

19BLC1077

SANTOSH.V

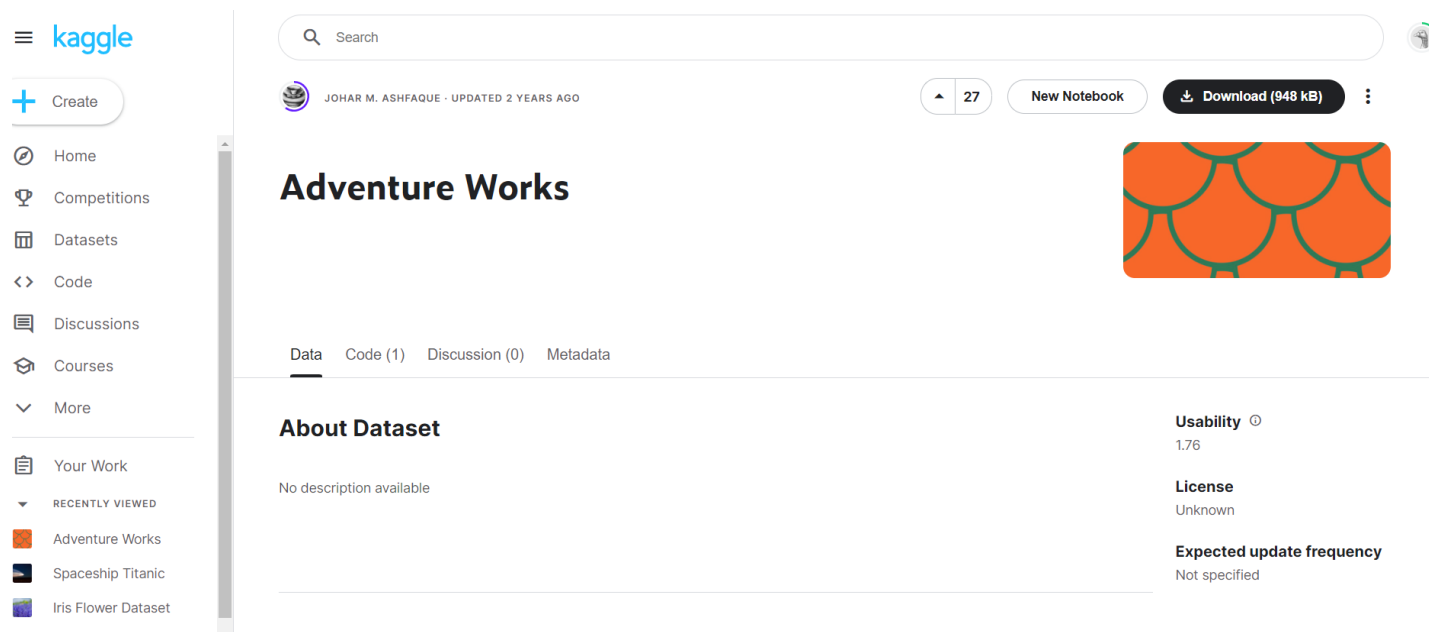
BICYCLE SALES ANALYTICS USING IBM COGNOS

SMART INTERNZ GUIDED PROJECT

AIM: To gather 10 CSV files from the Kaggle Adventure works repository regarding the bicycle sales and customer data and perform data preparation and visualizations to observe the trends existing in the data and represent them on a dashboard.

SCREENSHOTS:

Kaggle Adventure Works Repository:

The screenshot shows the Kaggle website interface for the 'Adventure Works' dataset. On the left is a sidebar with navigation links: Home, Competitions, Datasets, Code, Discussions, Courses, More, Your Work, and a 'RECENTLY VIEWED' section listing 'Adventure Works', 'Spaceship Titanic', and 'Iris Flower Dataset'. The main content area has a search bar at the top. Below it, the dataset title 'Adventure Works' is displayed with the author 'JOHAR M. ASHFAQUE' and 'UPDATED 2 YEARS AGO'. There are buttons for 'New Notebook' and 'Download (948 kB)'. A large orange graphic with a green pattern is visible. Below the title, there are tabs for 'Data', 'Code (1)', 'Discussion (0)', and 'Metadata'. The 'About Dataset' section states 'No description available'. On the right, there are statistics: 'Usability 1.76', 'License Unknown', and 'Expected update frequency Not specified'.

