

# Internet Sales Dashboard for Adventure Work Cycles

By

Malik Hassan Qayum

Course

Data Visualization

Professor

Nipa



# Overview

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- About Company
- Data source
  - OLTP Database
  - Datawarehouse
- Business Questions
- Tools Used
- Connectivity
- Visualizations and dashboard
- Insights
- Conclusion

# About Company

The bottom of the slide features two horizontal blue bars. The first bar is a solid medium blue rectangle. The second bar is a slightly lighter blue rectangle that overlaps the first one from the right side, creating a layered effect.



# Advanture Work Cycles

The company manufactures and sells metal and composite bicycles to North American, European and Asian commercial markets. While its base operation is in Bothell, Washington with 290 employees, several regional sales teams are located throughout their market base.



# OLTP – Transactional Database

- Sales
- Person
- Production
- Purchasing
- Human Resource

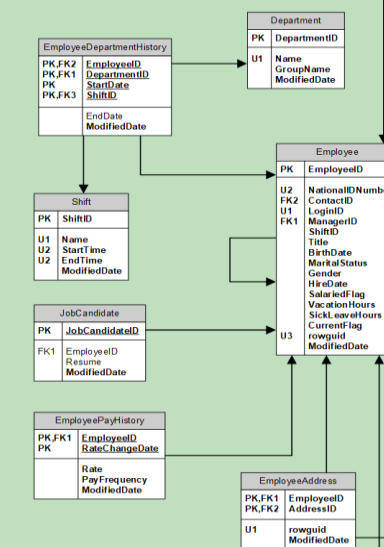
# Data Source

The bottom of the slide features two horizontal blue bars. The first bar is a solid medium blue rectangle. The second bar is a slightly lighter blue rectangle that starts to the right of the first bar's end, creating a staggered, overlapping effect.

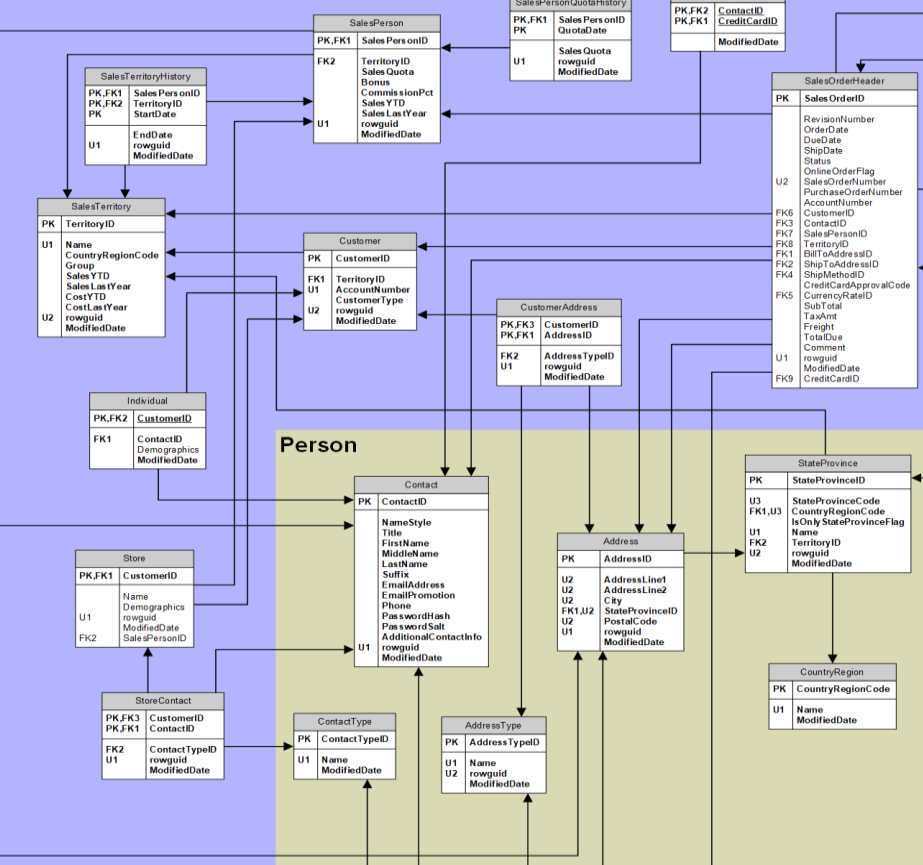
Best Print Results if:  
11X17 paper  
Landscape  
Fit to 1 sheet

dbo

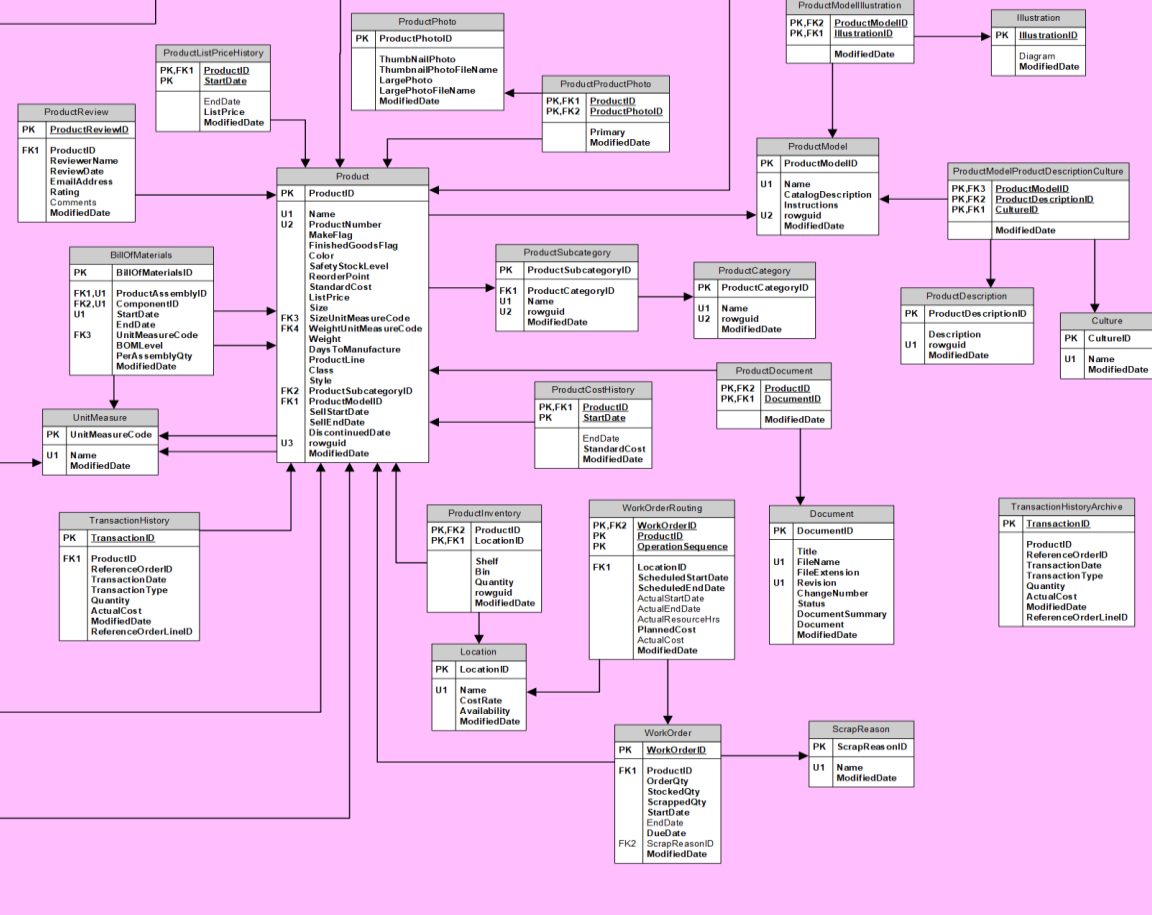
## HumanResources



## Sales



## Production



## Schemas

- Sales
- Purchasing
- Person
- Production
- HumanResources
- dbo



# Datawarehouse schema





dbo

AdventureWorksDWBldVersion
DBVersion
VersionDate

DatabaseLog
DatabaseLogID
PostTime
DatabaseUser
Event
Schema
Object
TSQL
XmlEvent

DimSalesReason
PK SalesReasonKey
SalesReasonAlternateKey
SalesReasonName
SalesReasonType

FactInternetSalesReason
PK,FK2 SalesOrderNumber
PK,FK2 SalesOrderLineNumber
PK,FK1 SalesReasonKey

FactInternetSales
SalesOrderNumber
SalesOrderLineNumber
FK2,I5 ProductKey
FK3,I4 OrderDateKey
FK4,I3 DueDateKey
FK5,I7 ShipDateKey
FK1,I2 CustomerKey
FK7 PromotionKey
FK6 CurrencyKey
FK8 SalesTerritoryKey
RevisionNumber
OrderQuantity
UnitPrice
ExtendedAmount
UnitPriceDiscountPct
DiscountAmount
ProductStandardCost
TotalProductCost
SalesAmount
TaxAmt
Freight
CarrierTrackingNumber
CustomerPONumber

