Bicycle Sales Analytics Using IBM Cognos

A Project Report

Data Analytics

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Link to Video:

Introduction

Overview

Adventure Works is a demo and training database produced for each version of Microsoft SQL Server. "Adventure Works" is a hypothetical major global bicycle manufacturing firm. The firm makes and distributes metal and composite bicycles to commercial customers in North America, Europe, and Asia. While its headquarters are in Washington, with 290 people, various regional sales teams are spread around its market base. Adventure Works Cycles purchased a modest manufacturing business in Mexico in 2000. This facility produces a number of important subcomponents for the Adventure Works Cycles product range. They took over as the sole producer and distributor of the touring bicycle product line in 2001. Following a successful fiscal year, Adventure Works Cycles plans to expand its market share by targeting sales to their best consumers, increasing product availability through an external Web site, and lowering its cost of sales through lower production expenses."

Goal

Goal of this problem statement is to find and provide various Sales Analytics for the improvement of the Organization.

The main objective to do this project was to:

- Know Fundamental concepts and can work on Cognos Analytics
- Able to Analyze the given problem using Forecasting, Trend Lines
- Build Scatter and Density Plots, Correlation Matrix.
- Gain a broad understanding of plotting different graphs
- Able to create meaningful dashboards

Architecture
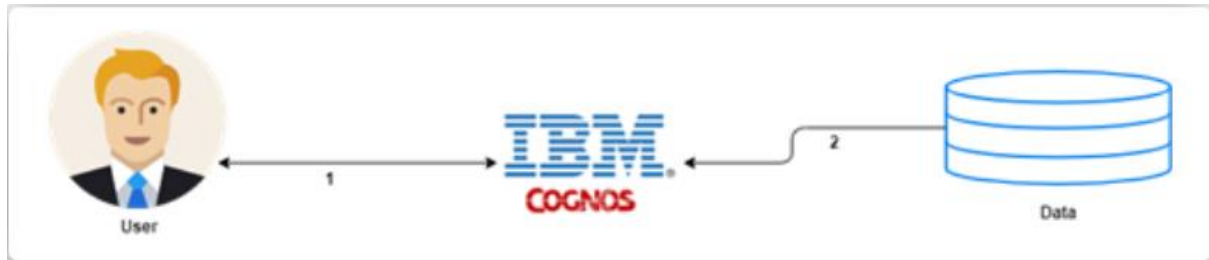
I am using IBM cognos to work work with the dataset of Adventure Works to visualize the feasible solutions and provide various Sales Analytics For the Improvement of the Organization.

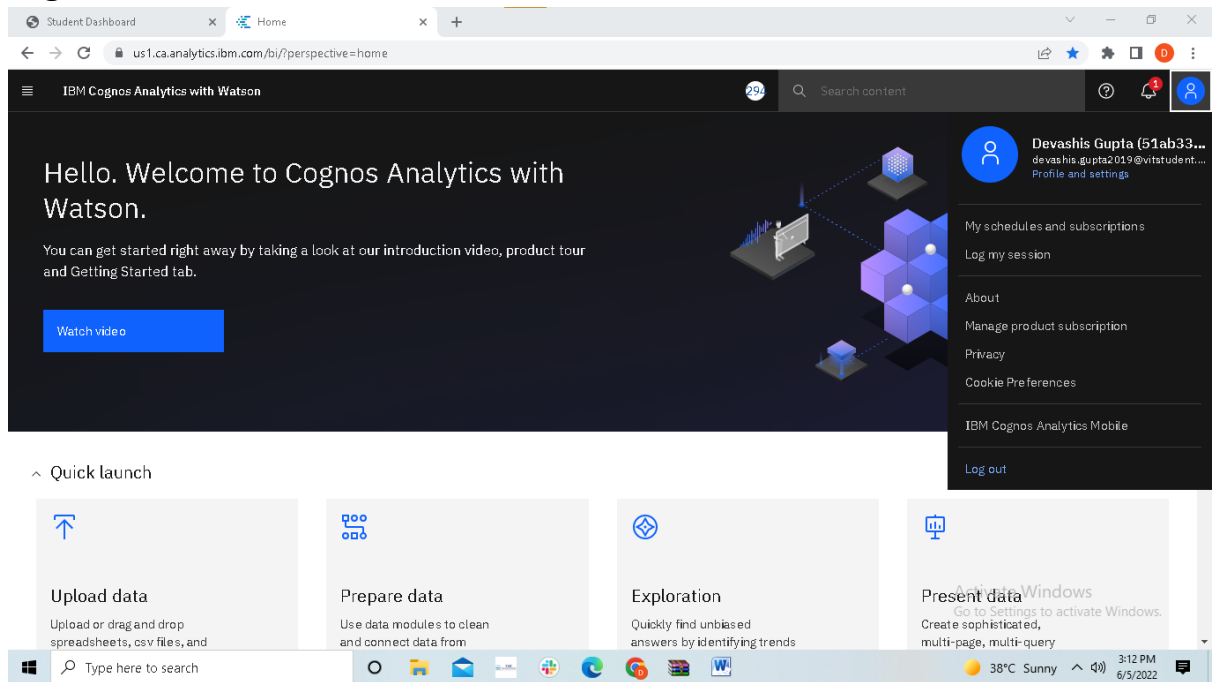## Project Flow:

1. Log in to IBM Account

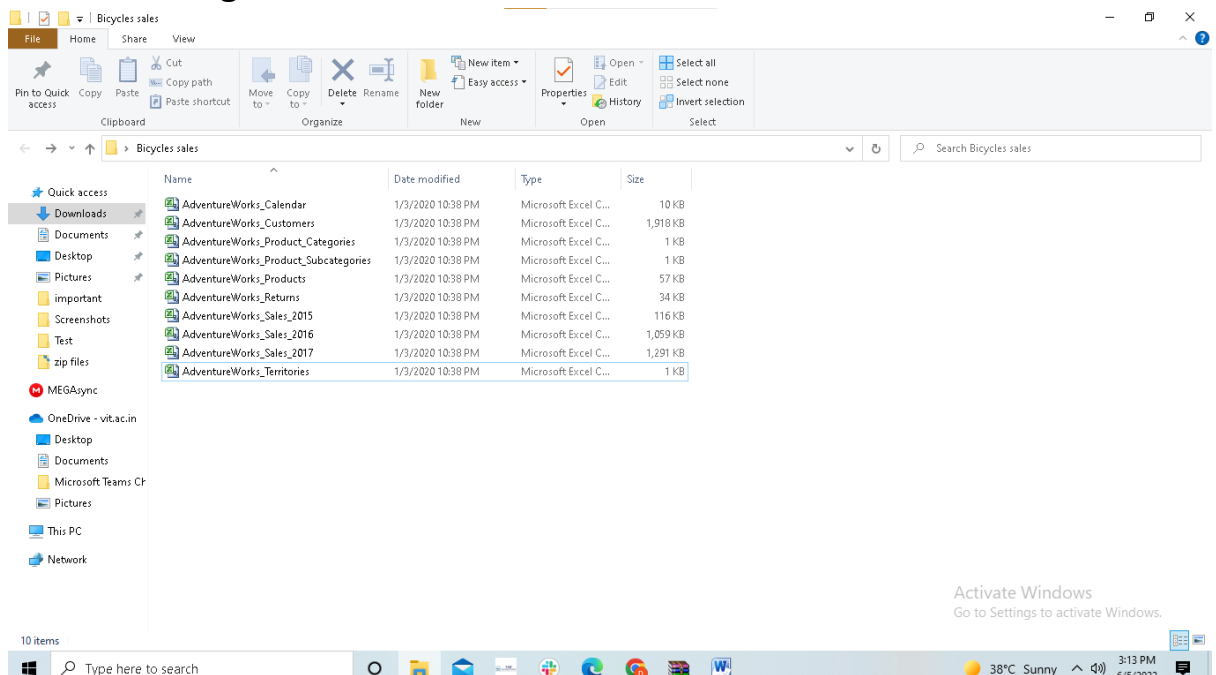Fig: logging in to IBM account

2. Understanding the dataset

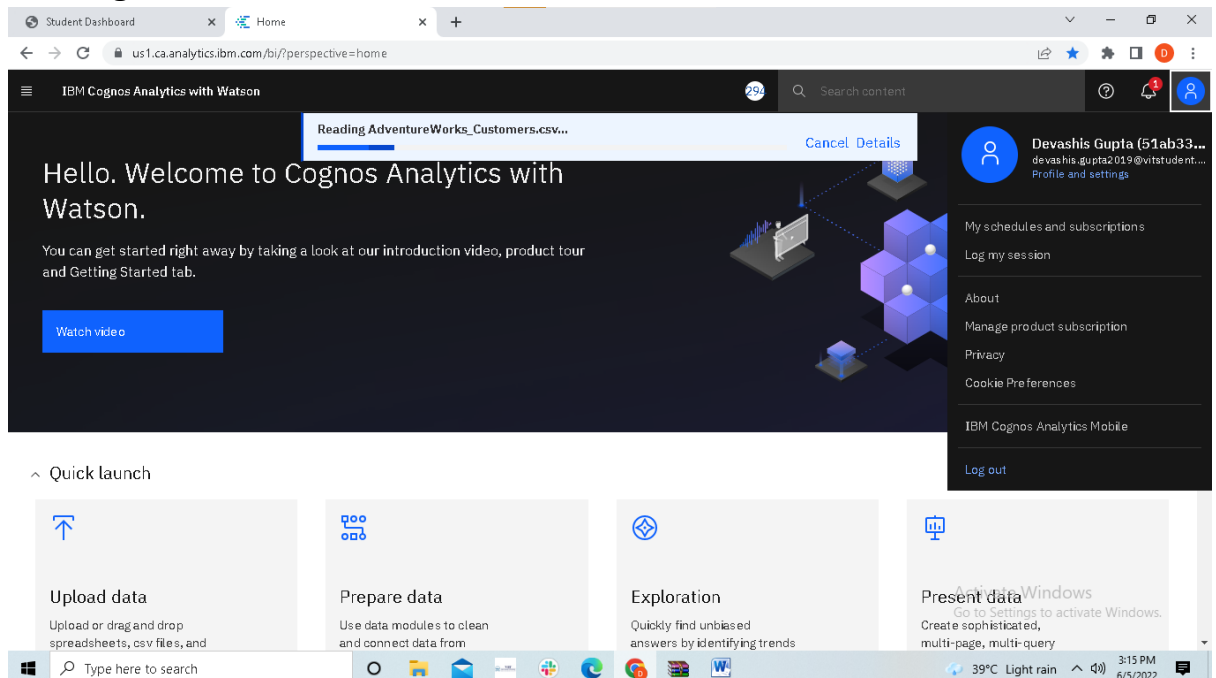Fig: downloading and understanding the dataset