List of 10 CSV files part of Adventure Works Bicycle Sales data:

Data Explorer

Version 1 (4.59 MB)

- AdventureWorks_Calendar.c...
- AdventureWorks_Customers...
- AdventureWorks_Product_C...
- AdventureWorks_Product_S...
- AdventureWorks_Products.c...
- AdventureWorks>Returns.csv
- AdventureWorks_Sales_201...
- AdventureWorks_Sales_201...
- AdventureWorks_Sales_201...
- AdventureWorks_Territories....

Prepared data from the source files:

IBM Cognos Analytics with Watson

AdW_DataPrep.csv

304

Grid

Relationships

Custom tables

Search

AdW_DataPrep.csv

Navigation paths

ReturnRate

Products

Returns

Sales_Data

Calendar

Customers

Categories

Subcategories

Sales_2015

Sales_2016

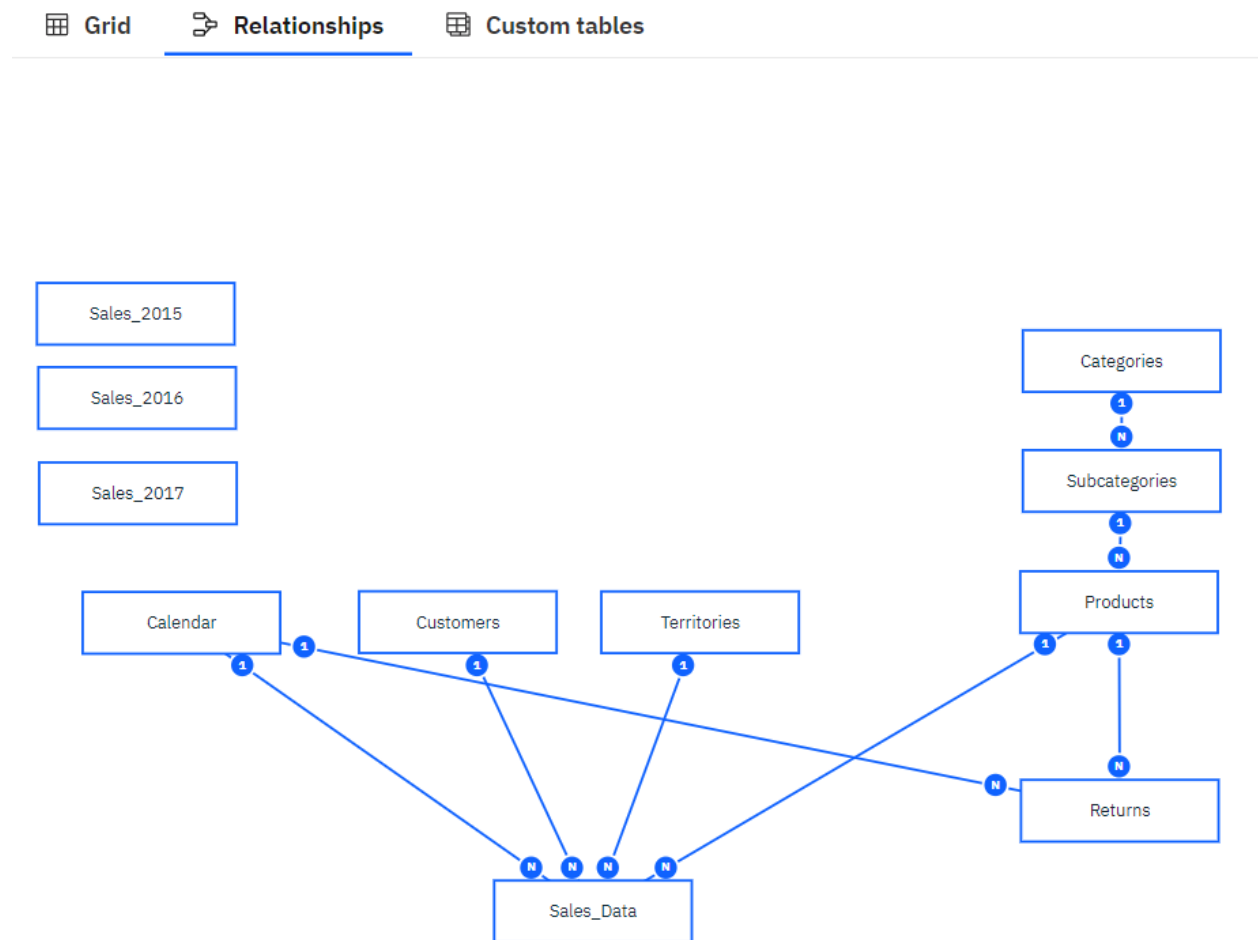
Sales_2017

Territories

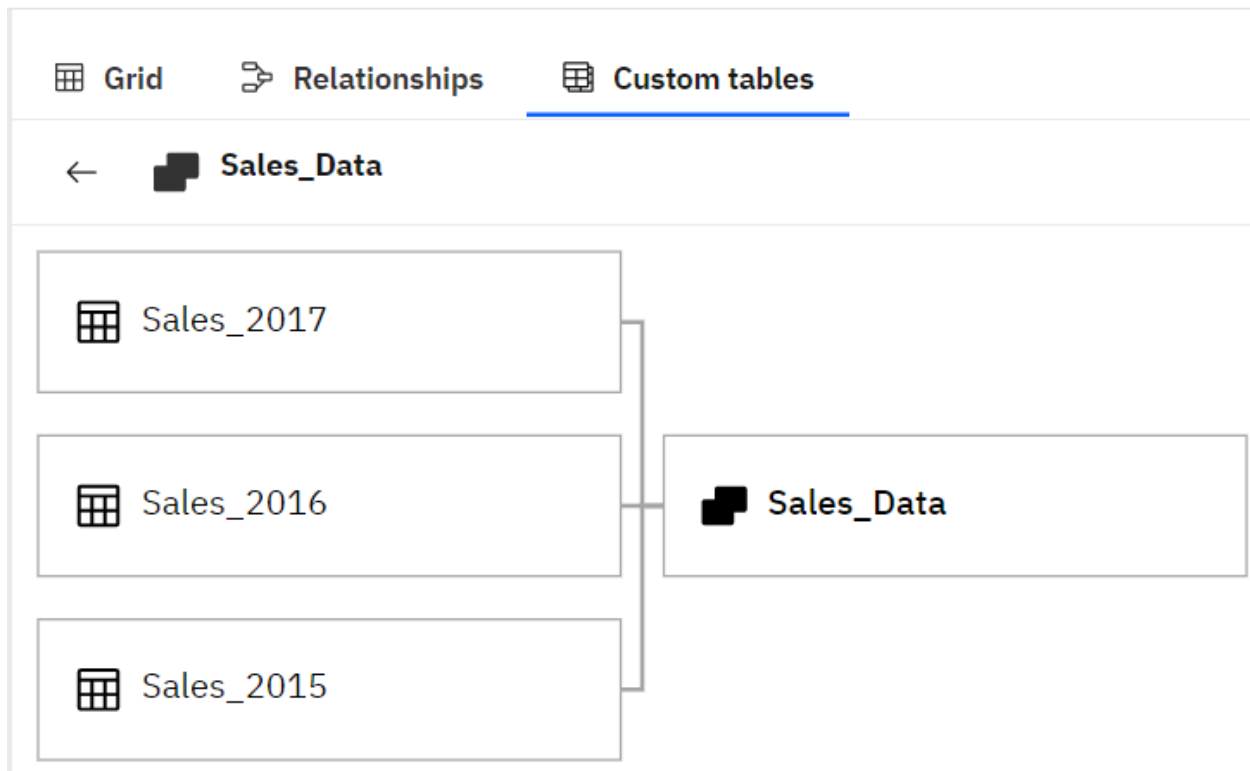
Preview data

To preview data, select a table, a column in a table, or a folder that contains columns.

Cardinality and relationship existing between different tables:



Custom made Sales_Data table using Sales_2017, Sales_2016 and Sales_2015 as source tables:



ReturnRate calculation:

Edit calculation

Name ReturnRate

Components

Expression

Search

AdW_DataPrep.csv

- ReturnRate
- Products
- Returns
- Sales_Data
- Calendar
- Customers
- Categories
- Subcategories
- Sales_2015
- Sales_2016

1 AdventureWorks>Returns_csv.ReturnQuantity / Sales_2015_Union_1.OrderQuantity

Information

Products Table:

