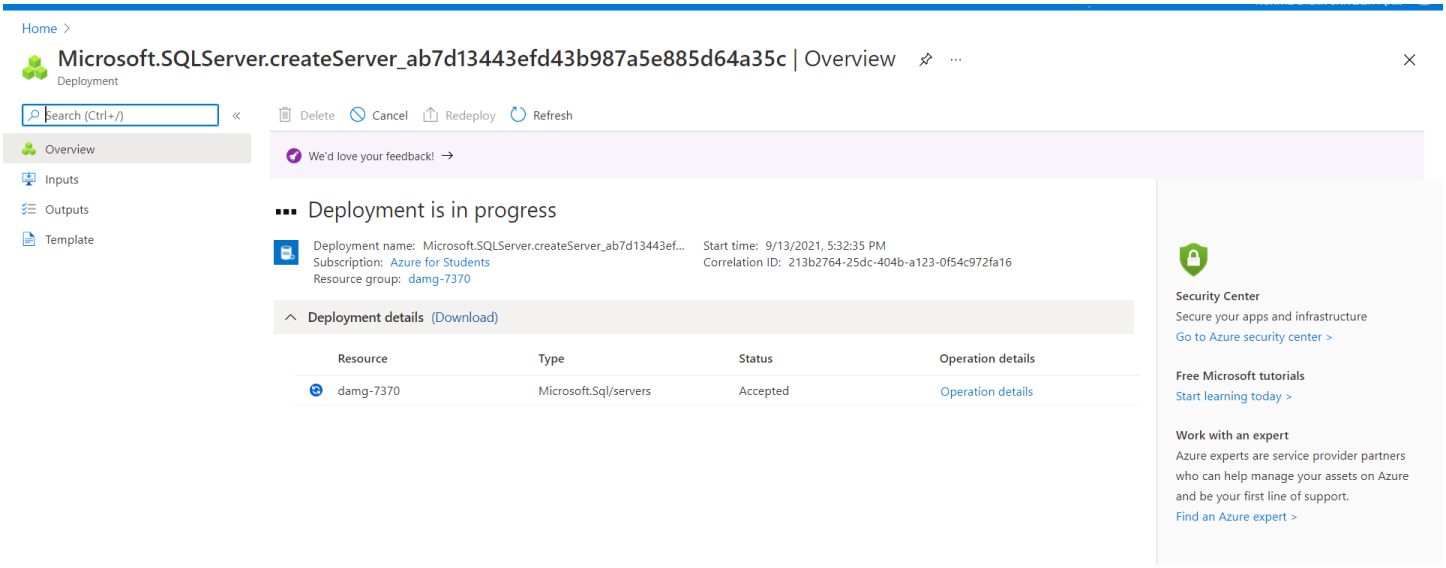
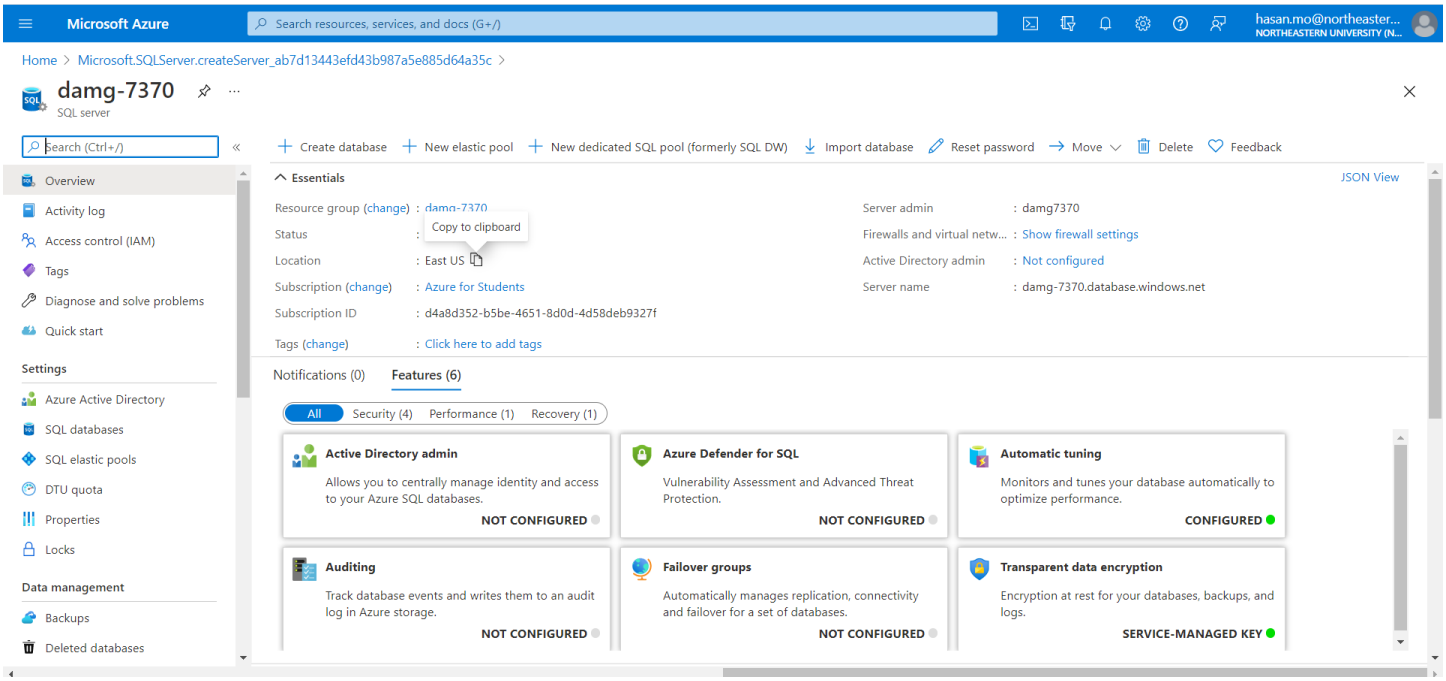
Workshop 09/11/2021

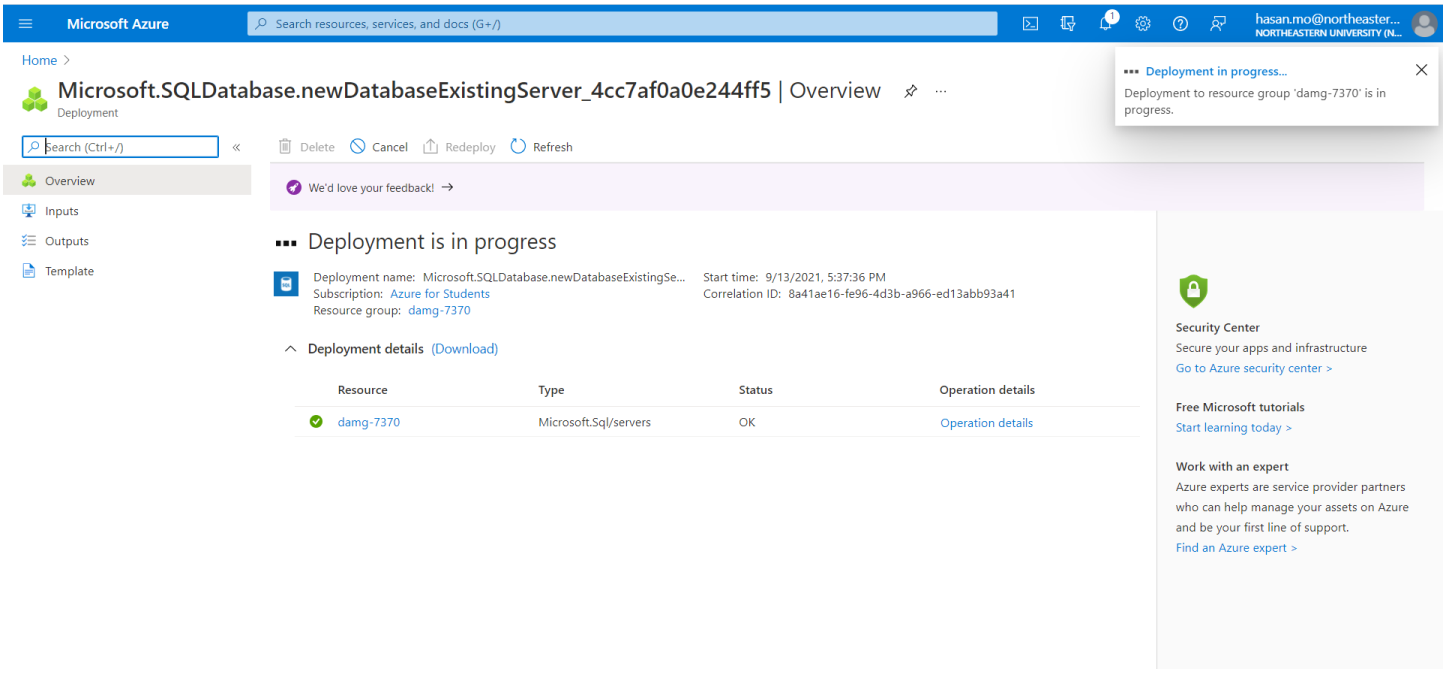
Creating a Azure SQL server from Azur portal



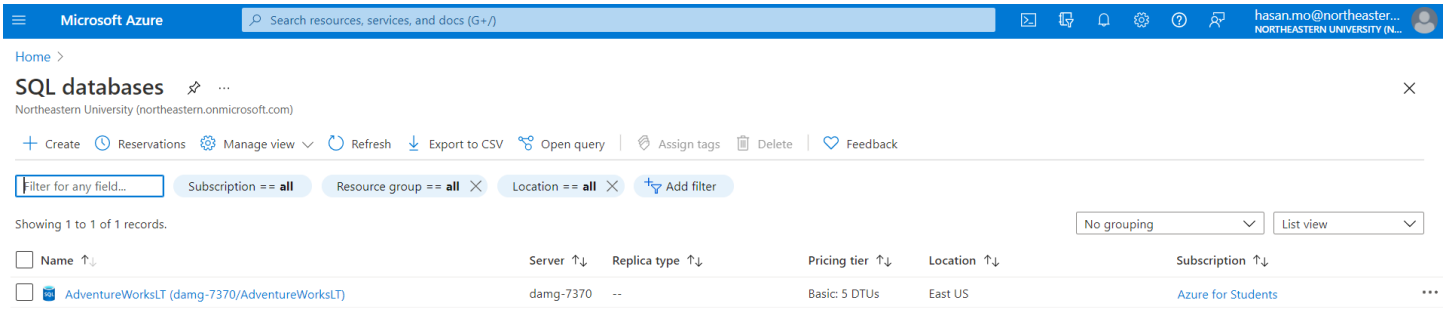
Deployed the SQL server on Azure and this is the overview of SQL Server



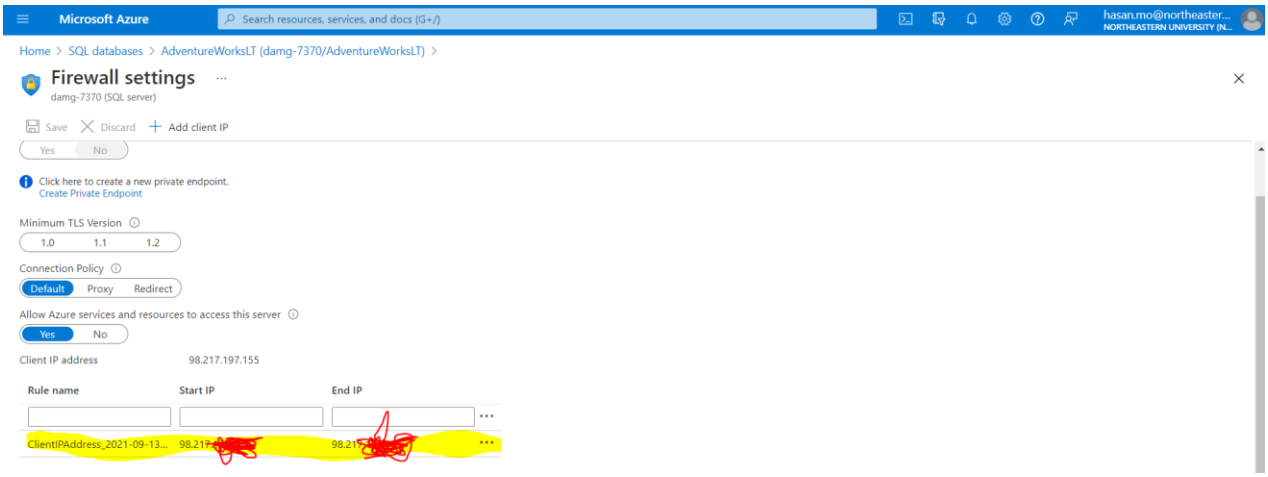
Creating a SQL Database on Azure through portal