3. Loading Of Dataset

Fig: Uploading all datasets
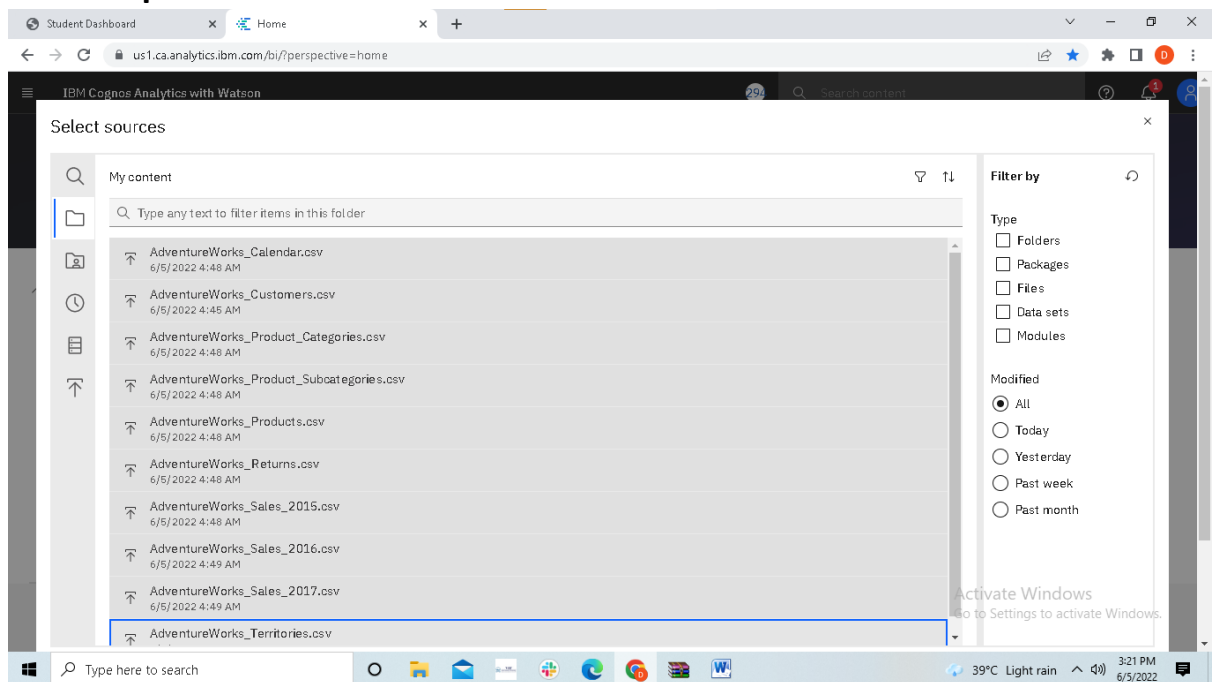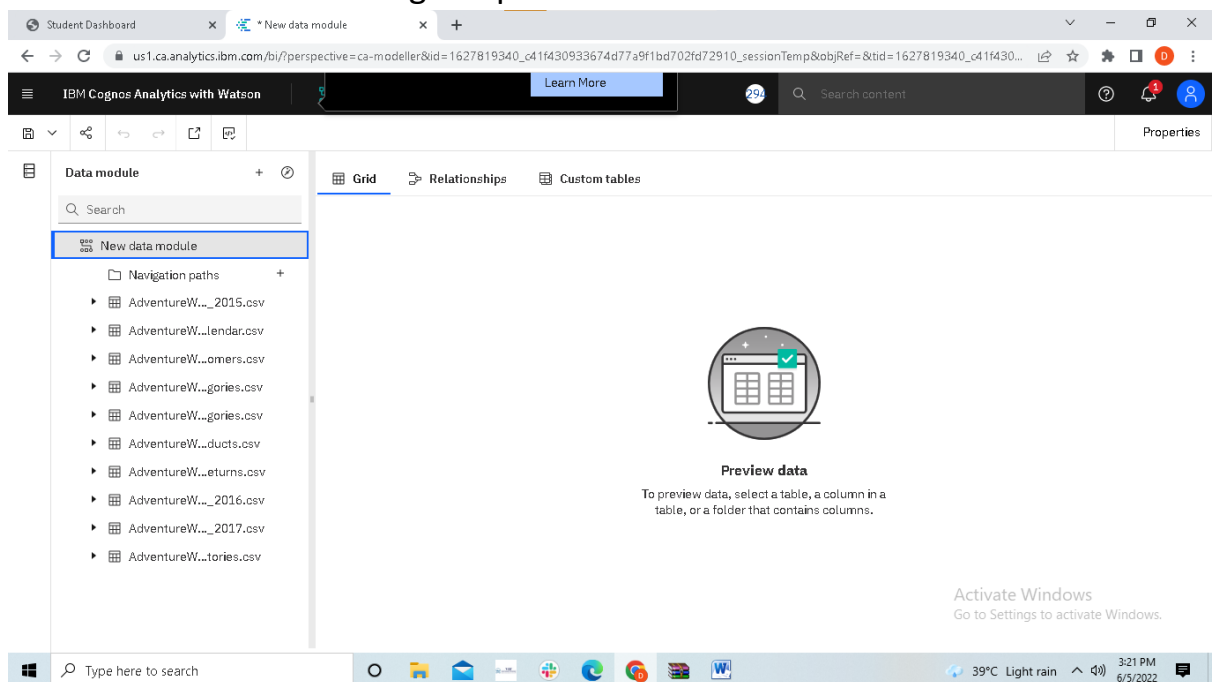
4. Data Preparation – Union And Joins Of The Dataset

Fig: Preparation of data

Fig: loading all dataset in the workbench

Fig: preparation of data by renaming all the datasets.