Data module

Search

Month

Day

ReturnRate

Products

Row Id

ProductKey

ProductS...goryKey

abc ProductSKU

abc ProductName

abc ModelName

abc ProductDescription

abc ProductColor

abc ProductSize

abc ProductStyle

ProductCost

ProductPrice

Returns

Grid

Relationships

Custom tables

Row Id	ProductKey	ProductSubcategoryKey	ProductSKU	ProductName	ModelName	ProductDescription
1	214	31	HL-U509-R	Sport-100 Helmet, Red	Sport-100	Universal fit, we
2	215	31	HL-U509	Sport-100 Helmet, Black	Sport-100	Universal fit, we
3	218	23	SO-B909-M	Mountain Bike Socks, M	Mountain Bike Socks	Combination of and synthetic fit stays dry and pr
4	219	23	SO-B909-L	Mountain Bike Socks, L	Mountain Bike Socks	Combination of and synthetic fit stays dry and pr
5	220	31	HL-U509-B	Sport-100 Helmet, Blue	Sport-100	Universal fit, we
6	223	19	CA-1098	AWC Logo Cap	Cycling Cap	Traditional style flip-up brim; on
7	226	21	LJ-0192-S	Long-Sleeve Logo Jersey, S	Long-Sleeve Logo Jersey	Unisex long-sleeve logo microfiber jersey
8	229	21	LJ-0192-M	Long-Sleeve Logo Jersey, M	Long-Sleeve Logo Jersey	Unisex long-sleeve logo microfiber

Sales_Data Table:

Data module

Search

AdW_DataPrep.csv

Navigation paths

Date

ReturnRate

Products

Returns

Sales_Data

Calendar

Customers

Categories

Subcategories

Sales_2015

Sales_2016

Sales_2017

Territories

Grid

Relationships

Custom tables

Row Id	OrderDate	StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey
1	2015-01-01	2001-09-21	SO45080	332	14657	1
9	2015-01-03	2001-10-03	SO45093	312	18906	9
10	2015-01-03	2001-09-29	SO45090	310	29170	4
21	2015-01-04	2001-12-20	SO45099	312	29174	1
23	2015-01-05	2001-11-21	SO45100	326	19428	8
26	2015-01-06	2001-10-01	SO45108	310	22975	6
31	2015-01-07	2001-11-05	SO45109	311	14937	10
33	2015-01-07	2001-11-09	SO45111	326	25713	9
35	2015-01-08	2001-12-14	SO45119	314	18740	9
37	2015-01-08	2001-11-24	SO45116	311	29204	1
41	2015-01-08	2001-11-11	SO45113	313	29141	4
50	2015-01-10	2001-12-26	SO45126	311	12480	7
52	2015-01-11	2001-11-30	SO45130	313	14975	10
58	2015-01-11	2001-09-14	SO45131	344	25979	1

Dashboard Tab 1: Text tables representing top 12 Products with highest returns, Highly sold products by quantity and Revenue obtained by selling the products:

Tab 1

Tab 2

Tab 3

Tab 4

Tab 5

Tab 6

Tab 7

Top 12 Products by Returns

ProductName	OrderQuantity	ReturnQuantity	ReturnRate
Road-650 Red, ...	51	6	11.76%
Mountain-100 ...	24	2	8.33%
Touring-2000 B...	96	8	8.33%
Mountain-500 ...	41	3	7.32%
Mountain-100 ...	31	2	6.45%
Mountain-100 ...	36	2	5.56%
Touring-3000 B...	54	3	5.56%
Road-650 Red, ...	75	4	5.33%
Mountain-500 ...	38	2	5.26%
Road-650 Red, ...	39	2	5.13%
Classic Vest, S	157	8	5.10%
Women's Moun...	334	17	5.09%
Touring-3000 Y...	59	3	5.08%
Road-150 Red, ...	139	7	5.04%
Summary	1,174	69	6.05%