DimReseller
PK ResellerKey
FK1 GeographyKey
U1 ResellerAlternateKey
Phone
BusinessType
ResellerName
NumberEmployees
OrderFrequency
OrderMonth
FirstOrderYear
LastOrderYear
ProductLine
AddressLine1
AddressLine2
AnnualSales
BankName
MinPaymentType
MinPaymentAmount
AnnualRevenue
YearOpened

FactSurveyResponse
PK SurveyResponseKey
DateKey
CustomerKey
ProductCategoryKey
EnglishProductCategoryName
ProductSubCategoryKey
EnglishProductSubcategoryName

ProspectiveBuyer
PK ProspectiveBuyerKey
ProspectAlternateKey
FirstName
MiddleName
LastName
BirthDate
MaritalStatus
Gender
EmailAddress
YearlyIncome
TotalChildren
NumberChildrenAtHome
Education
Occupation
HouseOwnerFlag
NumberCarsOwned
AddressLine1
AddressLine2
City
StateProvinceCode
PostalCode
Phone
Salutation
Unknown

DimCustomer
PK CustomerKey
FK1,I1 GeographyKey
U1 CustomerAlternateKey
Title
FirstName
MiddleName
LastName
NameStyle
BirthDate
MaritalStatus
Suffix
Gender
EmailAddress
YearlyIncome
TotalChildren
NumberChildrenAtHome
EnglishEducation
SpanishEducation
FrenchEducation
EnglishOccupation
SpanishOccupation
FrenchOccupation
HouseOwnerFlag
NumberCarsOwned
AddressLine1
AddressLine2
Phone
DateFirstPurchase
CommuteDistance

DimAccount
PK AccountKey
FK1 ParentAccountKey
U1 AccountCodeAlternateKey
ParentAccountCodeAlternateKey
AccountDescription
AccountType
Operator
CustomMembers
ValueType
CustomMemberOptions

DimDepartmentGroup
PK DepartmentGroupKey
FK1 ParentDepartmentGroupKey
DepartmentGroupName

DimScenario
PK ScenarioKey
ScenarioName

FactFinance
PK FinanceKey
FK5 DateKey
FK3 OrganizationKey
FK2 DepartmentGroupKey
FK4 ScenarioKey
FK1 AccountKey
Amount

DimOrganization
PK OrganizationKey
FK1 ParentOrganizationKey
PercentageOfOwnership
OrganizationName
CurrencyKey

DimDate
PK DateKey
U1 FullDateAlternateKey
DayNumberOfWeek
EnglishDayNameOfWeek
SpanishDayNameOfWeek
FrenchDayNameOfWeek
DayNumberOfMonth
DayNumberOfYear
EnglishMonthName
SpanishMonthName
FrenchMonthName
WeekNumberOfYear
MonthNumberOfYear
CalendarQuarter
CalendarYear
CalendarSemester
FiscalQuarter
FiscalYear
FiscalSemester

FactCurrencyRate
FK1 CurrencyKey
FK2 DateKey
AverageRate
EndOfDayRate

DimCurrency
PK CurrencyKey
U1 CurrencyAlternateKey
CurrencyName

FactResellerSales
SalesOrderNumber
SalesOrderLineNumber
FK1,I5 ProductKey
FK2,I4 OrderDateKey
FK3,I3 DueDateKey
FK4,I7 ShipDateKey
FK8 ResellerKey
FK6 PromotionKey
FK5 CurrencyKey
FK7 SalesTerritoryKey
RevisionNumber
OrderQuantity
UnitPrice
ExtendedAmount
UnitPriceDiscountPct
DiscountAmount
ProductStandardCost
TotalProductCost
SalesAmount
TaxAmt
Freight
CarrierTrackingNumber
CustomerPONumber

DimPromotion
PK PromotionKey
U1 PromotionAlternateKey
EnglishPromotionName
SpanishPromotionName
FrenchPromotionName
DiscountPct
EnglishPromotionType
SpanishPromotionType
FrenchPromotionType
EnglishPromotionCategory
SpanishPromotionCategory
FrenchPromotionCategory
StartDate
EndDate
MinQty
MaxQty

DimProduct
PK ProductKey
U1 ProductAlternateKey
FK1,I1 ProductSubCategoryKey
WeightUnitMeasureCode
SizeUnitMeasureCode
EnglishProductName
SpanishProductName
FrenchProductName
StandardCost
FinishedGoodsFlag
Color
SafetyStockLevel
ReorderPoint
ListPrice
Size
SizeRange
Weight
DaysToManufacture
ProductLine
DealerPrice
Class
Style
ModelName
LargePhoto
EnglishDescription
FrenchDescription
ChineseDescription
ArabicDescription
HebrewDescription
ThaiDescription
GermanDescription
JapaneseDescription
TurkishDescription
StartDate
EndDate
Status

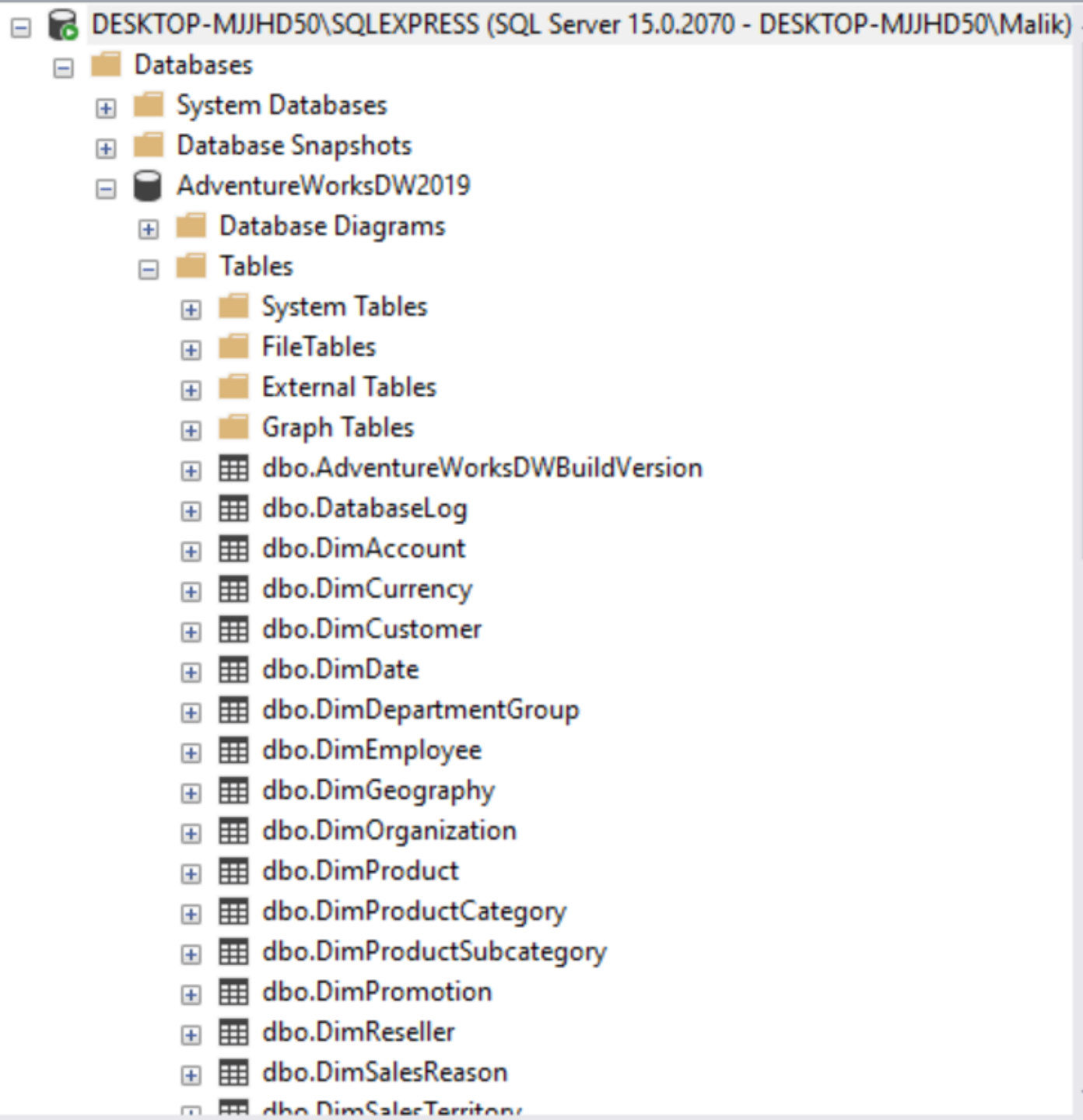
DimProductSubcategory
PK ProductSubCategoryKey
U1 ProductSubCategoryAlternateKey
EnglishProductSubCategoryName
SpanishProductSubCategoryName
FrenchProductSubCategoryName
ProductCategoryKey