Fig: Saving the module after performing data preparation
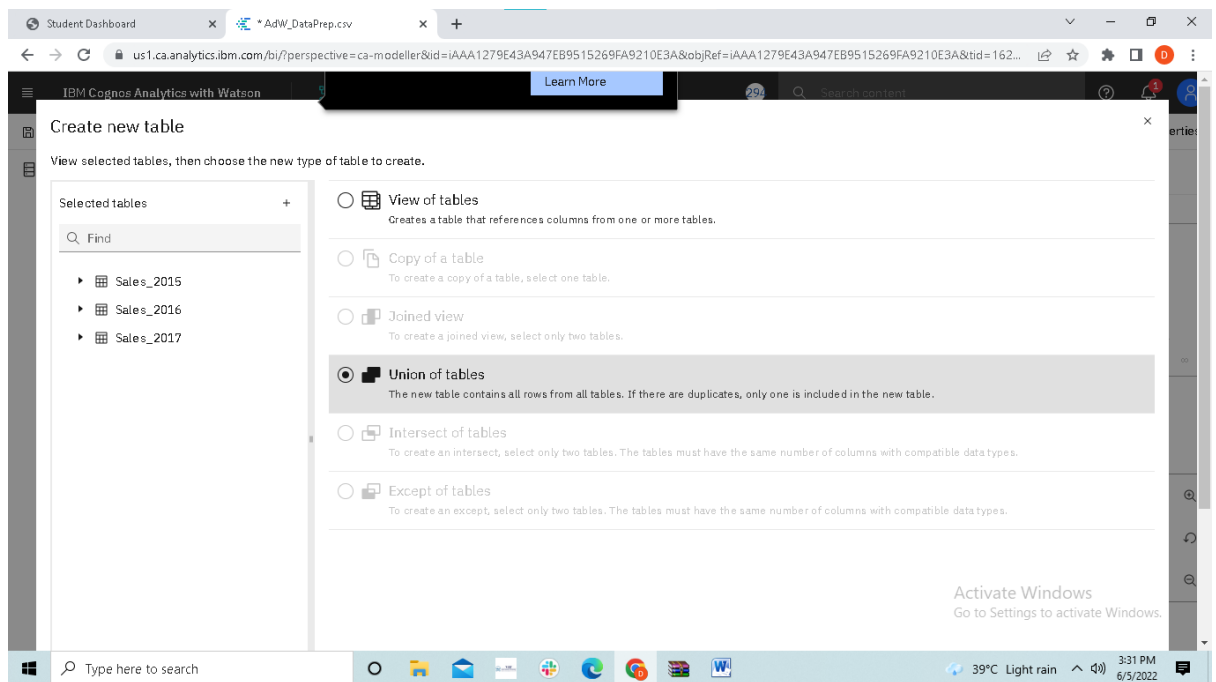
Fig: Create union of sales datasets

Fig: After performing union dataset on sales datasets

Fig: Union of sales dataset

Fig: create relationship between categories and sub-categories and do a join operation.

Fig: again, create relationship between subcategories and products and do join operation.

Fig: create relationship between products and sales_data and do join operation.