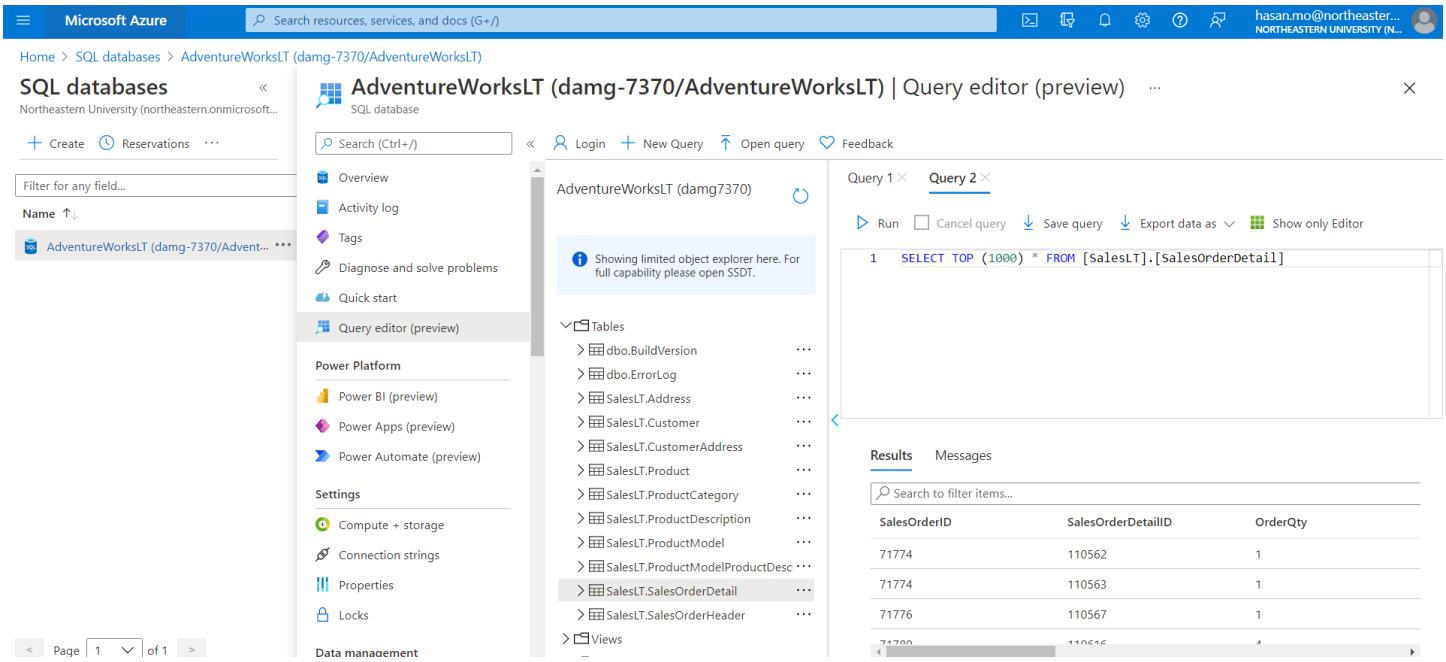
Sample SQL database on Azure



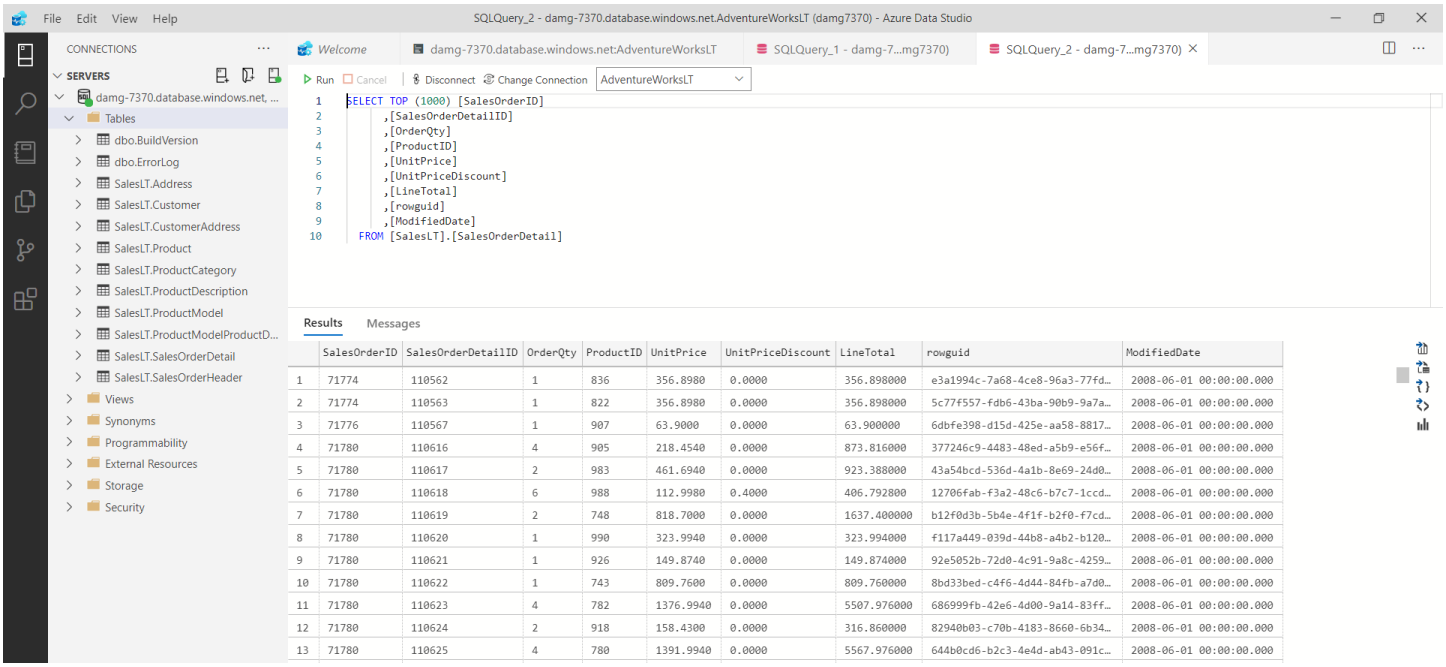
Updating firewall on SQL database to access from local Client connection



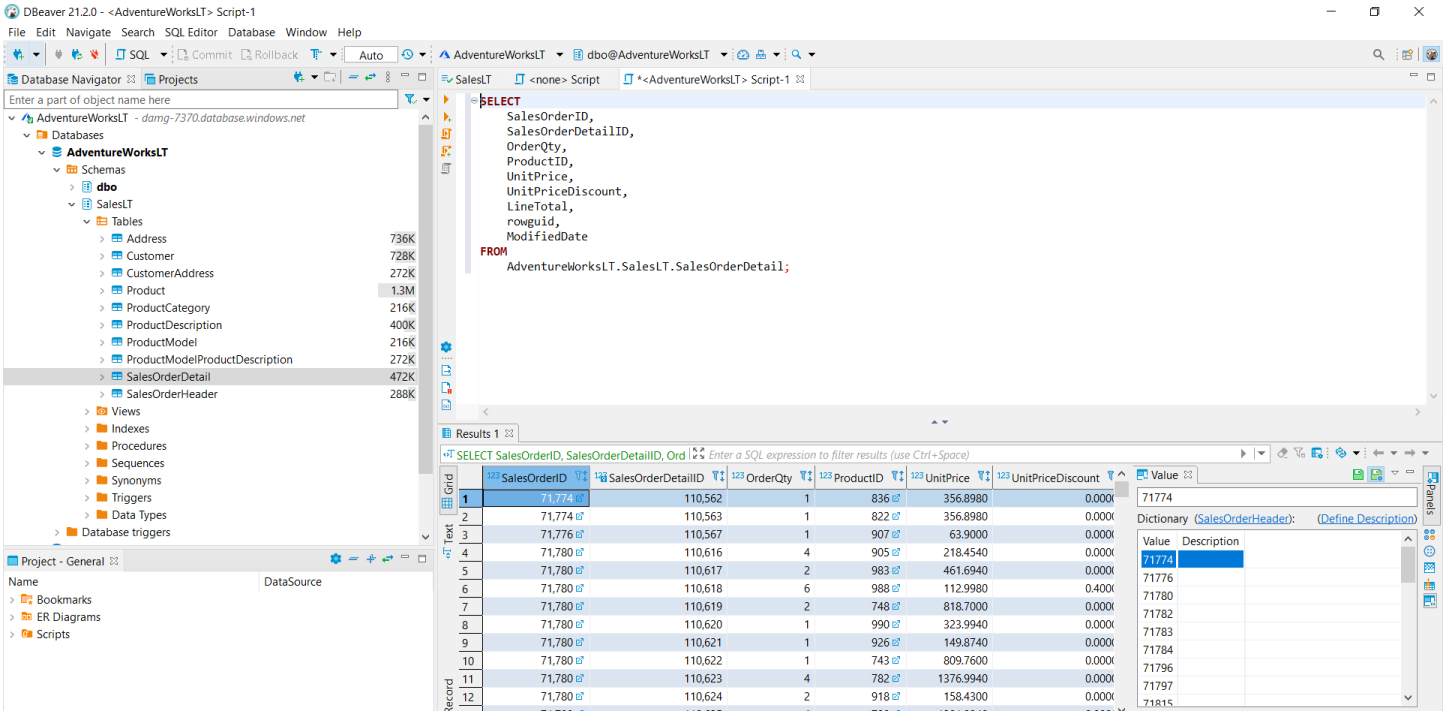
Running a simple Query in Query editor of Azure