DimProductCategory
PK ProductCategoryKey
U1 ProductCategoryAlternateKey
EnglishProductCategoryName
SpanishProductCategoryName
FrenchProductCategoryName

DimGeography
PK GeographyKey
FK1 SalesTerritoryKey
City
StateProvinceCode
StateProvinceName
CountryRegionCode
EnglishCountryRegionName
SpanishCountryRegionName
FrenchCountryRegionName
PostalCode

DimEmployee
PK EmployeeKey
FK1,I1 ParentEmployeeKey
EmployeeNationalIDAlternateKey
ParentEmployeeNationalIDAlternateKey
FK2,I2 SalesTerritoryKey
FirstName
LastName
MiddleName
NameStyle
Title
HireDate
BirthDate
LoginID
EmailAddress
Phone
MaritalStatus
EmergencyContactName
EmergencyContactPhone
SalariedFlag
Gender
PayFrequency
BaseRate
VacationHours
SickLeaveHours
CurrentFlag
SalesPersonFlag
DepartmentName
StartDate
EndDate
Status

FactSalesQuota
PK SalesQuotaKey
FK1,I1 EmployeeKey
FK2,I2 DateKey
CalendarYear
CalendarQuarter
SalesAmountQuota



# SQL Server

# Business Questions

The bottom of the slide features two horizontal blue bars. The first bar is a solid medium blue rectangle. The second bar is a slightly lighter blue rectangle that overlaps the first one from the right side, creating a layered effect.

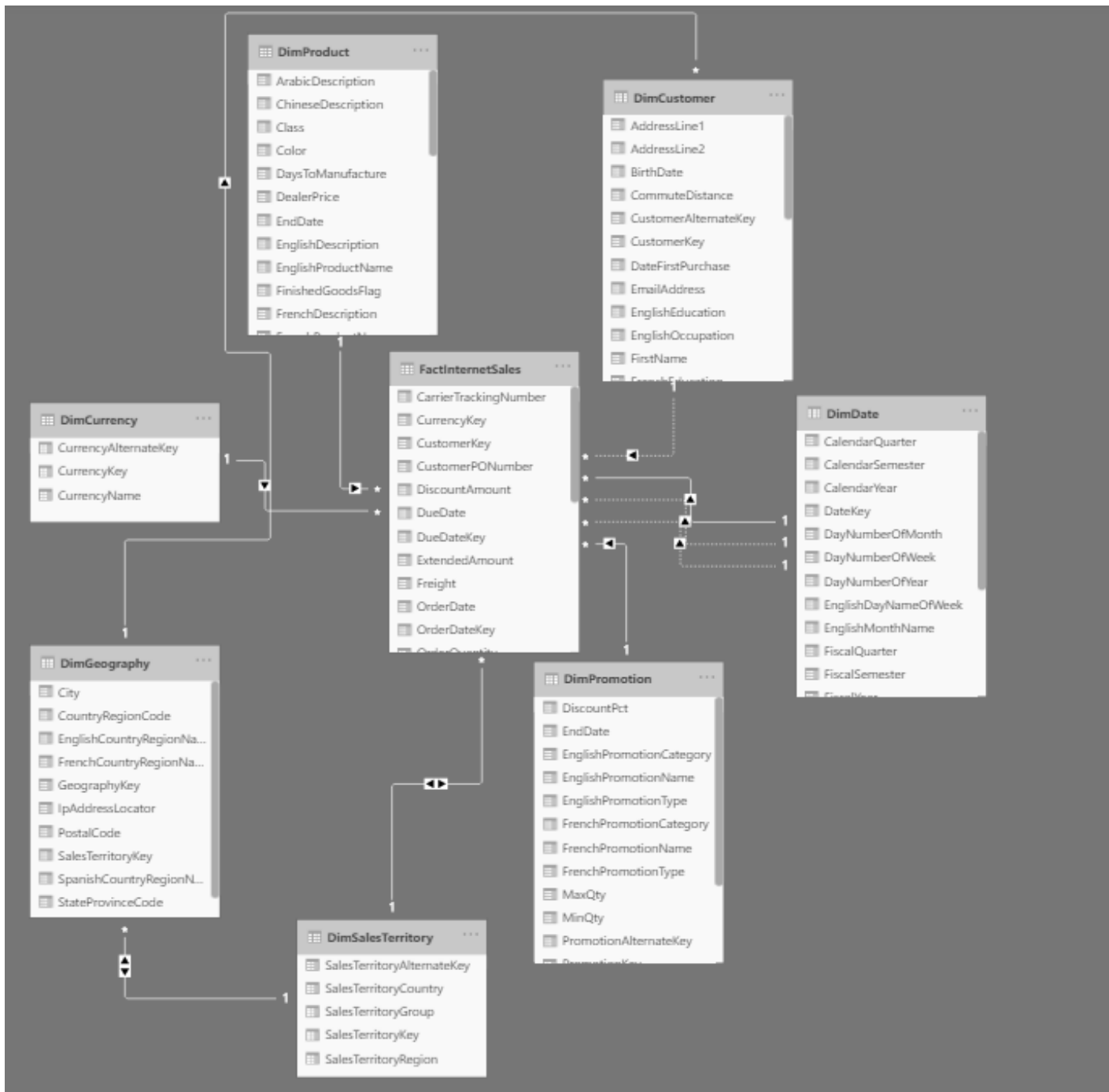
# Internet sales Business Questions

Let's say VP of internet sales USA would like to have answer for following business question:

- Total online sales
- Percentage Sales by Country
- Sales by different states of countries
- Sales by Year
- Sales by product category
- Sales by product Sub-category
- Units sold by year
- Top products in term of sales

## **Goal:**

By the answering these question VP would be able to find weak areas and strong areas of sales and to produce better business decisions and marketing strategies.



Data from dates:  
Dec 2010 – Jan 2014

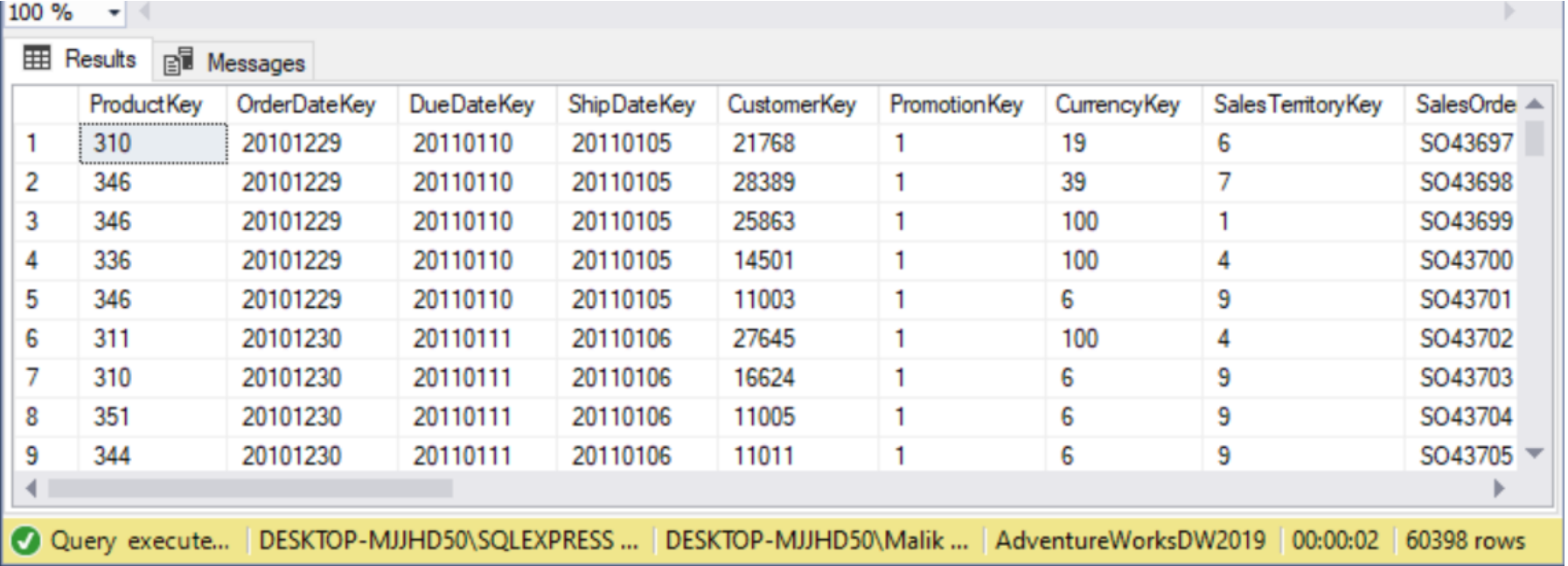


# Connection



# Fact Internet Sales

60398 records



The screenshot displays the SQL Server Enterprise Manager interface. At the top, there's a '100 %' zoom level and a 'Results' tab. Below the tab, a table of data is shown. The table has 10 columns: ProductKey, OrderDateKey, DueDateKey, ShipDateKey, CustomerKey, PromotionKey, CurrencyKey, SalesTerritoryKey, and SalesOrderKey. The first row is highlighted, showing ProductKey 310, OrderDateKey 20101229, DueDateKey 20110110, ShipDateKey 20110105, CustomerKey 21768, PromotionKey 1, CurrencyKey 19, SalesTerritoryKey 6, and SalesOrderKey SO43697. The status bar at the bottom indicates 'Query execute...' and '60398 rows'.