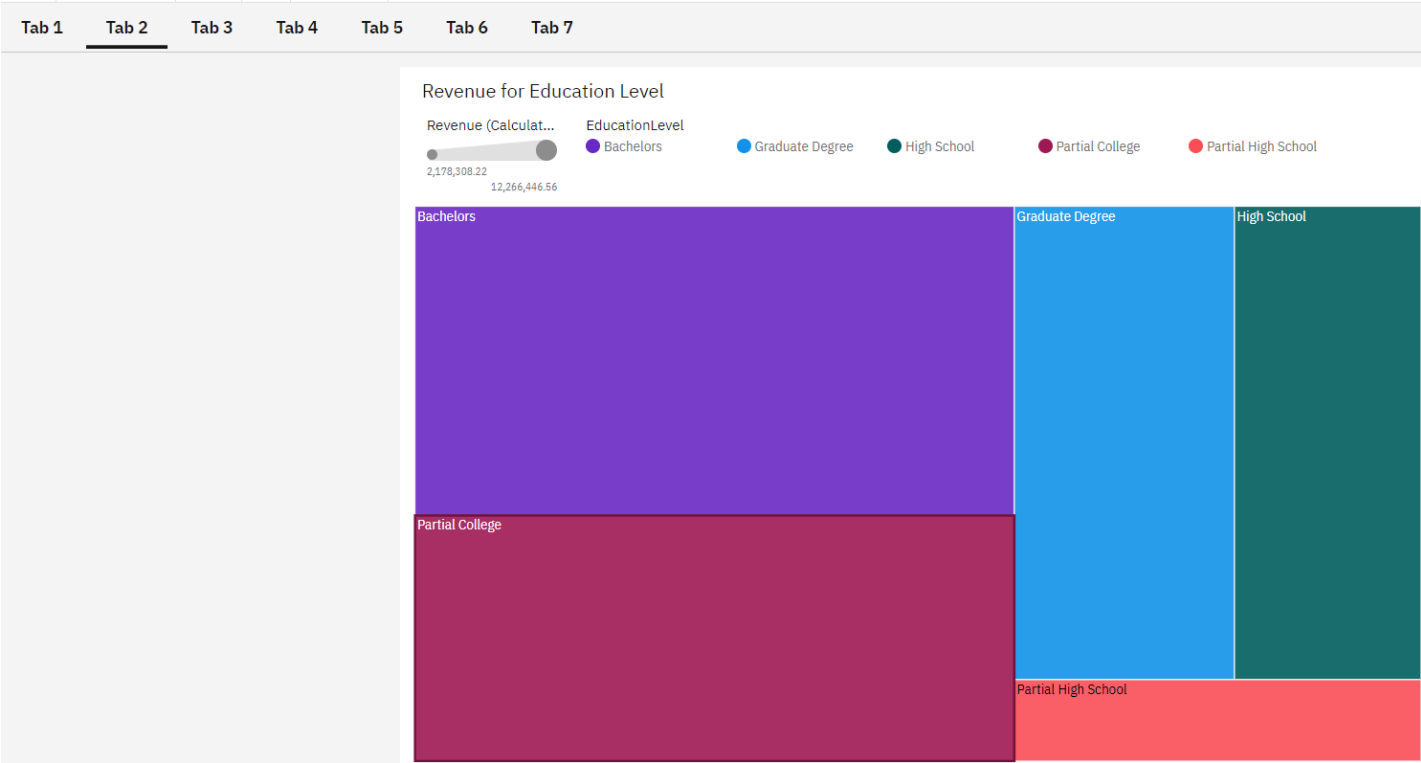
OrderQuantity and ProductName

ProductName	OrderQuantity
Water Bottle - 30 oz.	7,967
Patch Kit/8 Patches	5,898
Mountain Tire Tube	5,678
Road Tire Tube	4,327
AWC Logo Cap	4,151
Summary	28,021