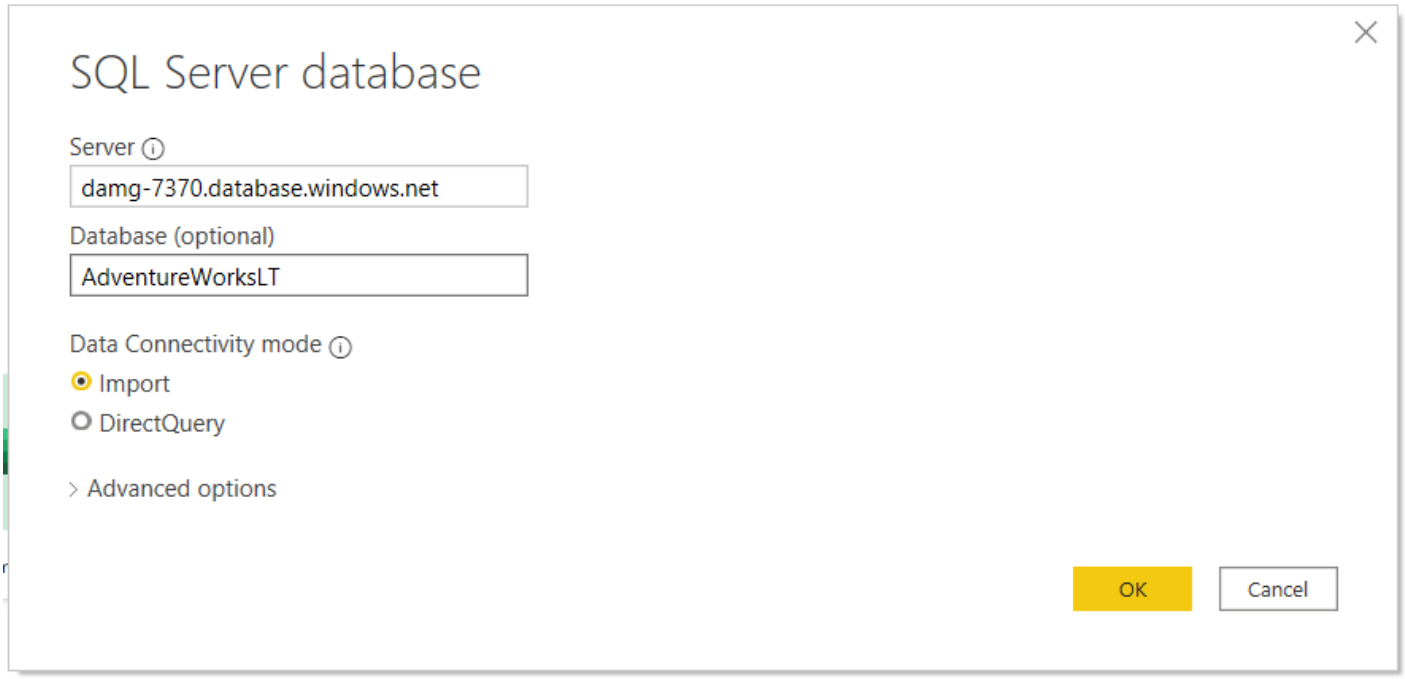
Connecting azure SQL database and running a simple Query in Azure Data Studio



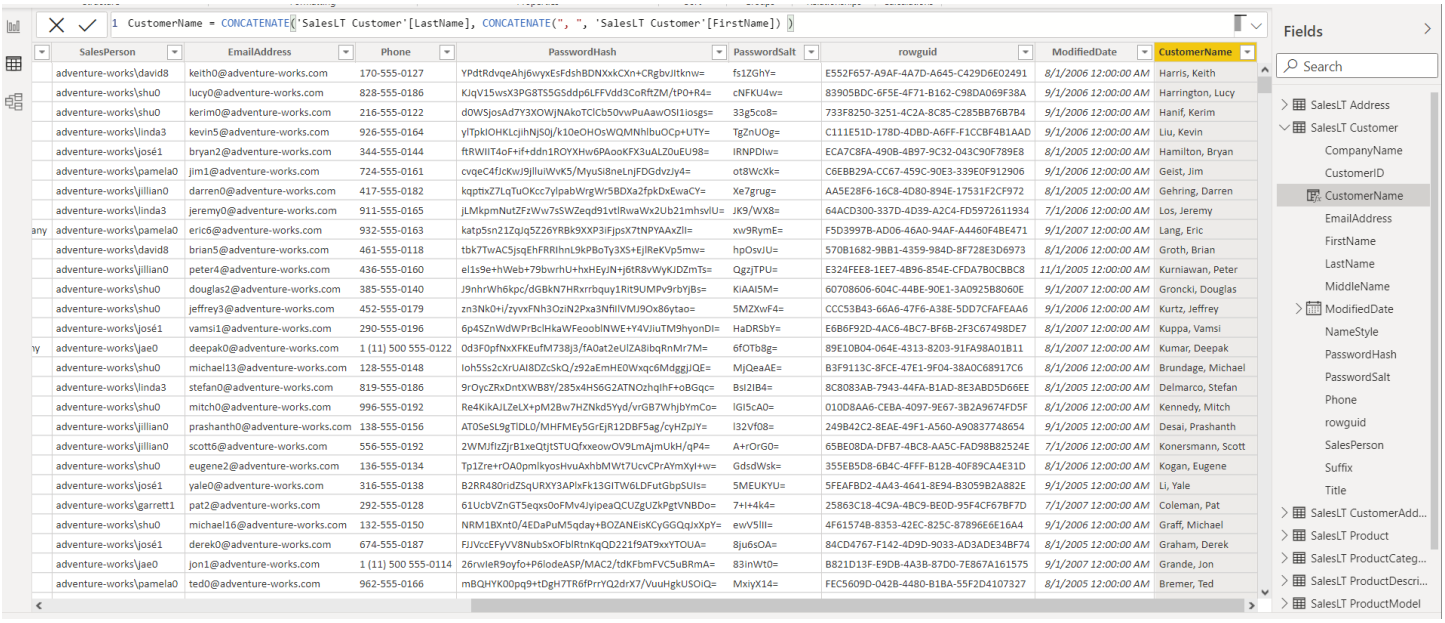
Connecting azure SQL database and running a simple Query in DBeaver



Connecting SQL database hosted on Azure to PowerBI



Added a new Column in the table using powerBI



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adventure-works\shu0	kerim0@adventure-works.com	216-555-0122	d0WSjosAd7Y3XOWjNAkoTClCb50vwPuAawOSI1iosgs=	33g5co8=	733F8250-3251-4C2A-8C85-C285BB76B7B4	9/1/2006 12:00:00 AM	Hanif, Kerim
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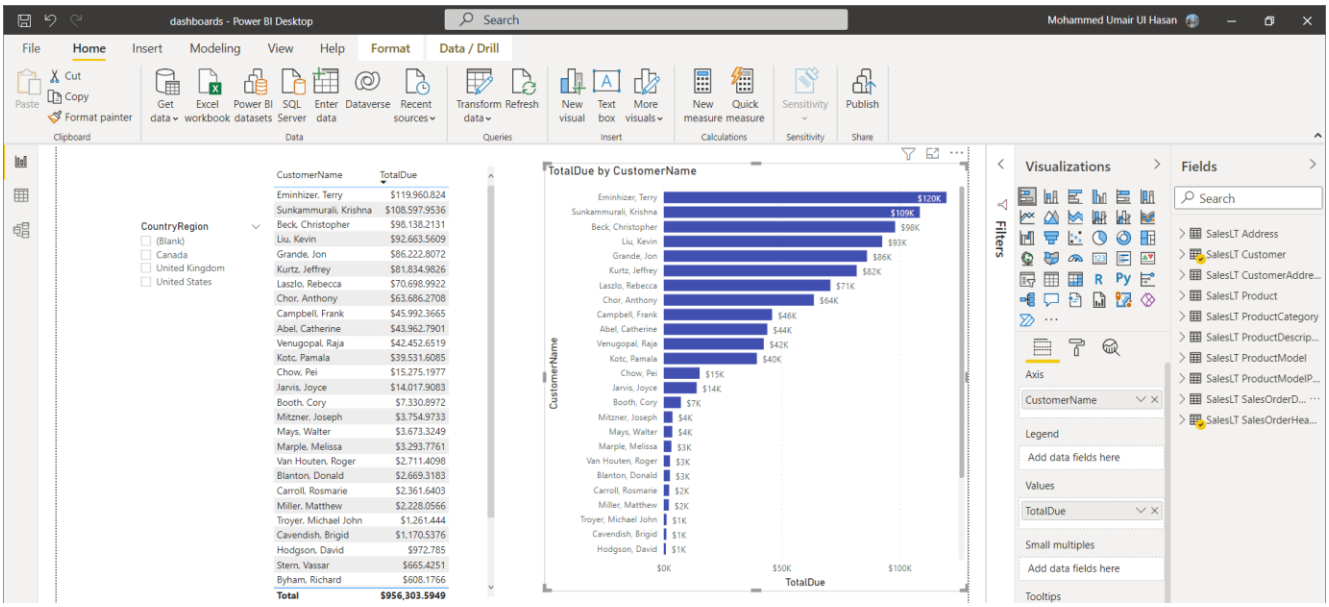
Query I used is: CustomerName = CONCATENATE('SalesLT Customer'[LastName], CONCATENATE(", ", 'SalesLT Customer'[FirstName]))

Data Visualizations in powerBI

1. Visualization from workshop demo

Here we are showing the total due by customers, which can be filtered by country name. For more information you can check PowerBI file

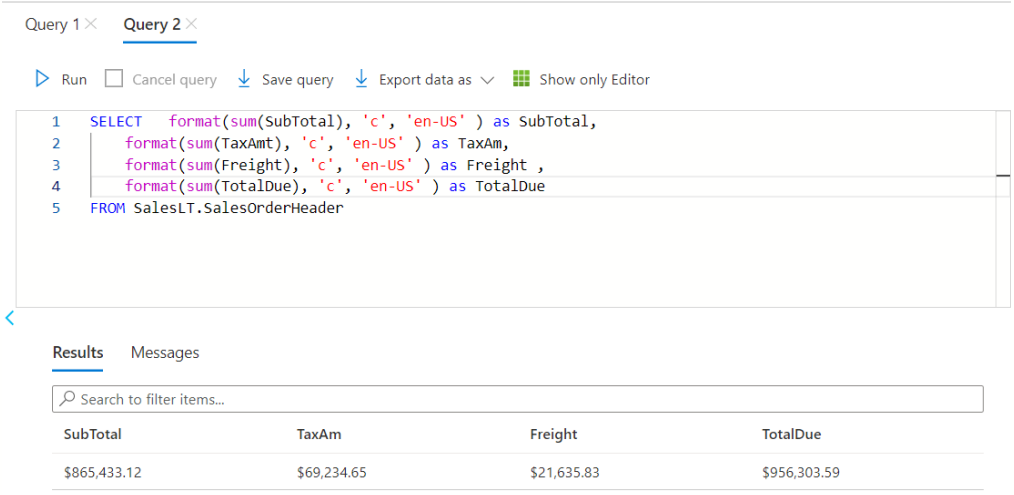


2. Total Sales

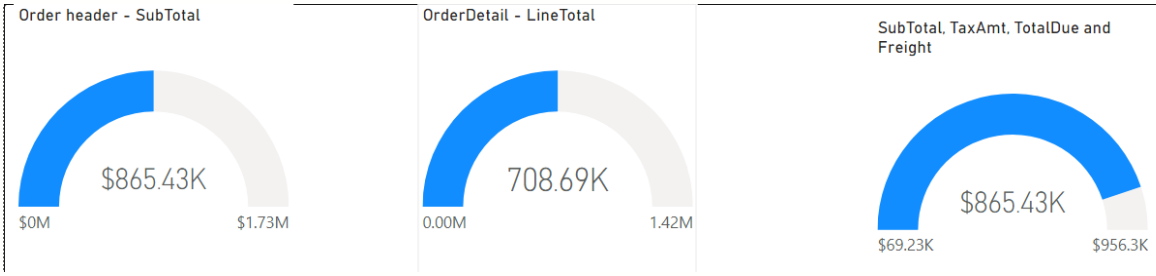
The SQL Qurey for the total Sales is

```
SELECT   format(sum(SubTotal), 'c', 'en-US' ) as SubTotal,
    format(sum(TaxAmt), 'c', 'en-US' ) as TaxAm,
    format(sum(Freight), 'c', 'en-US' ) as Freight ,
    format(sum(TotalDue), 'c', 'en-US' ) as TotalDue
FROM SalesLT.SalesOrderHeader
```

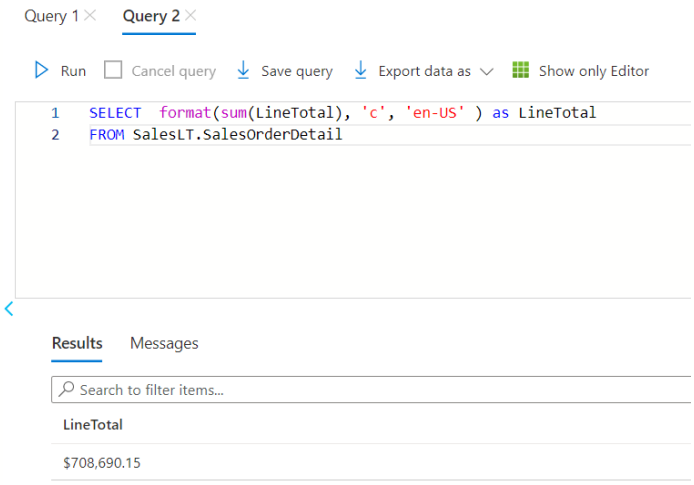
The Output from Query editor is as follows