	ProductKey	OrderDateKey	DueDateKey	ShipDateKey	CustomerKey	PromotionKey	CurrencyKey	SalesTerritoryKey	SalesOrderKey
1	310	20101229	20110110	20110105	21768	1	19	6	SO43697
2	346	20101229	20110110	20110105	28389	1	39	7	SO43698
3	346	20101229	20110110	20110105	25863	1	100	1	SO43699
4	336	20101229	20110110	20110105	14501	1	100	4	SO43700
5	346	20101229	20110110	20110105	11003	1	6	9	SO43701
6	311	20101230	20110111	20110106	27645	1	100	4	SO43702
7	310	20101230	20110111	20110106	16624	1	6	9	SO43703
8	351	20101230	20110111	20110106	11005	1	6	9	SO43704
9	344	20101230	20110111	20110106	11011	1	6	9	SO43705

Query execute... | DESKTOP-MJJHD50\SQLEXPRESS ... | DESKTOP-MJJHD50\Malik ... | AdventureWorksDW2019 | 00:00:02 | 60398 rows

# Tableau Data Source Connection

FactInternetSales+ (AdventureWorksDW)

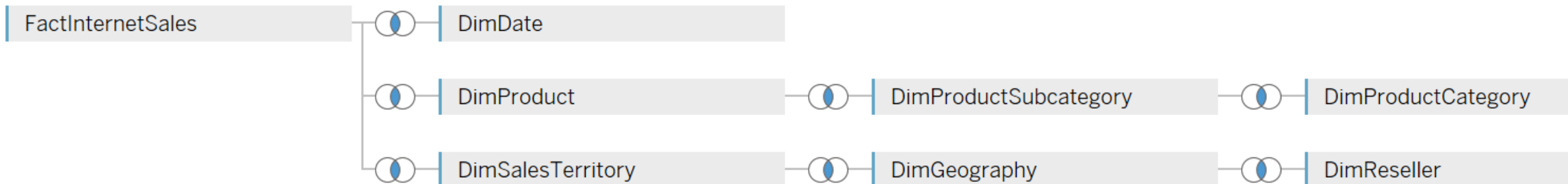
Connection

☒ Live

☐ Extract

Filters

0 | [Add](#)



# Dimensions and Measures

Data	Analytics
FactInternetSales+ (AdventureWorksDW)	
Dimensions	
DimDate	
DimGeography	
DimProduct	
DimProductCategory	
DimProductSubcategory	
DimSalesTerritory	
FactInternetSales	
Country /province hierarchy	
Product hierarchy	
Measure Names	
Measures	
DimDate	
DimProduct	
FactInternetSales	
index	
Percentage of Total Sales	
Profit	
Latitude (generated)	
Longitude (generated)	
Number of Records	
Sets	
Top 10 Products by sales	

# Dashboard Design

The bottom of the slide features a decorative design consisting of two overlapping blue rectangular blocks. The block on the left is a solid medium blue and extends across most of the width. The block on the right is a slightly lighter shade of blue and is positioned to the right of the first block, partially overlapping it. The right edge of the second block is cut at an angle, creating a 3D effect as if it's a page or a tab.





# Calculated Fields and Hierarchies

Country /province hiera

🌐 Country

🌐 State

Product hierarchy

Abc Product Category

Abc Product Subcategory

Profit

`[Sales Amount] - [Total Product Cost]`

Percentage of Total Sales

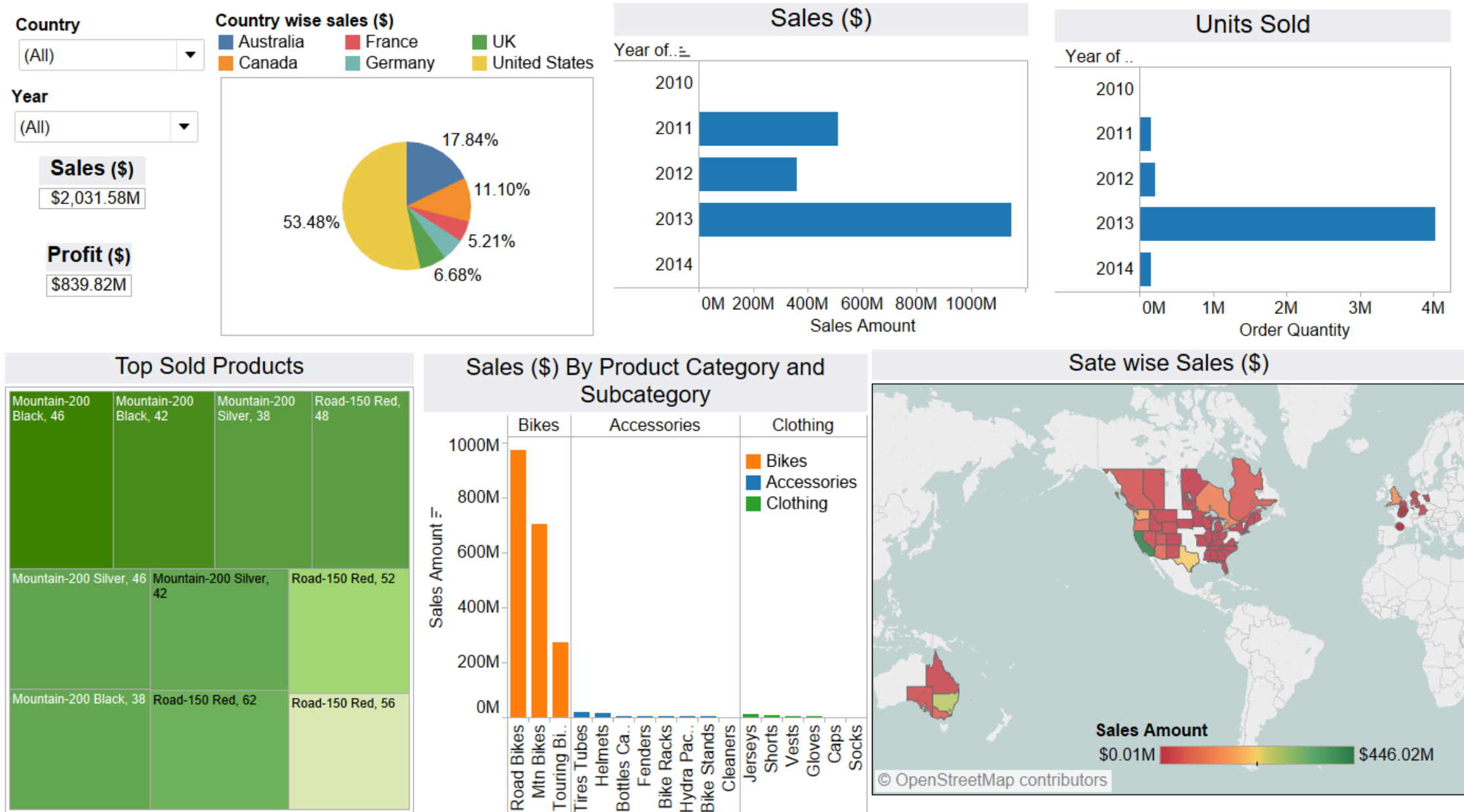
Totals summarize values from Table (across).