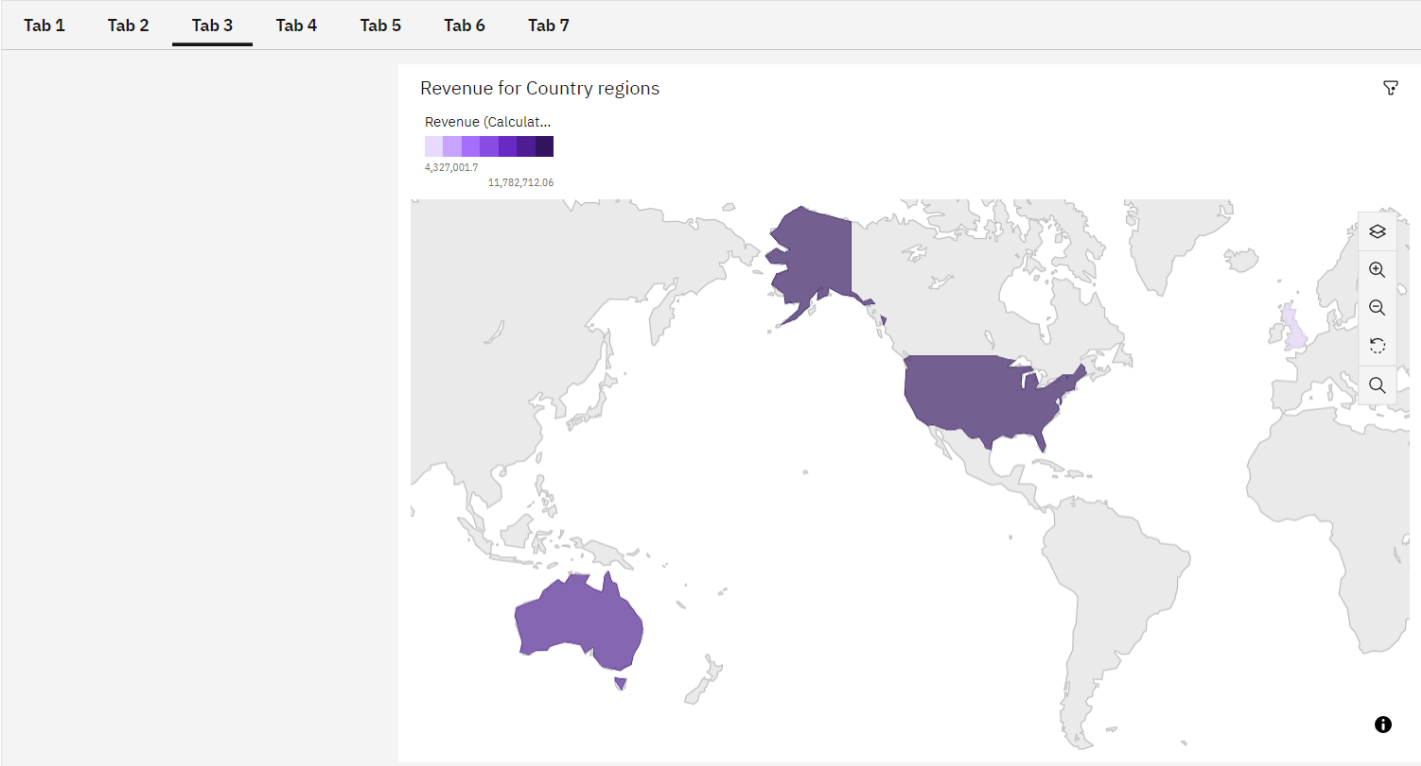
Revenue and ProductName

ProductName	Revenue
Mountain-200 Black, 46	1,241,753.5
Mountain-200 Black, 42	1,233,557.1
Mountain-200 Silver, 38	1,213,851.8
Mountain-200 Silver, 46	1,182,780.5
Mountain-200 Black, 38	1,165,936.8

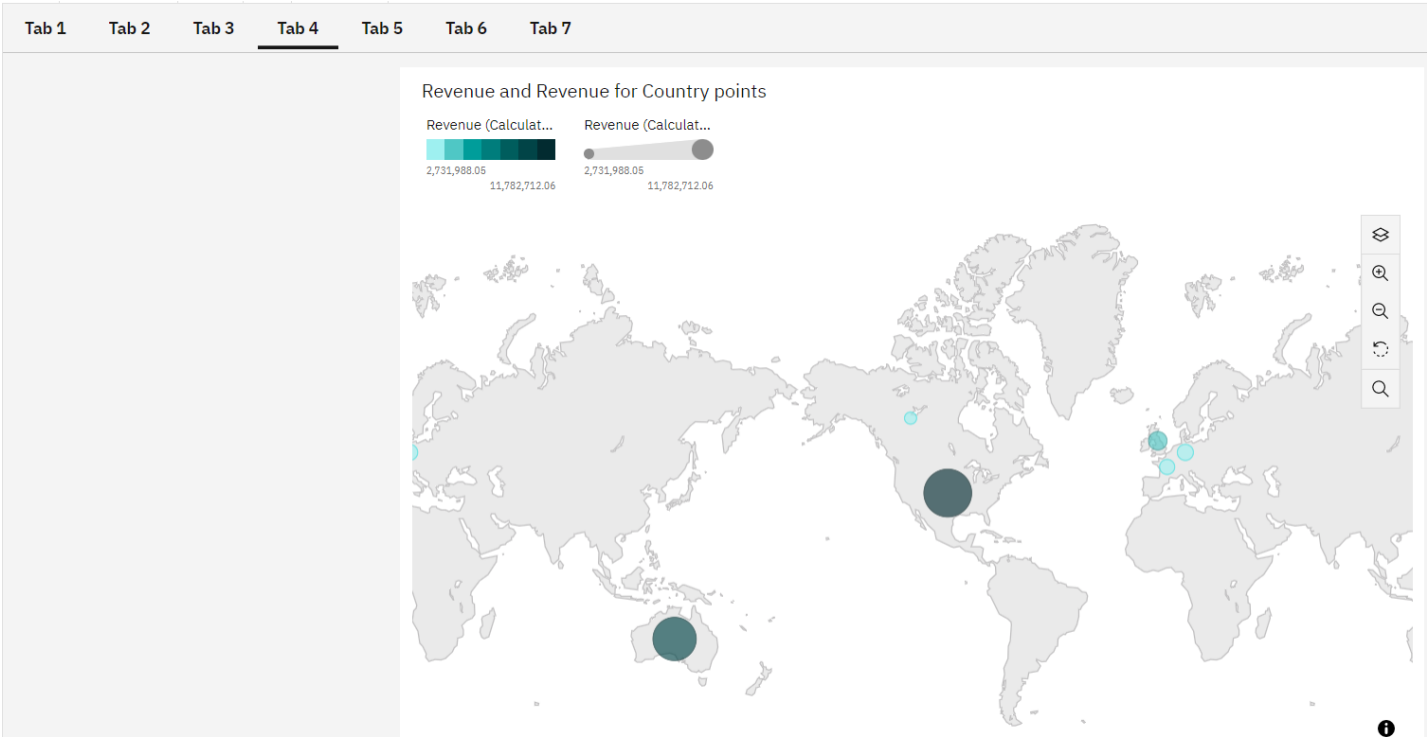
Dashboard Tab-2: Tree map representing revenue for the individuals according to their education levels