The visualization in PowerBI is as follows



The Query for Line total is as follows



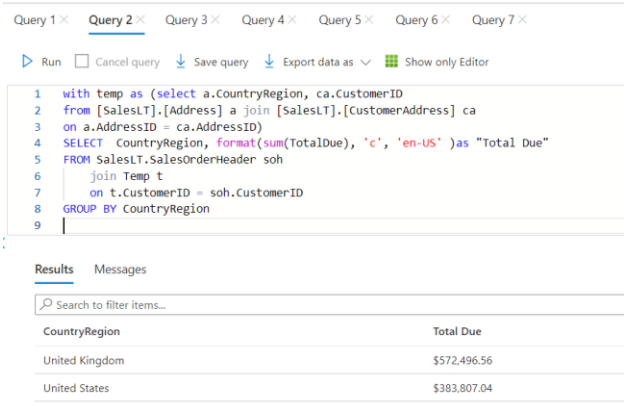
3. Total sales by country – ranked/sorted (highest to lowest)

Here we are trying to visualize the total sales, grouping by country

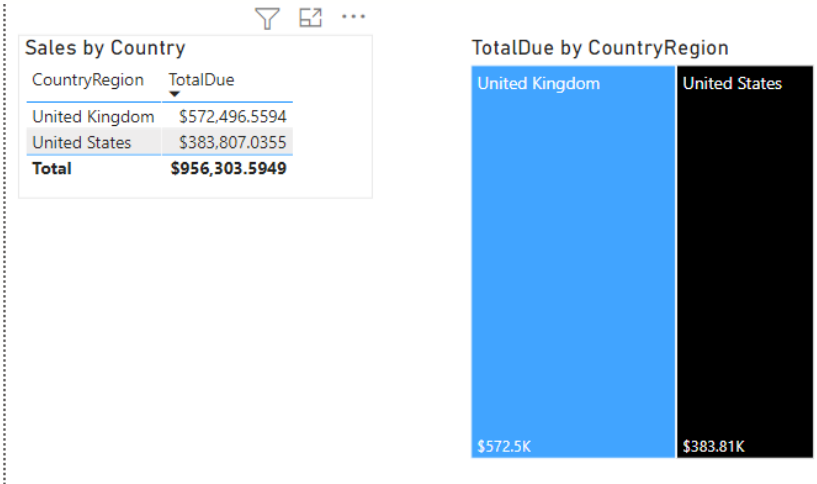
The SQL Query is

```
with temp as (select a.CountryRegion, ca.CustomerID
from [SalesLT].[Address] a join [SalesLT].[CustomerAddress] ca
on a.AddressID = ca.AddressID)
SELECT  CountryRegion, format(sum(TotalDue), 'c', 'en-US' )as "Total Due"
FROM SalesLT.SalesOrderHeader soh
    join Temp t
    on t.CustomerID = soh.CustomerID
GROUP BY CountryRegion
```

The result of SQL Query in Query editor is as follows



The Visualization in PowerBI is as follows

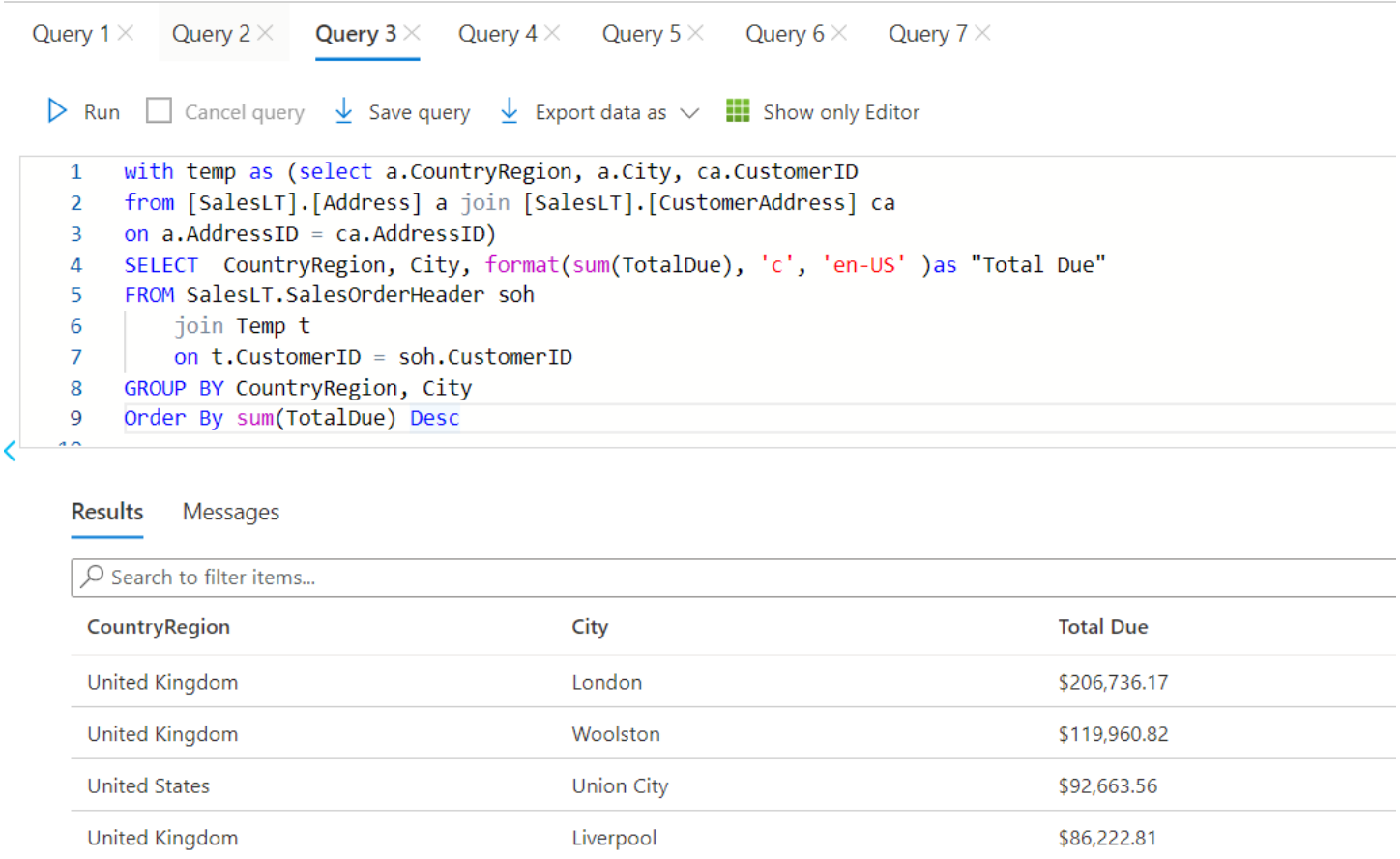


4. Total sales by city & country -ranked/sorted (highest to lowest)

The SQL Query is

```
with temp as (select a.CountryRegion, a.City, ca.CustomerID
from [SalesLT].[Address] a join [SalesLT].[CustomerAddress] ca
on a.AddressID = ca.AddressID)
SELECT  CountryRegion, City, format(sum(TotalDue), 'c', 'en-US' )as "Total Due"
FROM SalesLT.SalesOrderHeader soh
    join Temp t
    on t.CustomerID = soh.CustomerID
GROUP BY CountryRegion, City
Order By sum(TotalDue) Desc
```

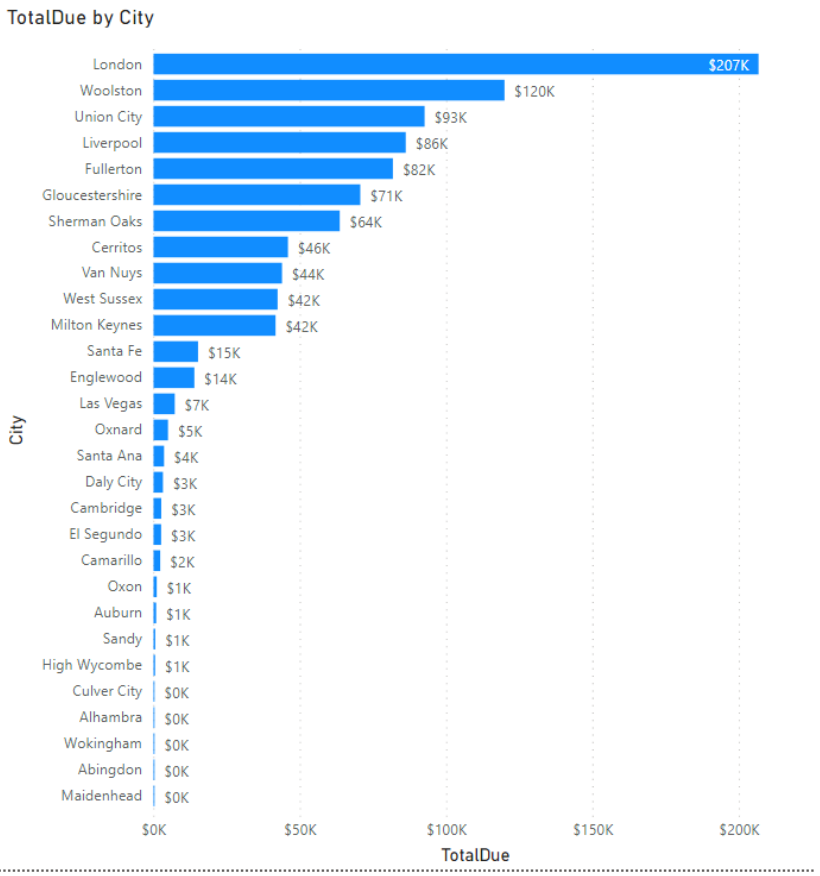
The result of SQL Query in Azure is as follows (Affected rows – 29)



The Visualization in PowerBI using stacked bar cahrt is as follows

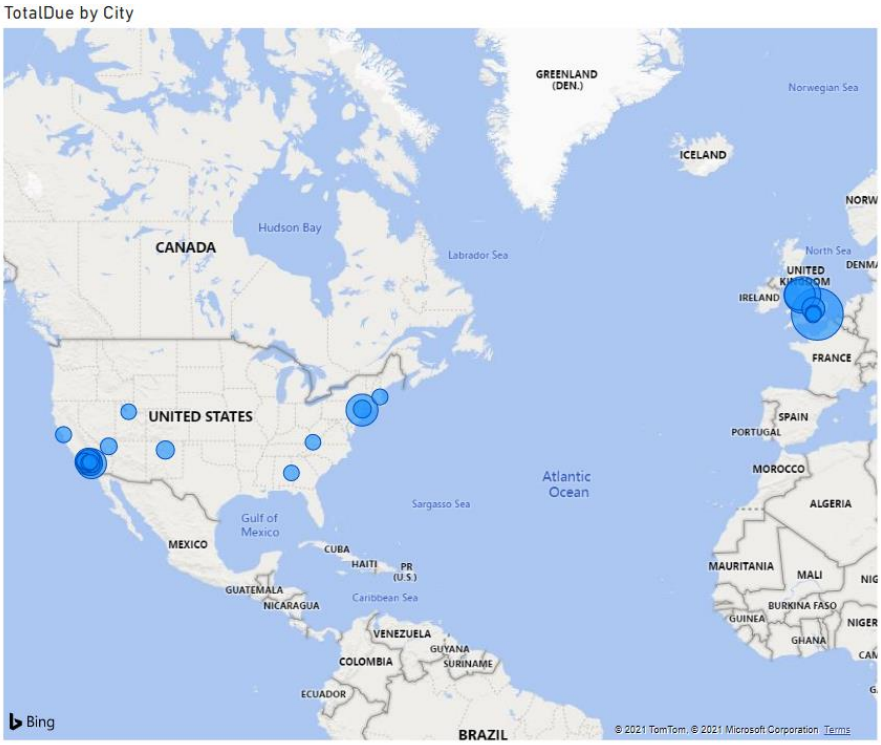
TotalDue by City

CountryRegion	City	TotalDue
United Kingdom	London	$206,736.1667
United Kingdom	Woolston	$119,960.824
United States	Union City	$92,663.5609
United Kingdom	Liverpool	$86,222.8072
United States	Fullerton	$81,834.9826
United Kingdom	Gloucestershire	$70,698.9922
United States	Sherman Oaks	$63,686.2708
United States	Cerritos	$45,992.3665
United States	Van Nuys	$43,962.7901
United Kingdom	West Sussex	$42,452.6519
United Kingdom	Milton Keynes	$41,759.6651
United States	Santa Fe	$15,275.1977
United States	Englewood	$14,017.9083
United States	Las Vegas	$7,330.8972
United States	Oxnard	$5,016.4173
United States	Santa Ana	$3,673.3249
United States	Daly City	$3,293.7761
United Kingdom	Cambridge	$2,711.4098
United States	El Segundo	$2,669.3183
United States	Camarillo	$2,361.6403
United Kingdom	Oxon	$1,170.5376
United States	Auburn	$972.785
United States	Sandy	$665.4251
United Kingdom	High Wycombe	$608.1766
United States	Culver City	$272.6468
United States	Alhambra	$117.7276
United Kingdom	Wokingham	$87.0851
United Kingdom	Abingdon	$45.1995
United Kingdom	Maidenhead	$43.0437
Total		**$956,303.5949**