`SUM([Sales Amount]) / TOTAL(SUM([Sales Amount]))`

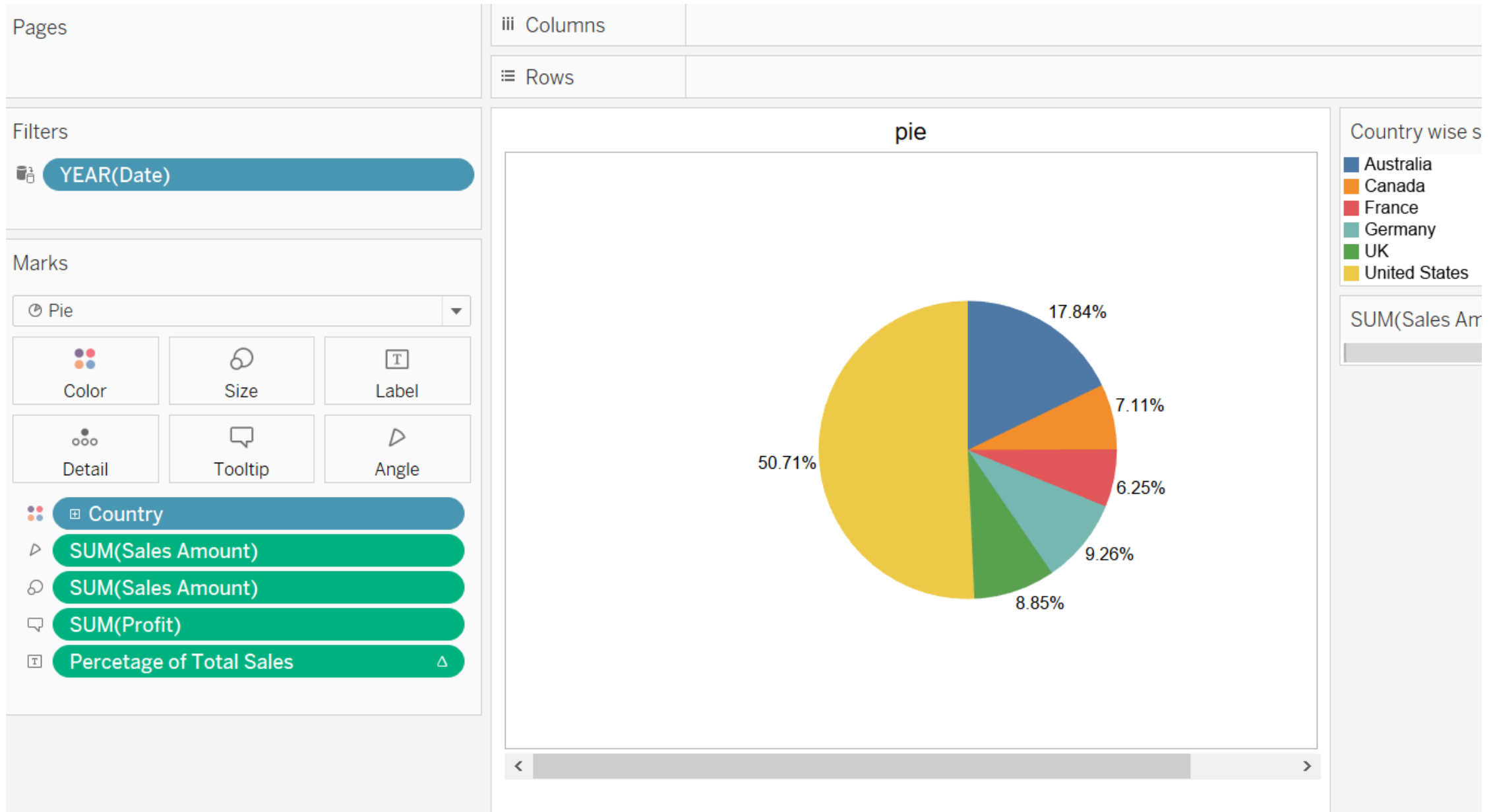
index

Results are computed along Table (across).