Fig: create relationship between products and returns and do join operations

Fig: join operation between customers and sales_data
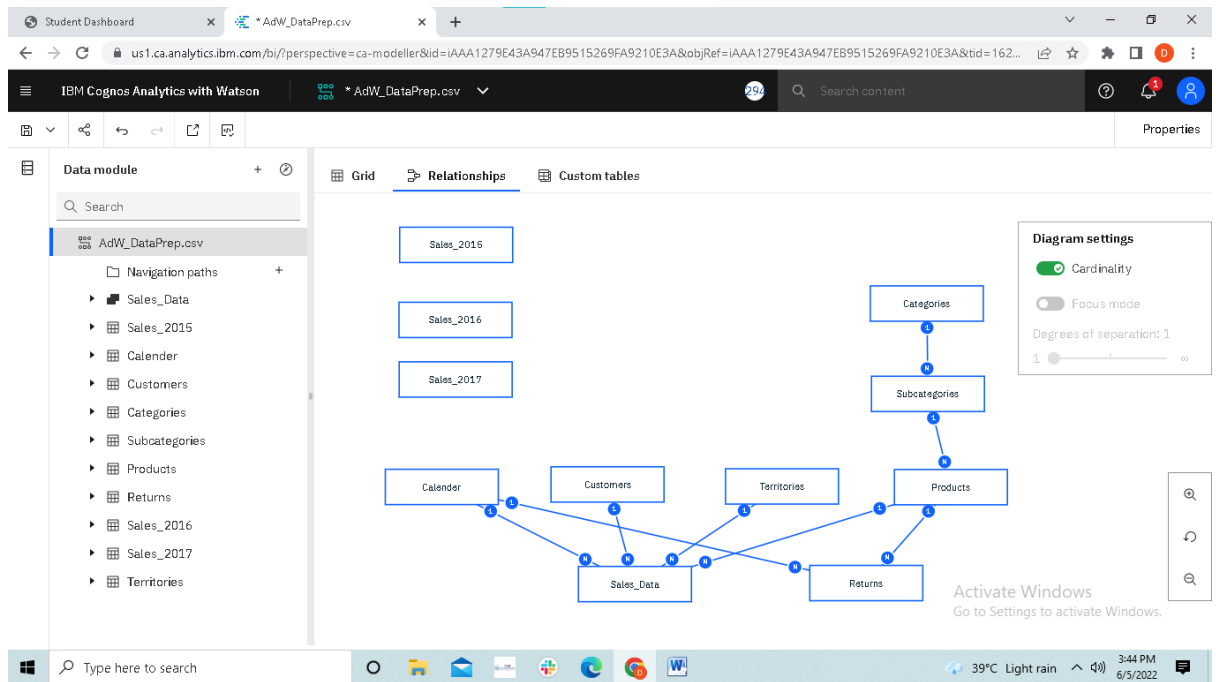
Fig: Relationship established after performing union and join operation