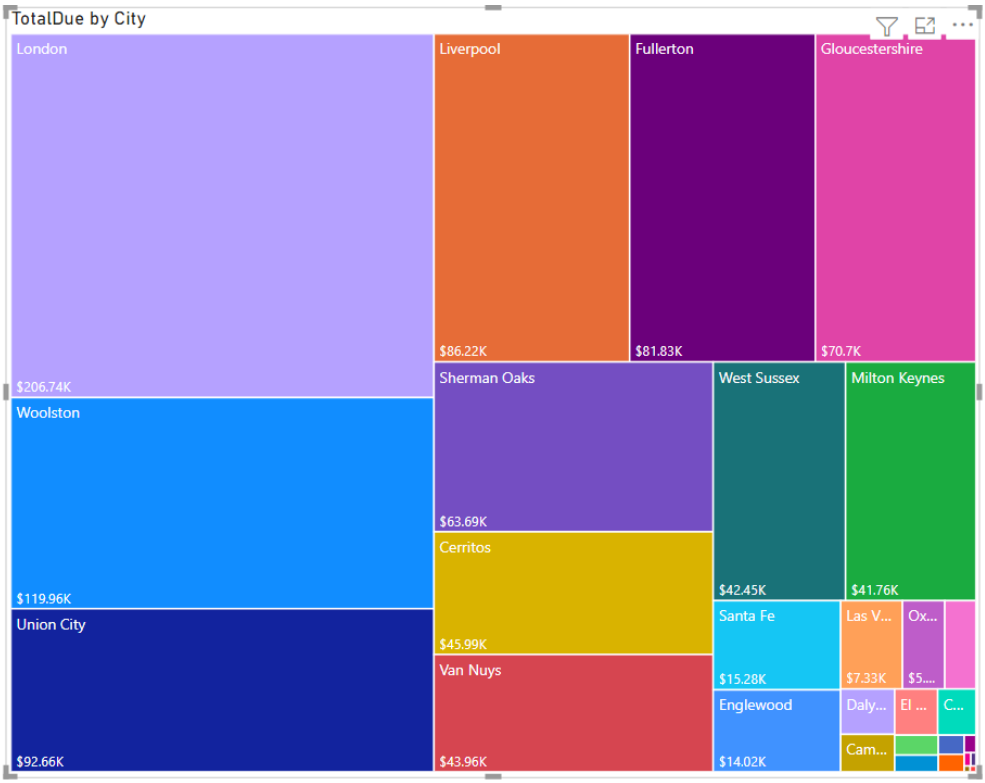
The visualization in PowerBI using map is as follows

CountryRegion	City	TotalDue
United Kingdom	London	$206,736.1667
United Kingdom	Woolston	$119,960.824
United States	Union City	$92,663.5609
United Kingdom	Liverpool	$86,222.8072
United States	Fullerton	$81,834.9826
United Kingdom	Gloucestershire	$70,698.9922
United States	Sherman Oaks	$63,686.2708
United States	Cerritos	$45,992.3665
United States	Van Nuys	$43,962.7901
United Kingdom	West Sussex	$42,452.6519
United Kingdom	Milton Keynes	$41,759.6651
United States	Santa Fe	$15,275.1977
United States	Englewood	$14,017.9083
United States	Las Vegas	$7,330.8972
United States	Oxnard	$5,016.4173
United States	Santa Ana	$3,673.3249
United States	Daly City	$3,293.7761
United Kingdom	Cambridge	$2,711.4098
United States	El Segundo	$2,669.3183
United States	Camarillo	$2,361.6403
United Kingdom	Oxon	$1,170.5376
United States	Auburn	$972.785
United States	Sandy	$665.4251
United Kingdom	High Wycombe	$608.1766
United States	Culver City	$272.6468
United States	Alhambra	$117.7276
United Kingdom	Wokingham	$87.0851
United Kingdom	Abingdon	$45.1995
United Kingdom	Maidenhead	$43.0437
Total		**$956,303.5949**



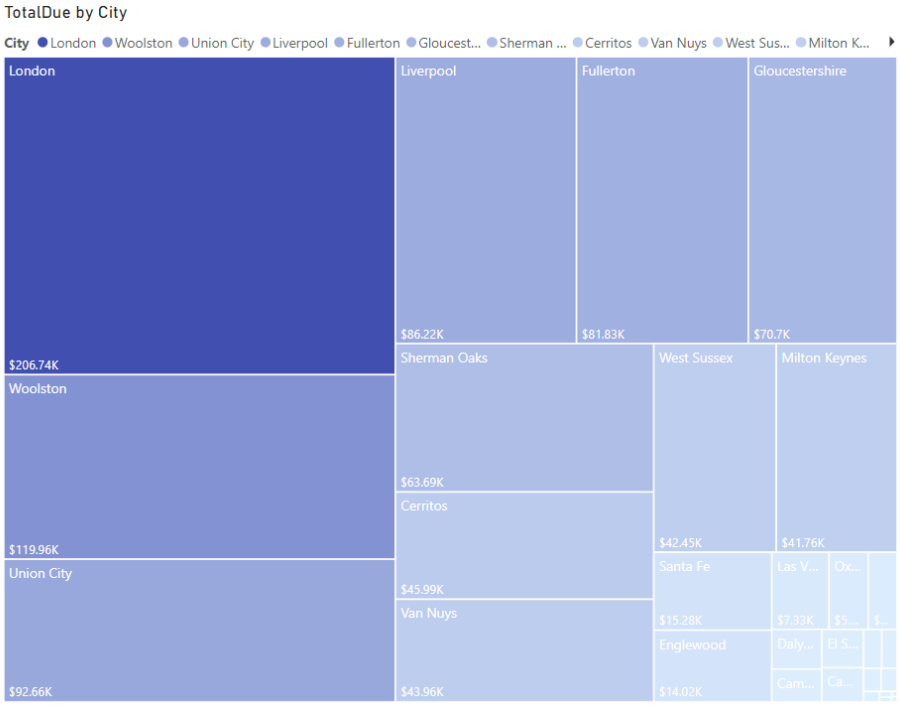
powerBi visualization using treemap using random colors is as follows

CountryRegion	City	TotalDue
United Kingdom	London	$206,736.1667
United Kingdom	Woolston	$119,960.824
United States	Union City	$92,663.5609
United Kingdom	Liverpool	$86,222.8072
United States	Fullerton	$81,834.9826
United Kingdom	Gloucestershire	$70,698.9922
United States	Sherman Oaks	$63,686.2708
United States	Cerritos	$45,992.3665
United States	Van Nuys	$43,962.7901
United Kingdom	West Sussex	$42,452.6519
United Kingdom	Milton Keynes	$41,759.6651
United States	Santa Fe	$15,275.1977
United States	Englewood	$14,017.9083
United States	Las Vegas	$7,330.8972
United States	Oxnard	$5,016.4173
United States	Santa Ana	$3,673.3249
United States	Daly City	$3,293.7761
United Kingdom	Cambridge	$2,711.4098
United States	El Segundo	$2,669.3183
United States	Camarillo	$2,361.6403
United Kingdom	Oxon	$1,170.5376
United States	Auburn	$972.785
United States	Sandy	$665.4251
United Kingdom	High Wycombe	$608.1766
United States	Culver City	$272.6468
United States	Alhambra	$117.7276
United Kingdom	Wokingham	$87.0851
United Kingdom	Abingdon	$45.1995
United Kingdom	Maidenhead	$43.0437
Total		**$956,303.5949**



powerBI visualization using treemap where the color of treemap is indicating the magnitude ofTotalDue by customers in each city is as follows

CountryRegion	City	TotalDue
United Kingdom	London	$206,736.1667
United Kingdom	Woolston	$119,960.824
United States	Union City	$92,663.5609
United Kingdom	Liverpool	$86,222.8072
United States	Fullerton	$81,834.9826
United Kingdom	Gloucestershire	$70,698.9922
United States	Sherman Oaks	$63,686.2708
United States	Cerritos	$45,992.3665
United States	Van Nuys	$43,962.7901
United Kingdom	West Sussex	$42,452.6519
United Kingdom	Milton Keynes	$41,759.6651
United States	Santa Fe	$15,275.1977
United States	Englewood	$14,017.9083
United States	Las Vegas	$7,330.8972
United States	Oxnard	$5,016.4173
United States	Santa Ana	$3,673.3249
United States	Daly City	$3,293.7761
United Kingdom	Cambridge	$2,711.4098
United States	El Segundo	$2,669.3183
United States	Camarillo	$2,361.6403
United Kingdom	Oxon	$1,170.5376
United States	Auburn	$972.785
United States	Sandy	$665.4251
United Kingdom	High Wycombe	$608.1766
United States	Culver City	$272.6468
United States	Alhambra	$117.7276
United Kingdom	Wokingham	$87.0851
United Kingdom	Abingdon	$45.1995
United Kingdom	Maidenhead	$43.0437
Total		**$956,303.5949**

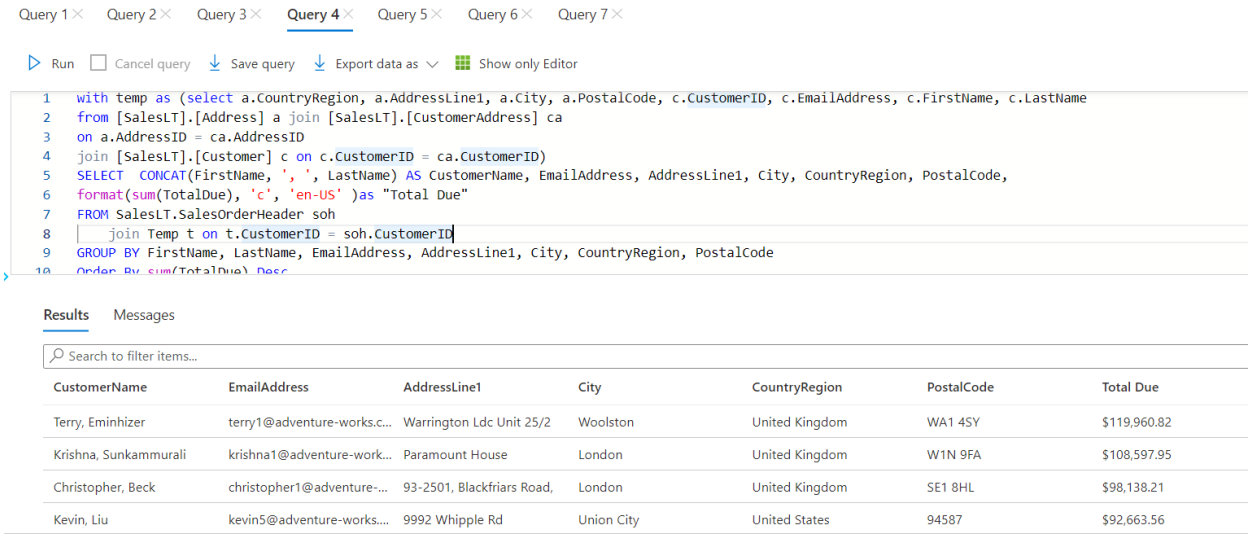


5. Total sales by customer (person) –ranked/sorted (highest to lowest)

The SQL Query is

```
with temp as (select a.CountryRegion, a.AddressLine1, a.City, a.PostalCode, c.CustomerID, c.EmailAddress, c.FirstName, c.LastName
from [SalesLT].[Address] a join [SalesLT].[CustomerAddress] ca
on a.AddressID = ca.AddressID
join [SalesLT].[Customer] c on c.CustomerID = ca.CustomerID)
SELECT  CONCAT(FirstName, ', ', LastName) AS CustomerName, EmailAddress, AddressLine1, City, CountryRegion, PostalCode,
format(sum(TotalDue), 'c', 'en-US' )as "Total Due"
FROM SalesLT.SalesOrderHeader soh
    join Temp t on t.CustomerID = soh.CustomerID
GROUP BY FirstName, LastName, EmailAddress, AddressLine1, City, CountryRegion, PostalCode
Order By sum(TotalDue) Desc
```