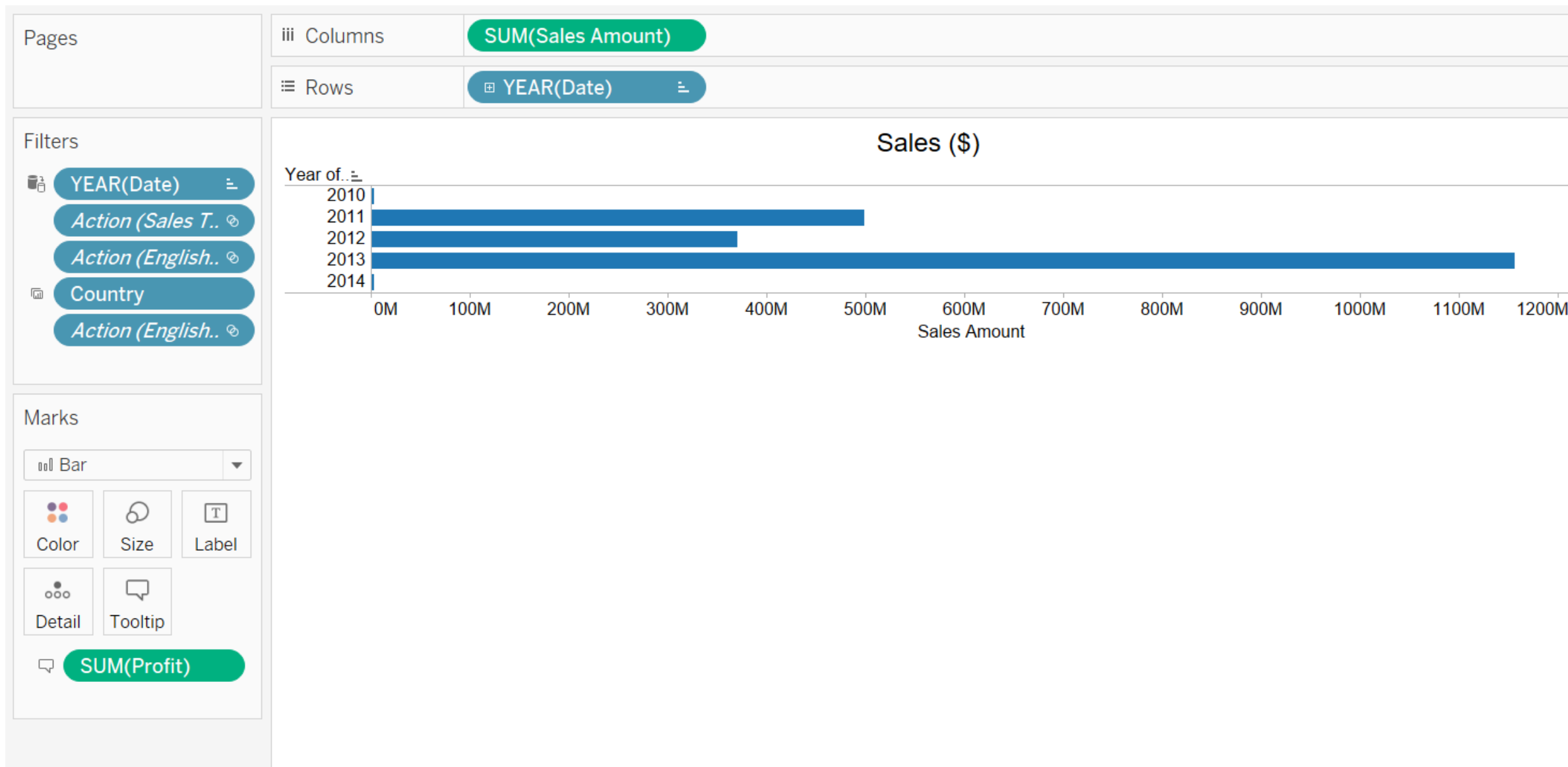
`INDEX()`



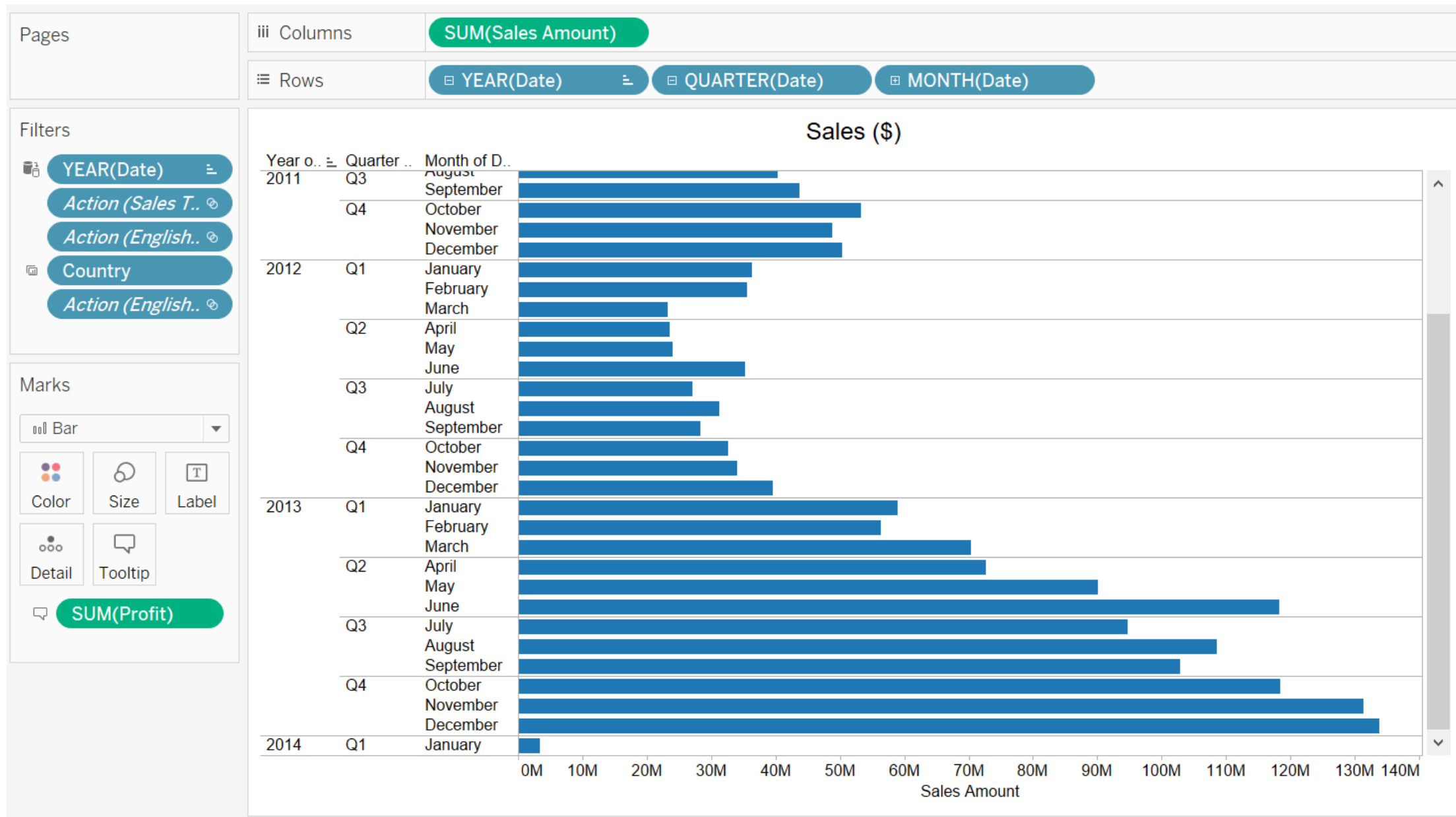
Dashboard



Pie chart of overall sales and profit

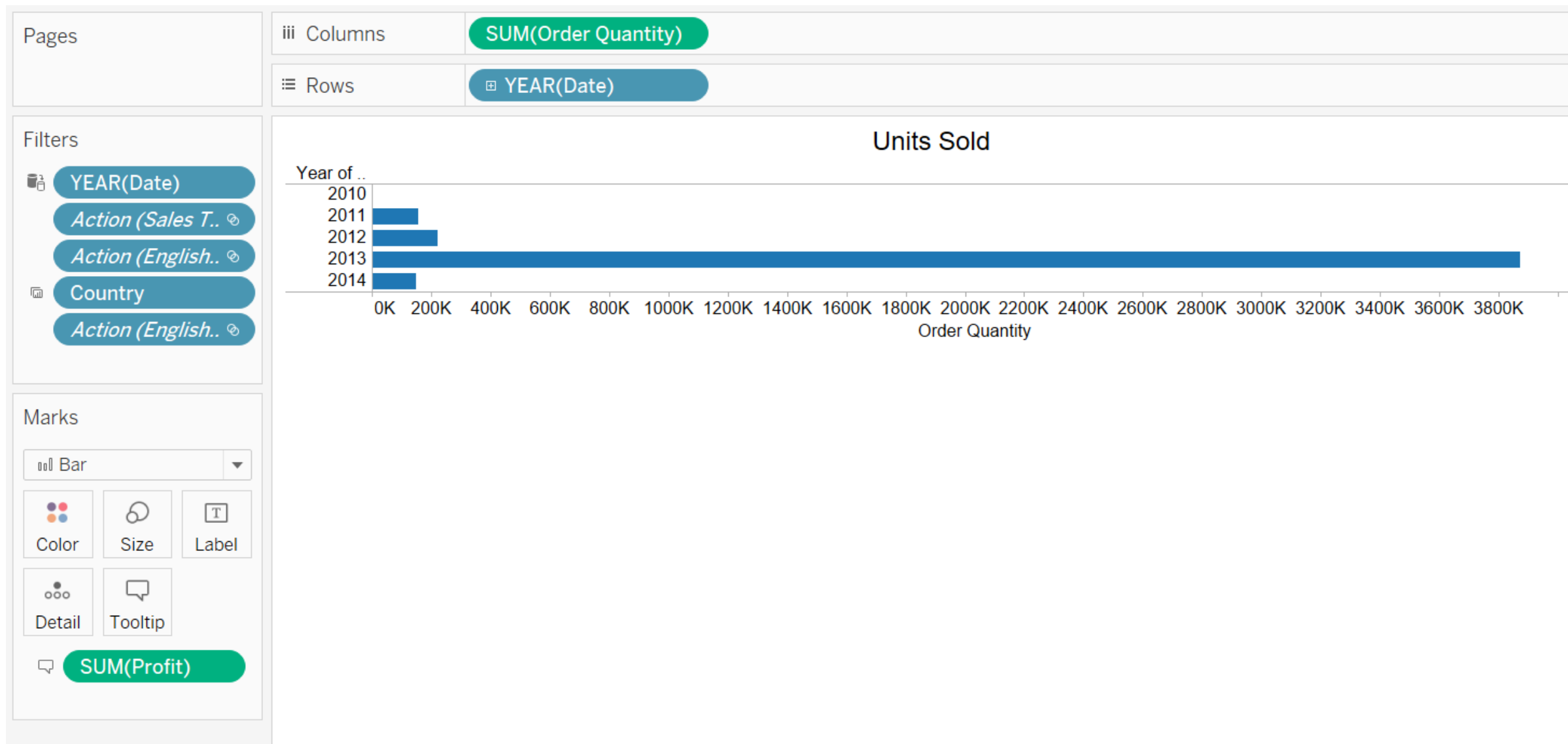


Sales by year

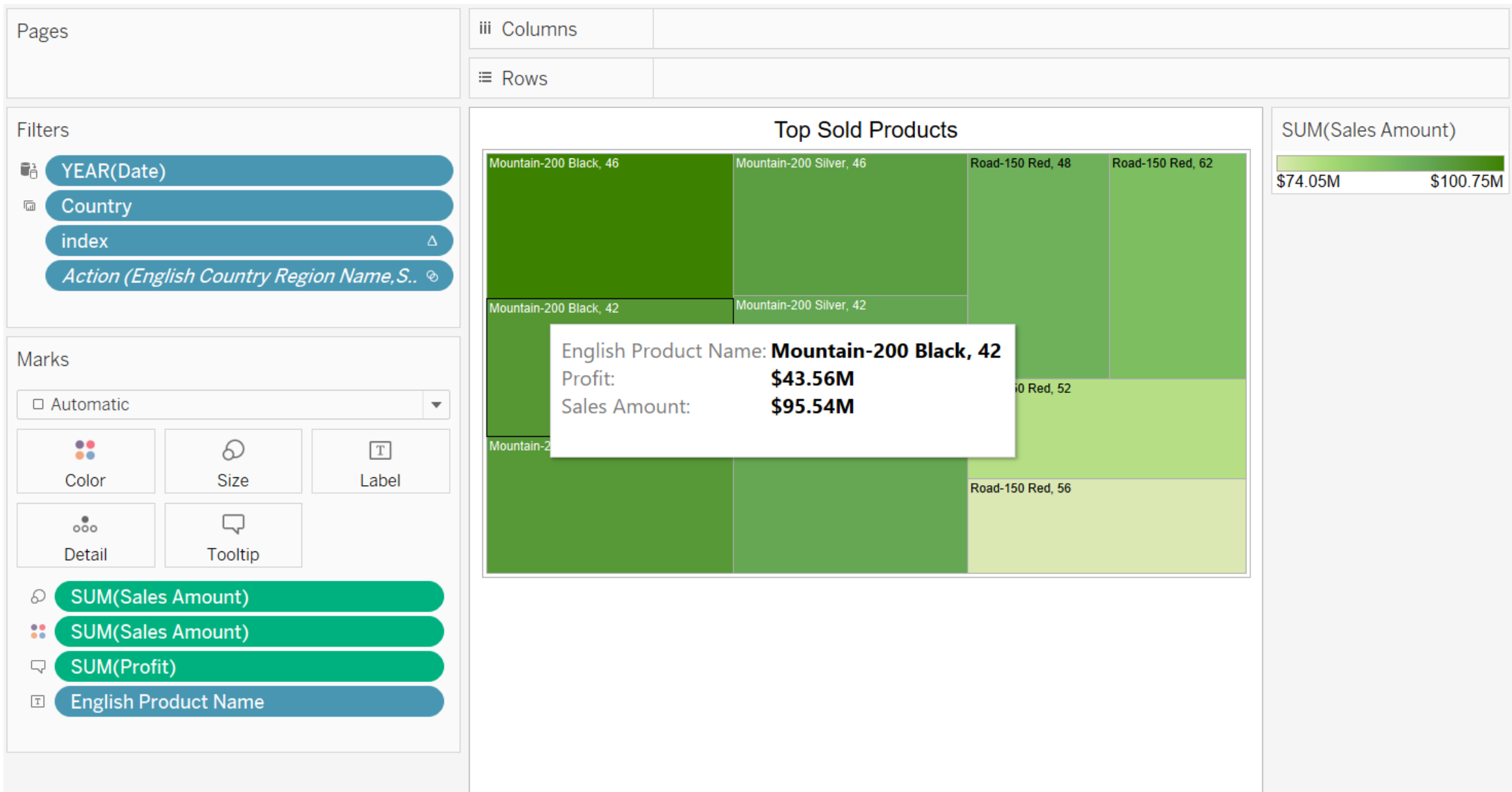


Sales by Date drilldown

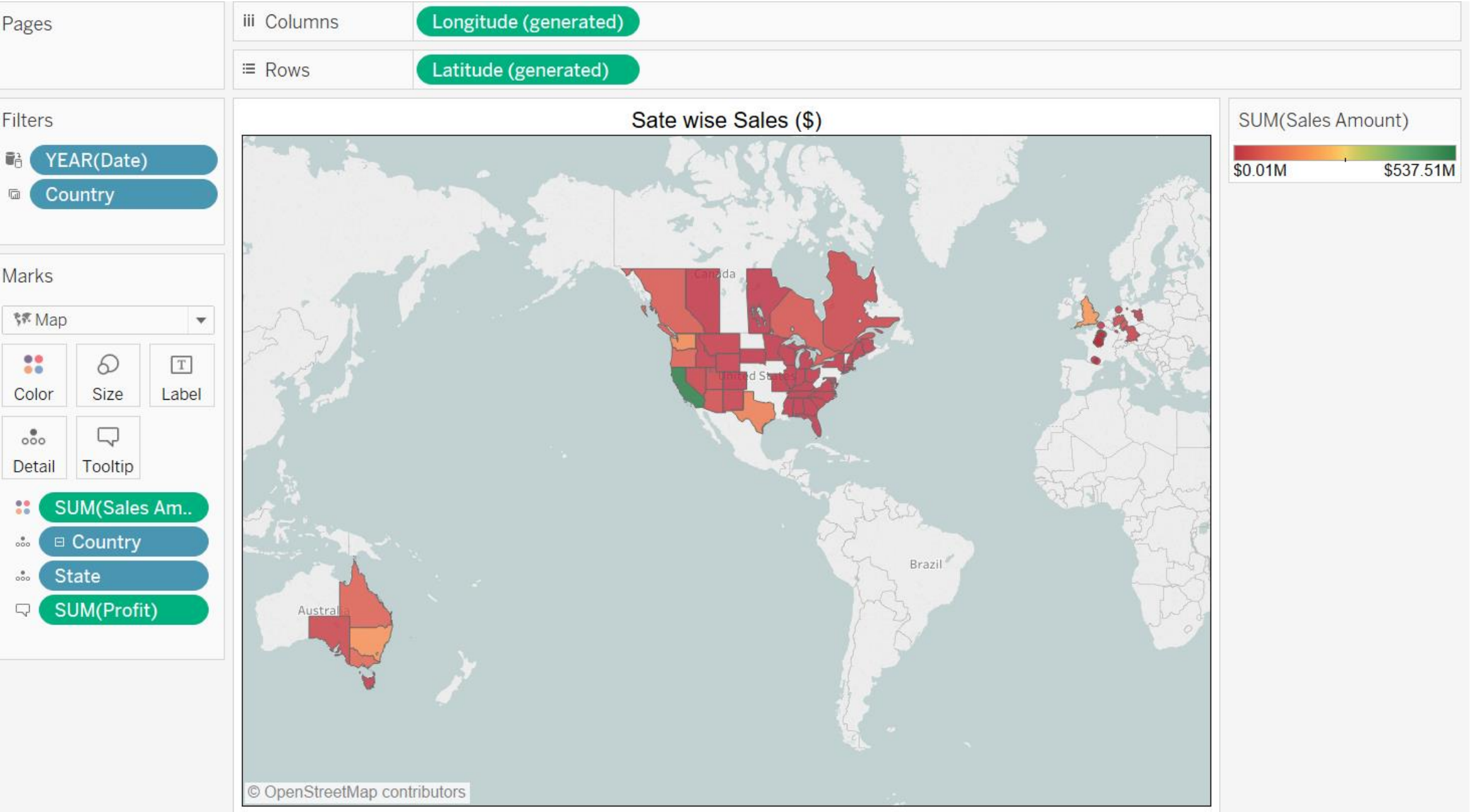




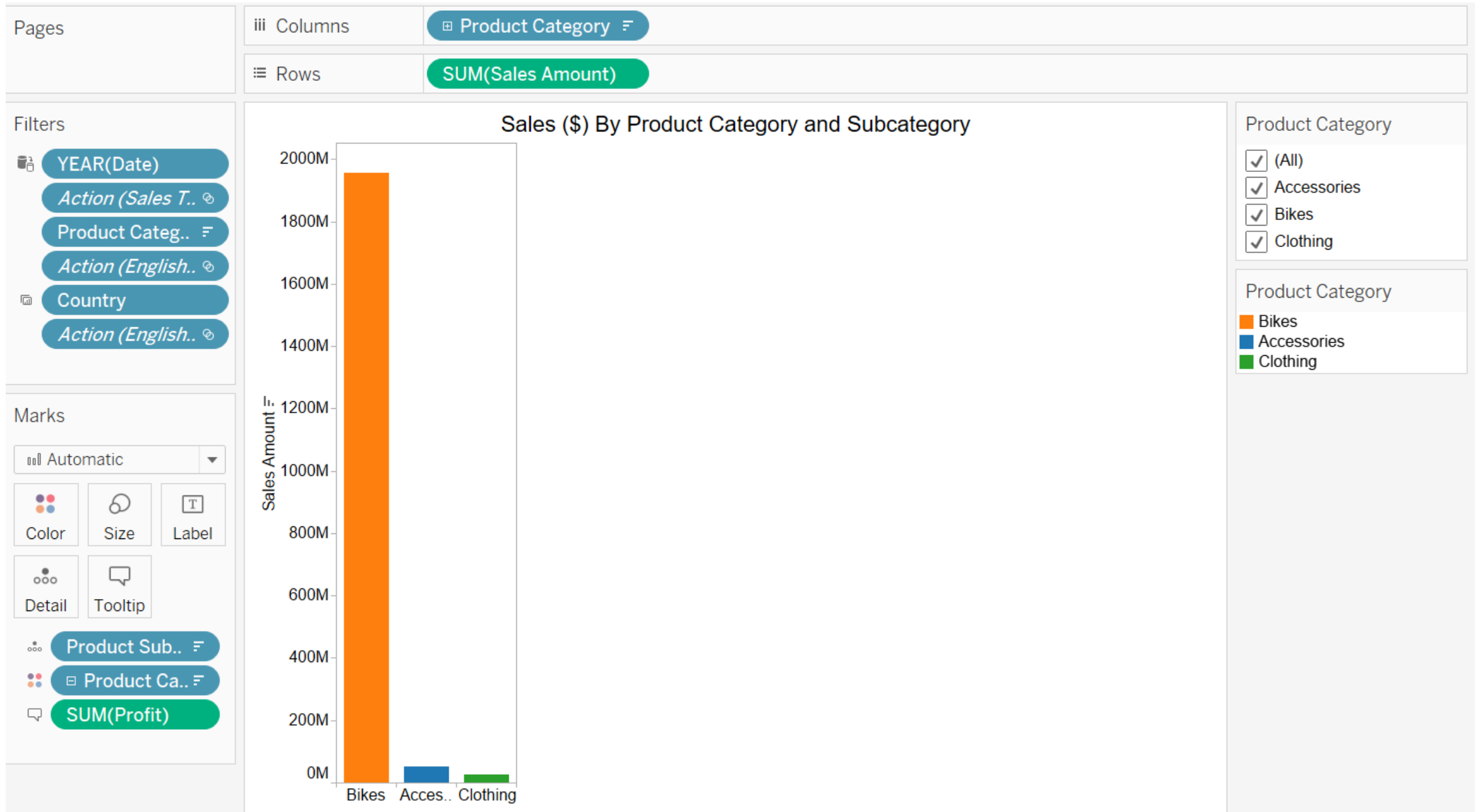
Units sold



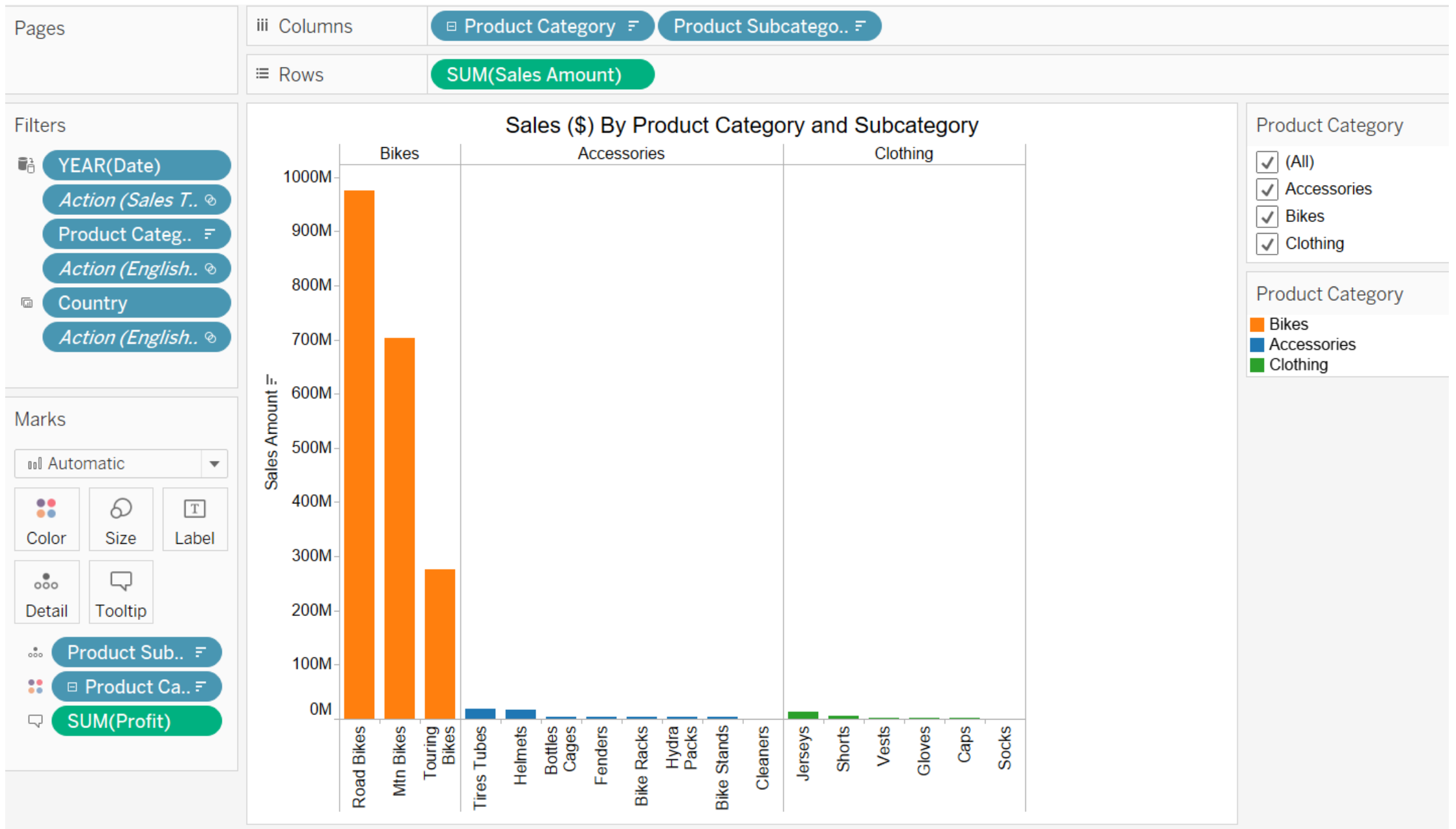
Top sold product



Sales by sates

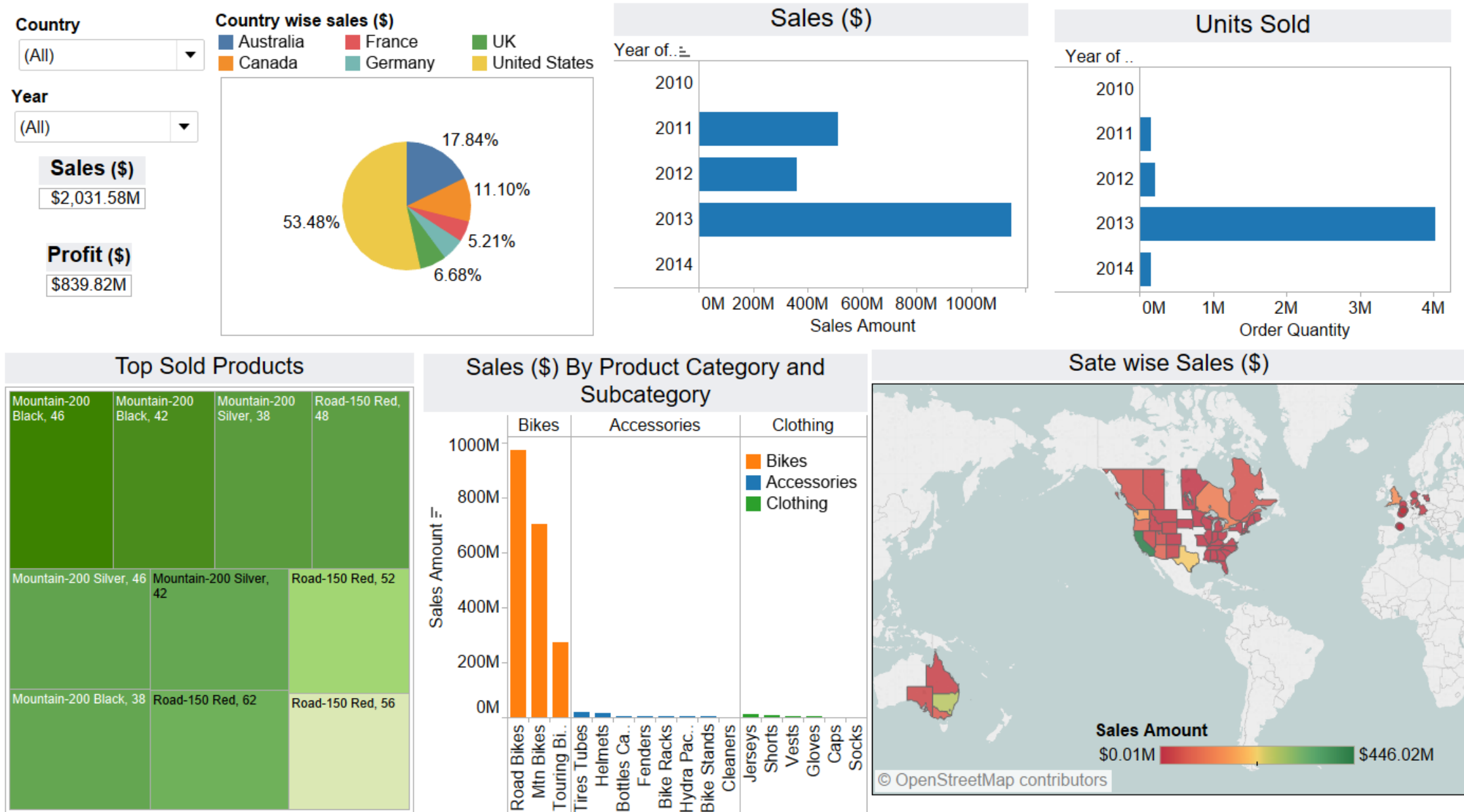


Sales by categories and subcategories



Sales by categories and subcategories drill down





Dashboard

# Insights

The bottom of the slide features two horizontal blue bars. The first bar is a solid medium blue and spans the width of the slide. The second bar is a slightly lighter shade of blue, positioned to the right of the first bar, creating a layered or 3D effect.

# Insights

Based on Exploring the dashboard.