5. Data Preparations-Calculations
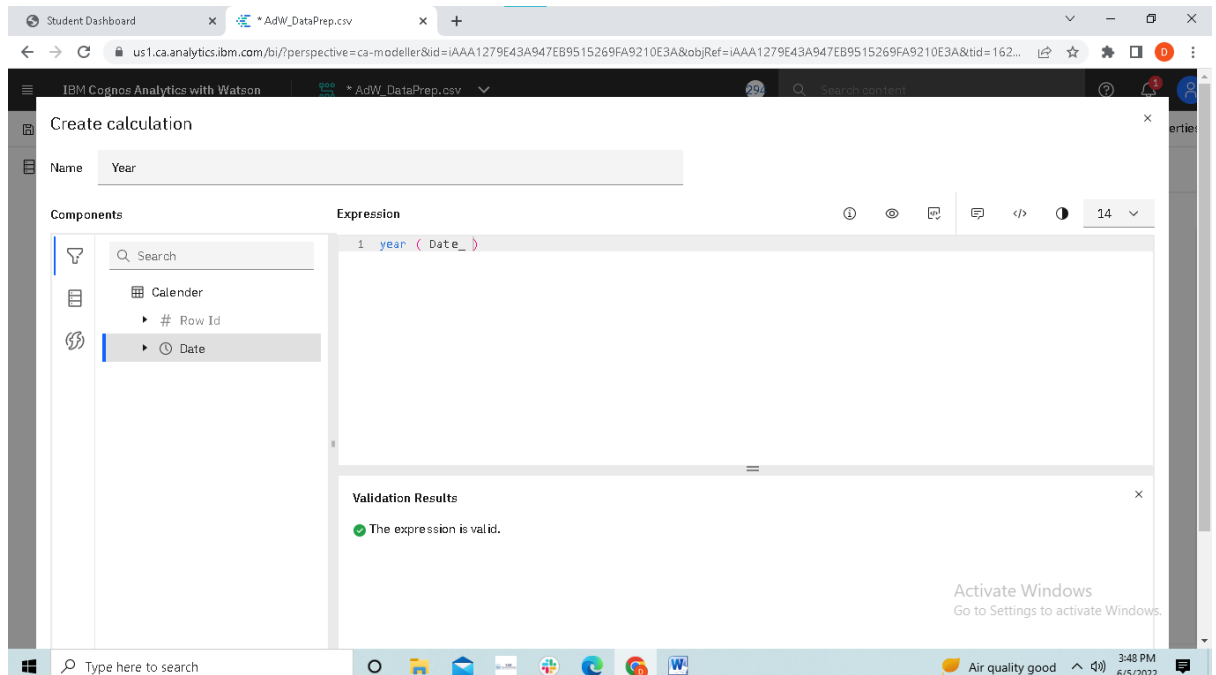
Fig: Performing Year calculation on calendar