The result of the above Query in SQL editor is as follows(affected rows – 32)



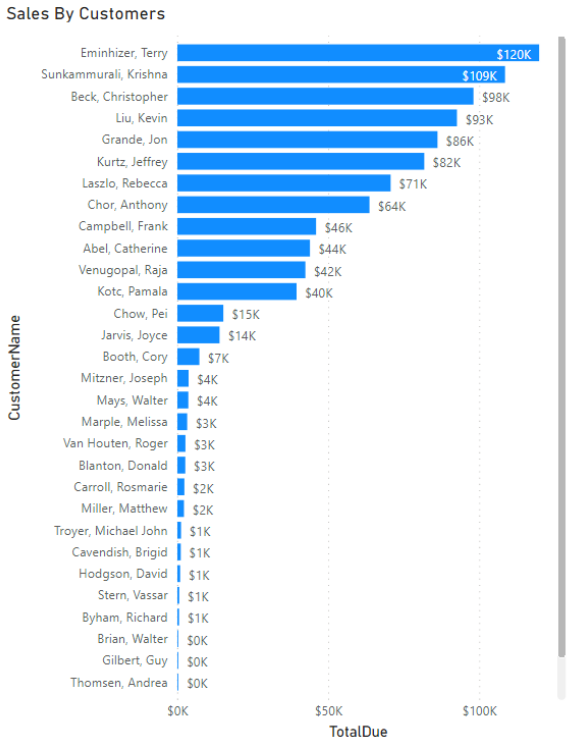
The Visualization in PowerBI using stacked bar is as follows:

Sales By Customers

LastName	FirstName	TotalDue
Eminhizer	Terry	$119,960.824
Sunkammurali	Krishna	$108,597.9536
Beck	Christopher	$98,138.2131
Liu	Kevin	$92,663.5609
Grande	Jon	$86,222.8072
Kurtz	Jeffrey	$81,834.9826
Laszlo	Rebecca	$70,698.9922
Chor	Anthony	$63,686.2708
Campbell	Frank	$45,992.3665
Abel	Catherine	$43,962.7901
Venugopal	Raja	$42,452.6519
Kotc	Pamala	$39,531.6085
Chow	Pei	$15,275.1977
Jarvis	Joyce	$14,017.9083
Booth	Cory	$7,330.8972
Mitzner	Joseph	$3,754.9733
Mays	Walter	$3,673.3249
Marple	Melissa	$3,293.7761
Van Houten	Roger	$2,711.4098
Blanton	Donald	$2,669.3183
Carroll	Rosmarie	$2,361.6403
Miller	Matthew	$2,228.0566
Troyer	Michael John	$1,261.444
Cavendish	Brigid	$1,170.5376
Hodgson	David	$972.785
Stern	Vassar	$665.4251
Byham	Richard	$608.1766
Brian	Walter	$272.6468
Gilbert	Guy	$117.7276
Thomsen	Andrea	$87.0851
Total		**$956,303.5949**

Sales By Customers

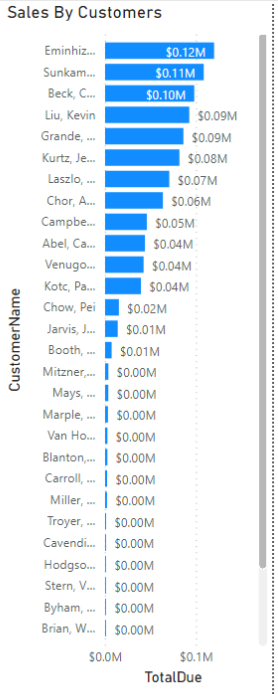
CustomerName	TotalDue
Eminhizer, Terry	$119,960.824
Sunkammurali, Krishna	$108,597.9536
Beck, Christopher	$98,138.2131
Liu, Kevin	$92,663.5609
Grande, Jon	$86,222.8072
Kurtz, Jeffrey	$81,834.9826
Laszlo, Rebecca	$70,698.9922
Chor, Anthony	$63,686.2708
Campbell, Frank	$45,992.3665
Abel, Catherine	$43,962.7901
Venugopal, Raja	$42,452.6519
Kotc, Pamala	$39,531.6085
Chow, Pei	$15,275.1977
Jarvis, Joyce	$14,017.9083
Booth, Cory	$7,330.8972
Mitzner, Joseph	$3,754.9733
Mays, Walter	$3,673.3249
Marple, Melissa	$3,293.7761
Van Houten, Roger	$2,711.4098
Blanton, Donald	$2,669.3183
Carroll, Rosmarie	$2,361.6403
Miller, Matthew	$2,228.0566
Troyer, Michael John	$1,261.444
Cavendish, Brigid	$1,170.5376
Hodgson, David	$972.785
Stern, Vassar	$665.4251
Byham, Richard	$608.1766
Brian, Walter	$272.6468
Gilbert, Guy	$117.7276
Thomsen, Andrea	$87.0851
Total	**$956,303.5949**



Second Visualization in PowerBI is as follows:

Sales By Customers

CustomerName	EmailAddress	AddressLine1	City	CountryRegion	PostalCode	TotalDue
Eminhizer, Terry	terry1@adventure-works.com	Warrington Ldc Unit 25/2	Woolston	United Kingdom	WA1 4SY	$119,960.824
Sunkammurali, Krishna	krishna1@adventure-works.com	Paramount House	London	United Kingdom	W1N 9FA	$108,597.9536
Beck, Christopher	christopher1@adventure-works.com	93-2501, Blackfriars Road,	London	United Kingdom	SE1 8HL	$98,138.2131
Liu, Kevin	kevin5@adventure-works.com	9992 Whipple Rd	Union City	United States	94587	$92,663.5609
Grande, Jon	jon1@adventure-works.com	Galashiels	Liverpool	United Kingdom	L4 4HB	$86,222.8072
Kurtz, Jeffrey	jeffrey3@adventure-works.com	Receiving	Fullerton	United States	92831	$81,834.9826
Laszlo, Rebecca	rebecca2@adventure-works.com	Phoenix Way, Cirencester	Gloucestershire	United Kingdom	GL7 1RY	$70,698.9922
Chor, Anthony	anthony0@adventure-works.com	Riverside	Sherman Oaks	United States	91403	$63,686.2708
Campbell, Frank	frank4@adventure-works.com	251340 E. South St.	Cerritos	United States	90703	$45,992.3665
Abel, Catherine	catherine0@adventure-works.com	57251 Serene Blvd	Van Nuys	United States	91411	$43,962.7901
Venugopal, Raja	raja0@adventure-works.com	Burgess Hill	West Sussex	United Kingdom	RH15 9UD	$42,452.6519
Kotc, Pamala	pamala0@adventure-works.com	Garamonde Drive, Wymbush	Milton Keynes	United Kingdom	MK8 8ZD	$39,531.6085
Chow, Pei	pei0@adventure-works.com	4660 Rodeo Road	Santa Fe	United States	87501	$15,275.1977
Jarvis, Joyce	joyce0@adventure-works.com	955 E. County Line Rd.	Englewood	United States	80110	$14,017.9083
Booth, Cory	cory0@adventure-works.com	Eastern Beltway Center	Las Vegas	United States	89106	$7,330.8972
Mitzner, Joseph	joseph4@adventure-works.com	123 Camelia Avenue	Oxnard	United States	93030	$3,754.9733
Mays, Walter	walter1@adventure-works.com	Po Box 252525	Santa Ana	United States	92701	$3,673.3249
Marple, Melissa	melissa0@adventure-works.com	603 Gellert Blvd	Daly City	United States	94015	$3,293.7761
Van Houten, Roger	roger2@adventure-works.com	Internet House, 3399 Science Park	Cambridge	United Kingdom	CB4 4BZ	$2,711.4098
Blanton, Donald	donald0@adventure-works.com	Corporate Office	El Segundo	United States	90245	$2,669.3183
Carroll, Rosmarie	rosmarie0@adventure-works.com	39933 Mission Oaks Blvd	Camarillo	United States	93010	$2,361.6403
Miller, Matthew	matthew5@adventure-works.com	Wymbush	Milton Keynes	United Kingdom	MK8 8DF	$2,228.0566
Troyer, Michael John	michaeljohn0@adventure-works.com	Oxnard Outlet	Oxnard	United States	93030	$1,261.444
Cavendish, Brigid	brigid0@adventure-works.com	Banbury	Oxon	United Kingdom	OX16 8RS	$1,170.5376
Hodgson, David	david16@adventure-works.com	99700 Bell Road	Auburn	United States	95603	$972.785
Stern, Vassar	vassar0@adventure-works.com	25130 South State Street	Sandy	United States	84070	$665.4251
Byham, Richard	richard2@adventure-works.com	Knaves Beech Ind.	High Wycombe	United Kingdom	HP10 9QY	$608.1766
Brian, Walter	walter0@adventure-works.com	25136 Jefferson Blvd.	Culver City	United States	90232	$272.6468
Gilbert, Guy	guy0@adventure-works.com	Vista Marketplace	Alhambra	United States	91801	$117.7276
Total						**$956,303.5949**