- USA has more than 50% of overall sales. We have sales in Almost every state.
- Other countries has less sales as compared to USA because:
  - Smaller area and lesser population.
  - No sales in some regions
- Overall, sales of 1031.41 million USD

# Insights 2010

For USA:

- 2010 December started selling online.
- Only Bikes were sold at that time.
- South East, mid west, north east has no sales.
- Overall, sales of 1.7 million USD

# Insights 2011

- Kept selling bikes only.
- Still no sales in South East and a few states in mid west.
- Overall, sales of 271.41 million USD

## Insights 2012

- Added new products of categories accessories and clothing
- Also expanded to south east and north east sides of USA
- Overall, sales of 154.72 million USD dropped from 271.41 million.

## Insights 2013

- All 3 categories kept selling with the spike in mountain bikes.
- Sales from accessories and cloths also has raised to approx.. 9 and 6 million USD.
- No further expansion to other areas.
- Overall, sales of 600.72 million USD

# Insights 2014

- Just the January of 2014 has passed.
- So far no sales for bikes. That because of cold weather.



# Conclusion

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# Conclusion

- We need to conduct research on the central states of USA where we have no sales. It could be weather or local popular brand or maybe people don't do cycling that much.
- Need marketing and awareness campaigns in such area to increase sales.
- Expanding to other regions drops the overall sales. May need to look at marketing budget state wise. Or focus more on hot states where more sales are made.
- Mountain bikes has given more profit than road bikes. However, road bikes has more sales. We might need to look for adding other products related to road bikes. Which could sell along with road bikes.

# Thank you

Any Question?



# Tools

- SQL Server
- Tableau