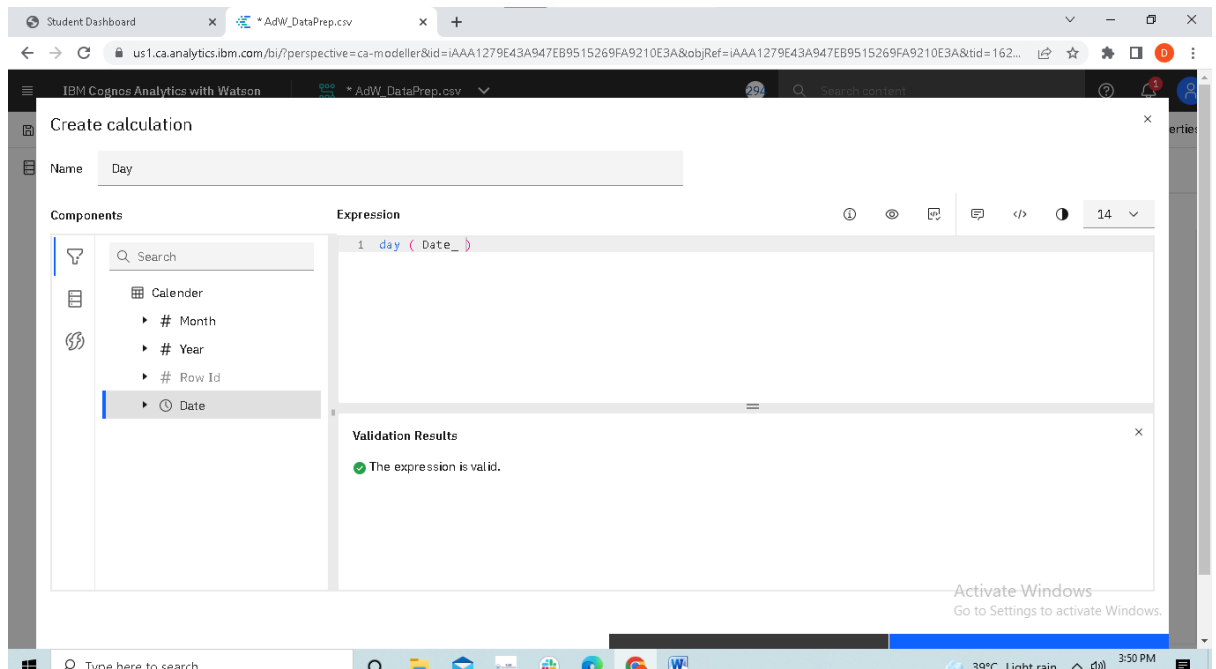
Fig: create calculation for month and date of calendar
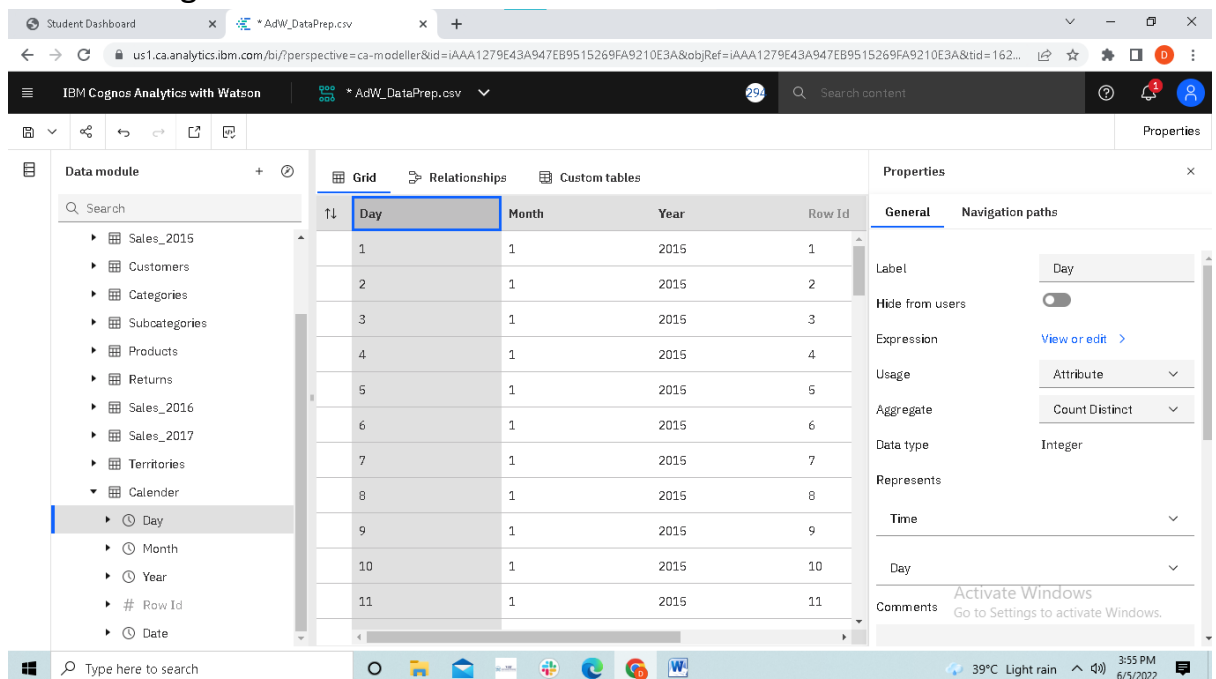