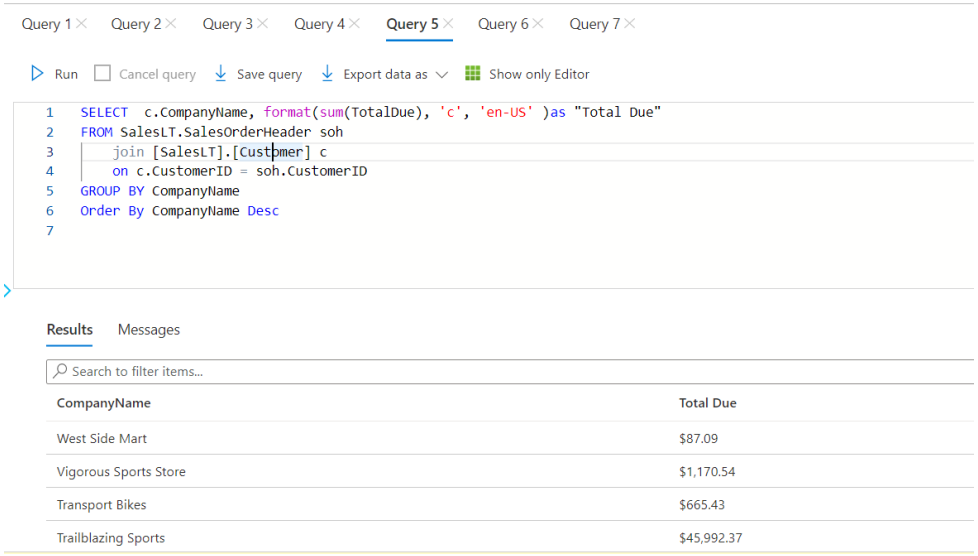


6. Total sales by customer (company) –ranked/sorted (highest to lowest)

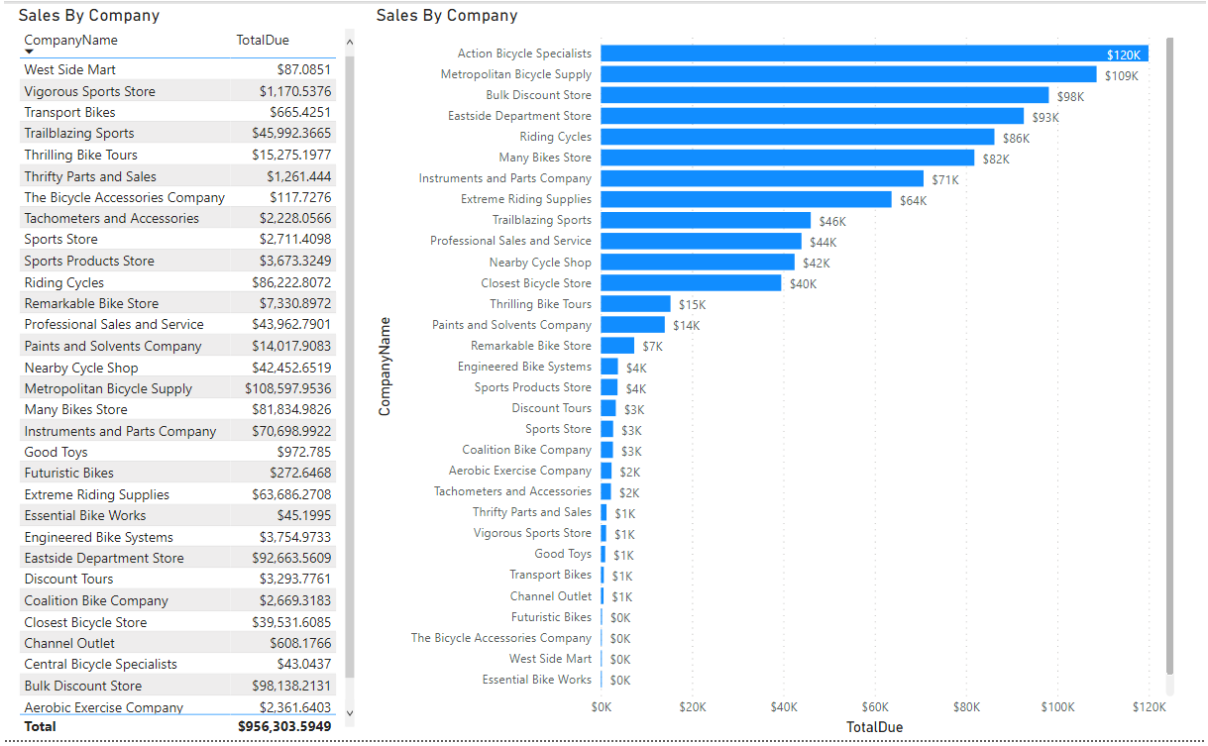
The SQL Query is

```
SELECT  c.CompanyName, format(sum(TotalDue), 'c', 'en-US' )as "Total Due"
FROM SalesLT.SalesOrderHeader soh
    join [SalesLT].[Customer] c
    on c.CustomerID = soh.CustomerID
GROUP BY CompanyName
Order By CompanyName Desc
```

The result of Query in SQL editor is as follows (affected row – 32)



The Visualization in PowerBI is as follows

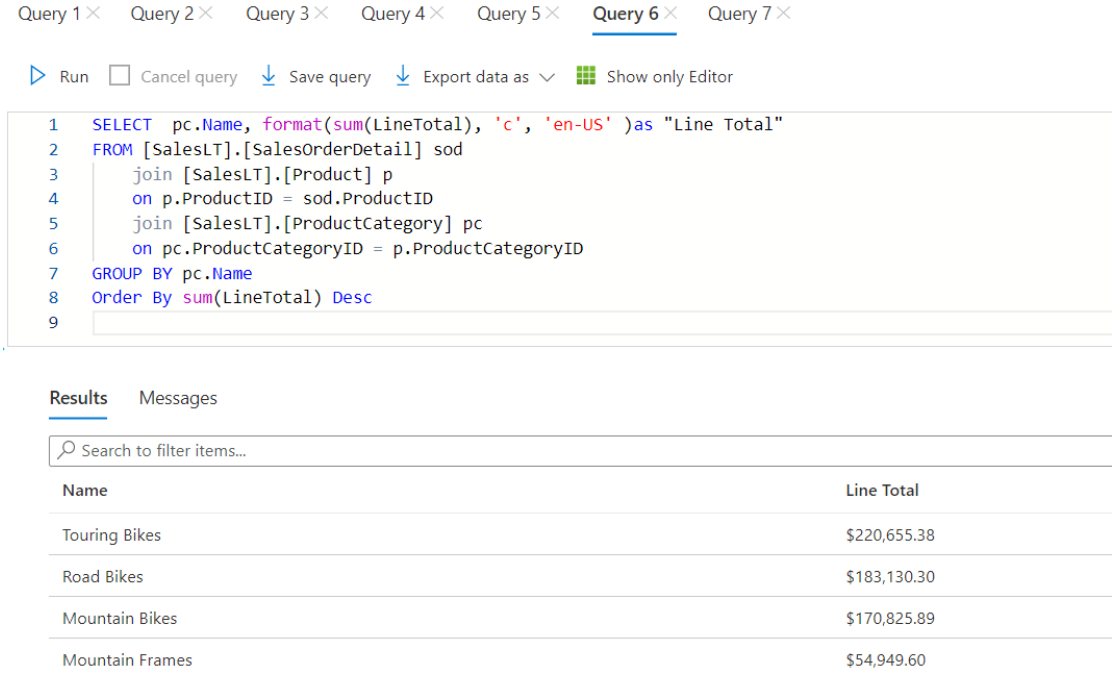


7. Sales by product category –ranked/sorted (highest to lowest)

The SQL Query is as follows:

```
SELECT  pc.Name, format(sum(LineTotal), 'c', 'en-US' )as "Line Total"
FROM [SalesLT].[SalesOrderDetail] sod
    join [SalesLT].[Product] p
    on p.ProductID = sod.ProductID
    join [SalesLT].[ProductCategory] pc
    on pc.ProductCategoryID = p.ProductCategoryID
GROUP BY pc.Name
Order By sum(LineTotal) Desc
```

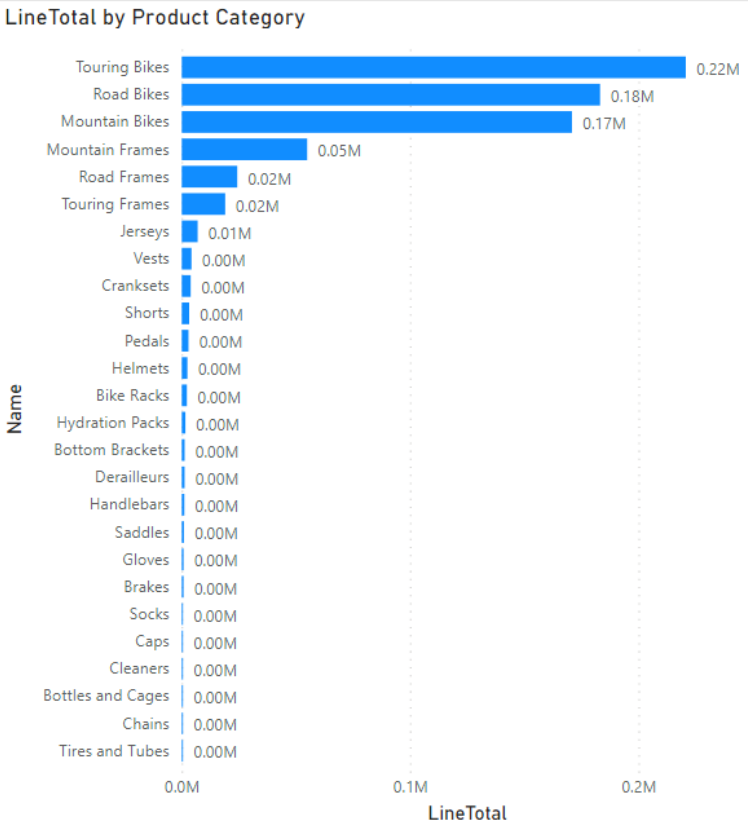
The Result of above Query in editor is as follows (affected rows – 26)



The visualization in PowerBI using stacked bar is as follows:

LineTotal by Category

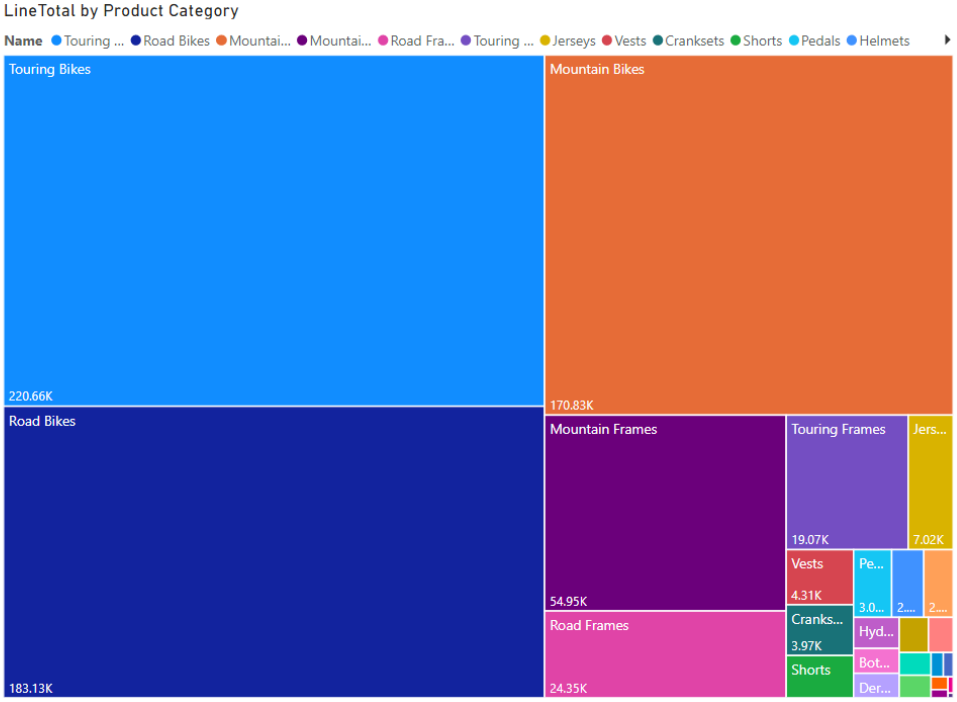
Name	LineTotal
Touring Bikes	220,655.38
Road Bikes	183,130.30
Mountain Bikes	170,825.89
Mountain Frames	54,949.60
Road Frames	24,346.58
Touring Frames	19,066.26
Jerseys	7,017.88
Vests	4,309.90
Cranksets	3,968.87
Shorts	3,299.80
Pedals	2,996.50
Helmets	2,523.88
Bike Racks	2,304.00
Hydration Packs	1,649.70
Bottom Brackets	1,320.17
Derailleurs	1,296.63
Handlebars	1,192.97
Saddles	1,010.30
Gloves	837.56
Brakes	830.70
Socks	345.21
Caps	277.36
Cleaners	251.88
Bottles and Cages	158.21
Chains	97.15
Tires and Tubes	27.48
Total	**708,690.15**