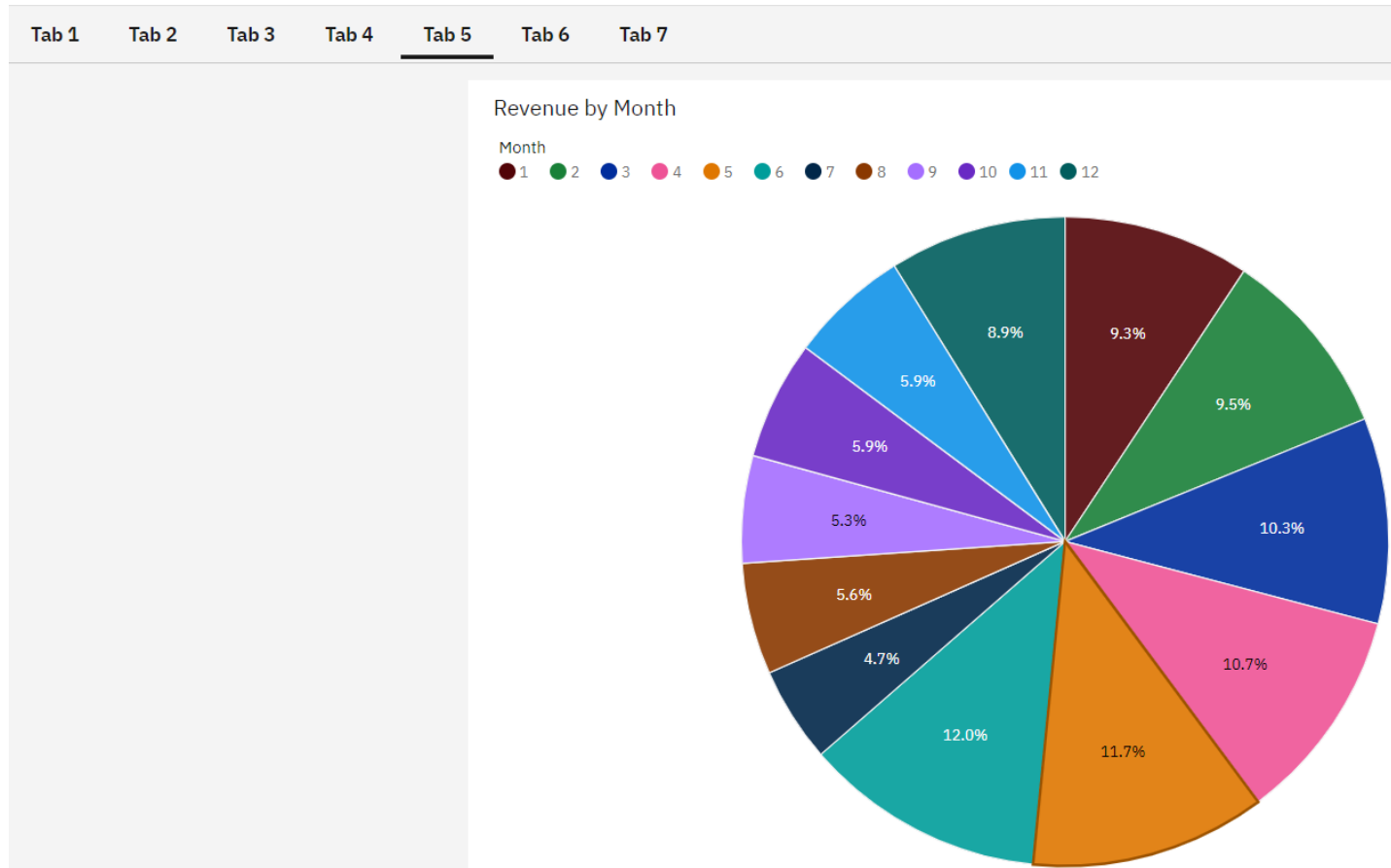
Dashboard Tab 3: Map representing top 3 countries with highest revenues:



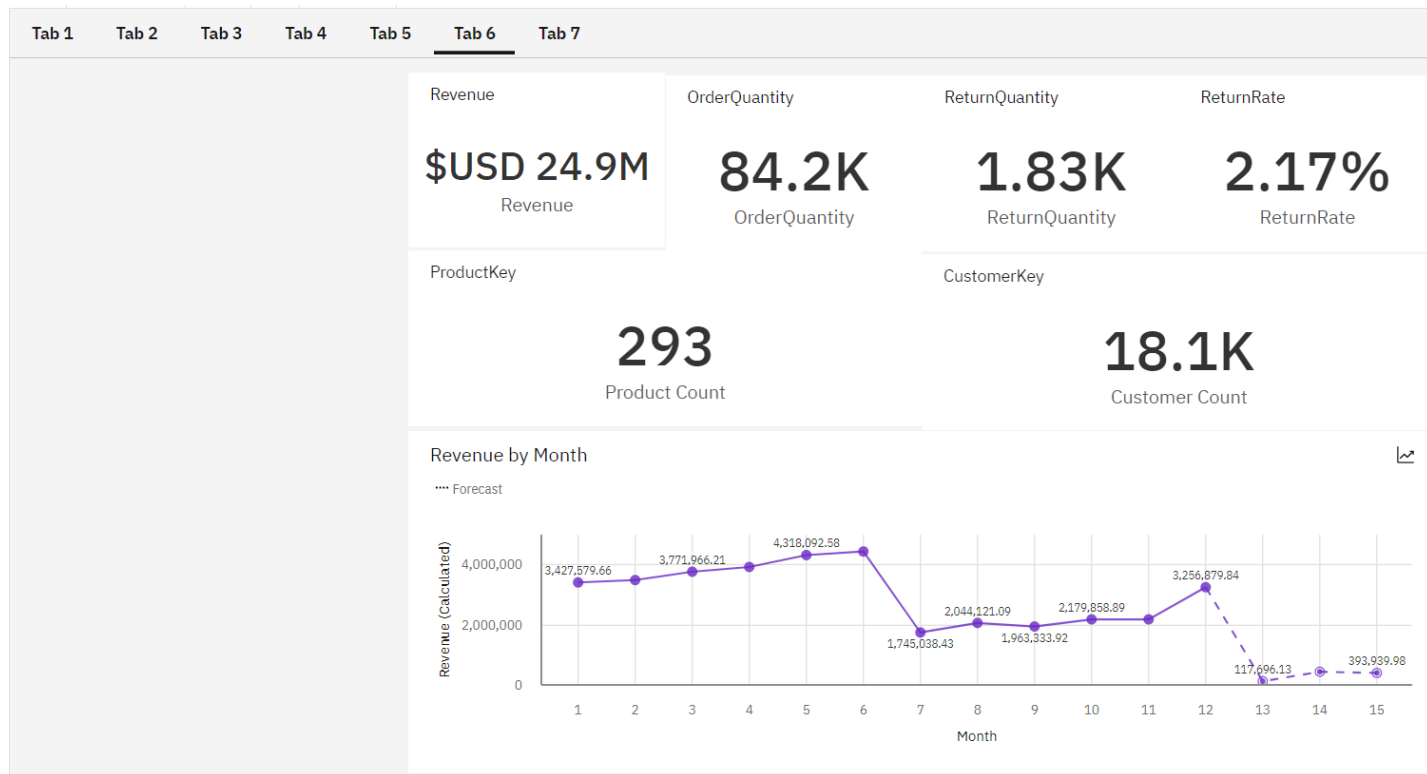
Dashboard Tab 4: Map representing revenue for each country point:



Dashboard Tab 5: Pie chart representing revenue for each month:



Dashboard Tab 6: Cards representing total revenue , number of products ordered, return quantity, rate of returns, total number of products and total number of customers. Line graph representing the revenue for each month along with future revenue prediction using forecasting:



RESULT:

Thus the bicycle sales data analysis guided project has been successfully completed using IBM Cognos.

[Bicycle Sales Analysis by Santosh.V Video Link:](#)

<https://drive.google.com/file/d/1aTJWD9-oxmJcOx7QDCMRSH7Lm6b4U47x/view?usp=sharing>