and foster customer loyalty. This strategic focus on the UK market is poised to yield significant returns, enabling the company to not only enhance its market share but also establish a strong foundation for sustained growth and profitability.