The visualization in PowerBI using treemap is as follows

LineTotal by Product Category

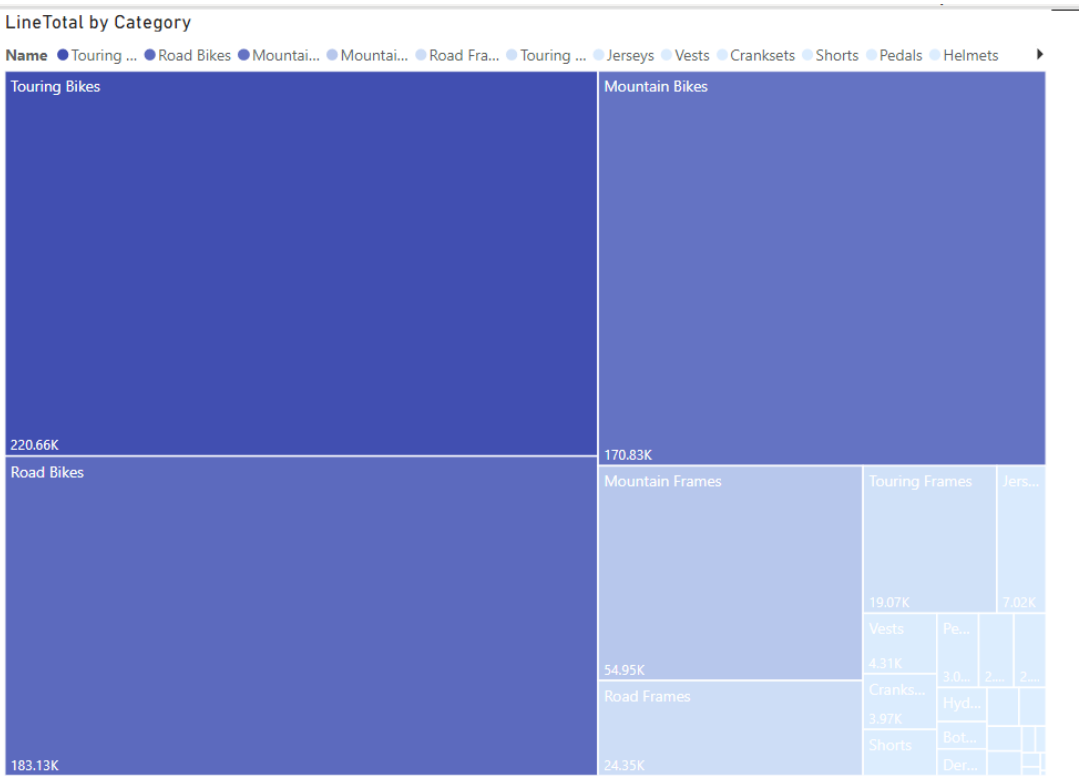
Name	LineTotal
Tires and Tubes	27.48
Chains	97.15
Bottles and Cages	158.21
Cleaners	251.88
Caps	277.36
Socks	345.21
Brakes	830.70
Gloves	837.56
Saddles	1,010.30
Handlebars	1,192.97
Derailleurs	1,296.63
Bottom Brackets	1,320.17
Hydration Packs	1,649.70
Bike Racks	2,304.00
Helmets	2,523.88
Pedals	2,996.50
Shorts	3,299.80
Cranksets	3,968.87
Vests	4,309.90
Jerseys	7,017.88
Touring Frames	19,066.26
Road Frames	24,346.58
Mountain Frames	54,949.60
Mountain Bikes	170,825.89
Road Bikes	183,130.30
Total	**708,690.15**



The Visualization in Power BI using treemap where the intensity of color represents the magnitude of Line Total is as follows

LineTotal by Category

Name	LineTotal
Tires and Tubes	27.48
Chains	97.15
Bottles and Cages	158.21
Cleaners	251.88
Caps	277.36
Socks	345.21
Brakes	830.70
Gloves	837.56
Saddles	1,010.30
Handlebars	1,192.97
Derailleurs	1,296.63
Bottom Brackets	1,320.17
Hydration Packs	1,649.70
Bike Racks	2,304.00
Helmets	2,523.88
Pedals	2,996.50
Shorts	3,299.80
Cranksets	3,968.87
Vests	4,309.90
Jerseys	7,017.88
Touring Frames	19,066.26
Road Frames	24,346.58
Mountain Frames	54,949.60
Mountain Bikes	170,825.89
Road Bikes	183,130.30
Touring Bikes	220,655.38
Total	**708,690.15**

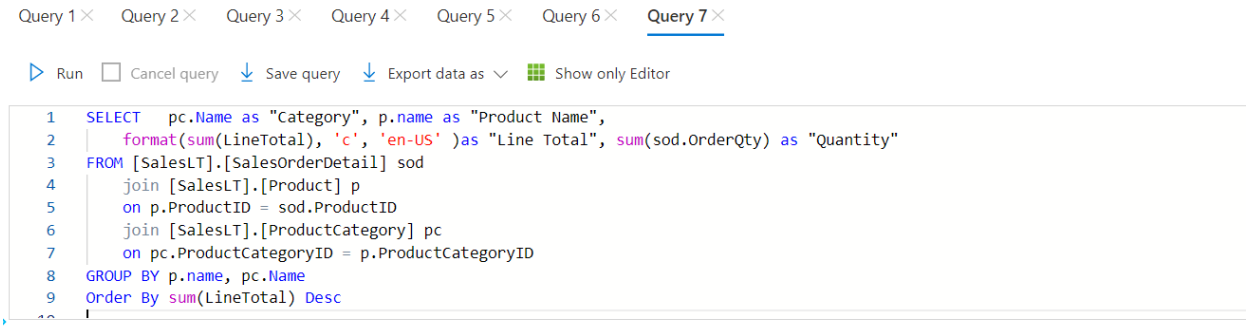


8. Sales by product category –ranked/sorted (highest to lowest)

The SQL Query is as follows

```
SELECT   pc.Name as "Category", p.name as "Product Name",
    format(sum(LineTotal), 'c', 'en-
US' )as "Line Total", sum(sod.OrderQty) as "Quantity"
FROM [SalesLT].[SalesOrderDetail] sod
    join [SalesLT].[Product] p
    on p.ProductID = sod.ProductID
    join [SalesLT].[ProductCategory] pc
    on pc.ProductCategoryID = p.ProductCategoryID
GROUP BY p.name, pc.Name
Order By sum(LineTotal) Desc
```

The result in the Query editor is as follows

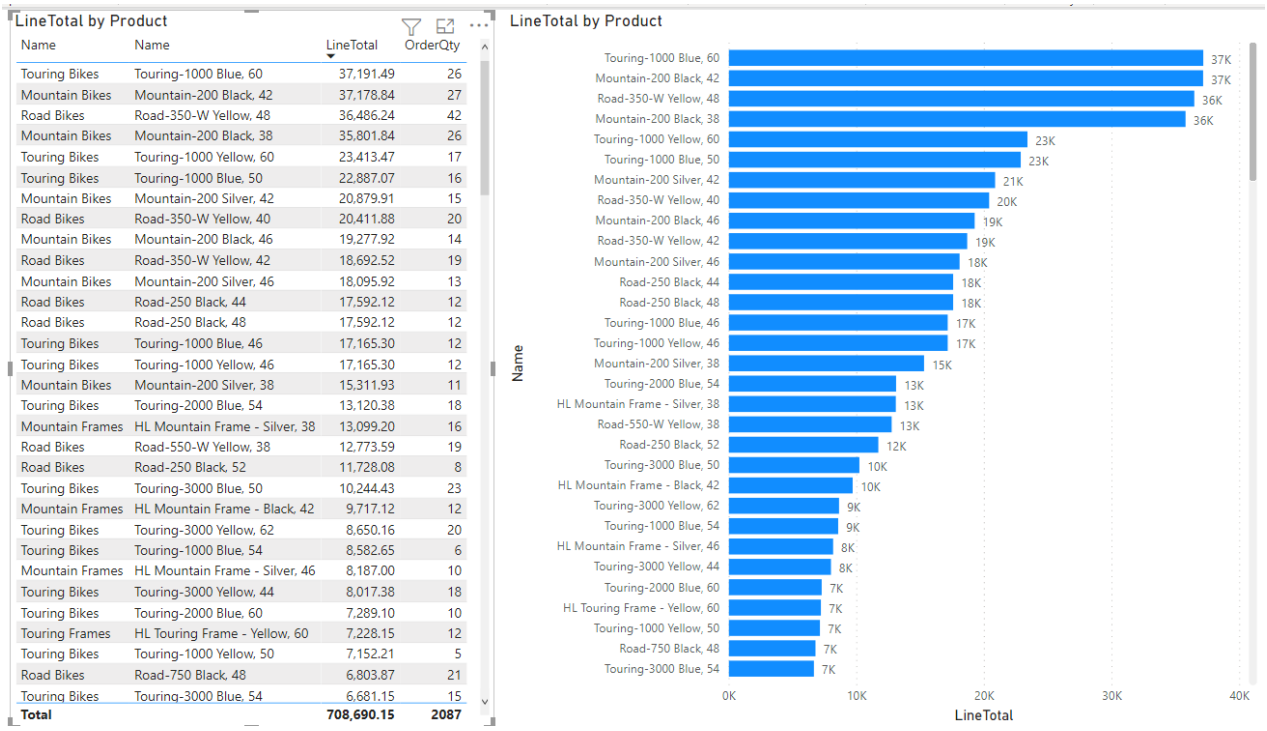


Results | Messages

Search to filter items...

Category	Product Name	Line Total	Quantity
Touring Bikes	Touring-1000 Blue, 60	$37,191.49	26
Mountain Bikes	Mountain-200 Black, 42	$37,178.84	27
Road Bikes	Road-350-W Yellow, 48	$36,486.24	42
Mountain Bikes	Mountain-200 Black, 38	$35,801.84	26

The Visualization in PowerBI is as follows



LineTotal by Product

Name	Name	LineTotal	OrderQty
Touring Bikes	Touring-1000 Blue, 60	37,191.49	26
Mountain Bikes	Mountain-200 Black, 42	37,178.84	27
Road Bikes	Road-350-W Yellow, 48	36,486.24	42
Mountain Bikes	Mountain-200 Black, 38	35,801.84	26
Touring Bikes	Touring-1000 Yellow, 60	23,413.47	17
Touring Bikes	Touring-1000 Blue, 50	22,887.07	16
Mountain Bikes	Mountain-200 Silver, 42	20,879.91	15
Road Bikes	Road-350-W Yellow, 40	20,411.88	20
Mountain Bikes	Mountain-200 Black, 46	19,277.92	14
Road Bikes	Road-350-W Yellow, 42	18,692.52	19
Mountain Bikes	Mountain-200 Silver, 46	18,095.92	13
Road Bikes	Road-250 Black, 44	17,592.12	12
Road Bikes	Road-250 Black, 48	17,592.12	12
Touring Bikes	Touring-1000 Blue, 46	17,165.30	12
Touring Bikes	Touring-1000 Yellow, 46	17,165.30	12
Mountain Bikes	Mountain-200 Silver, 38	15,311.93	11
Touring Bikes	Touring-2000 Blue, 54	13,120.38	18
Mountain Frames	HL Mountain Frame - Silver, 38	13,099.20	16
Road Bikes	Road-550-W Yellow, 38	12,773.59	19
Road Bikes	Road-250 Black, 52	11,728.08	8
Touring Bikes	Touring-3000 Blue, 50	10,244.43	23
Mountain Frames	HL Mountain Frame - Black, 42	9,717.12	12
Touring Bikes	Touring-3000 Yellow, 62	8,650.16	20
Touring Bikes	Touring-1000 Blue, 54	8,582.65	6
Mountain Frames	HL Mountain Frame - Silver, 46	8,187.00	10
Touring Bikes	Touring-3000 Yellow, 44	8,017.38	18
Touring Bikes	Touring-2000 Blue, 60	7,289.10	10
Touring Frames	HL Touring Frame - Yellow, 60	7,228.15	12
Touring Bikes	Touring-1000 Yellow, 50	7,152.21	5
Road Bikes	Road-750 Black, 48	6,803.87	21
Touring Bikes	Touring-3000 Blue, 54	6,681.15	15
Total		**708,690.15**	**2087**