Fig: format the calculated data and update the properties
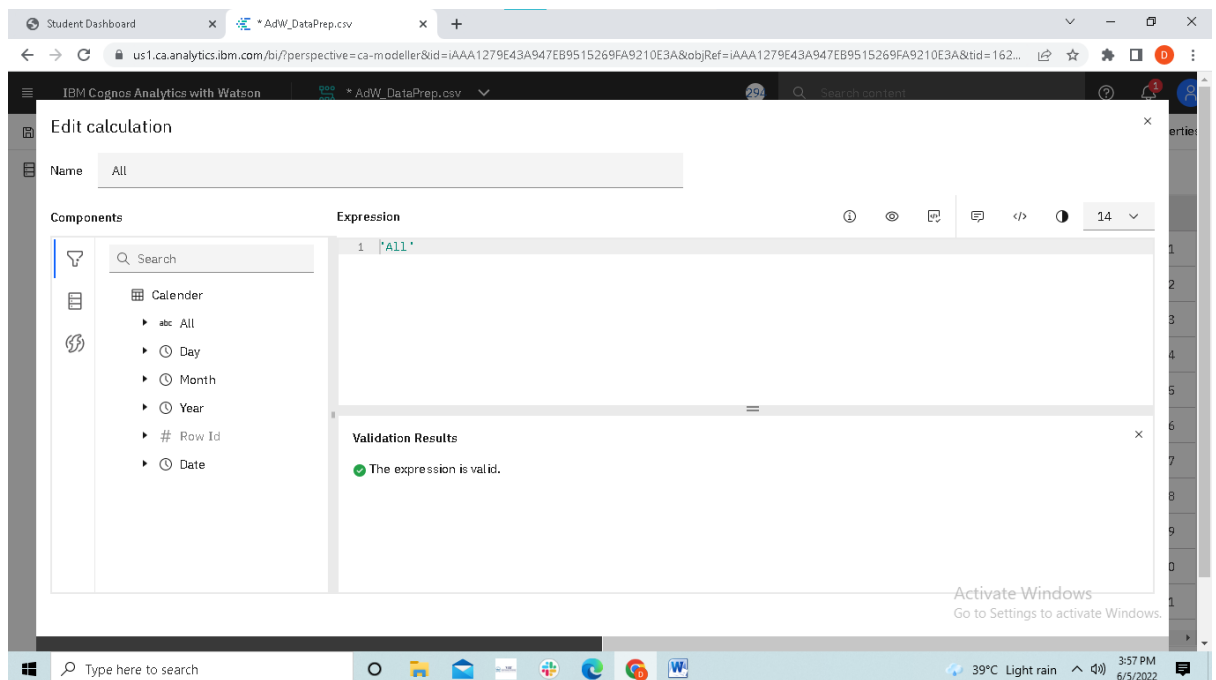
Fig: create calculation for all
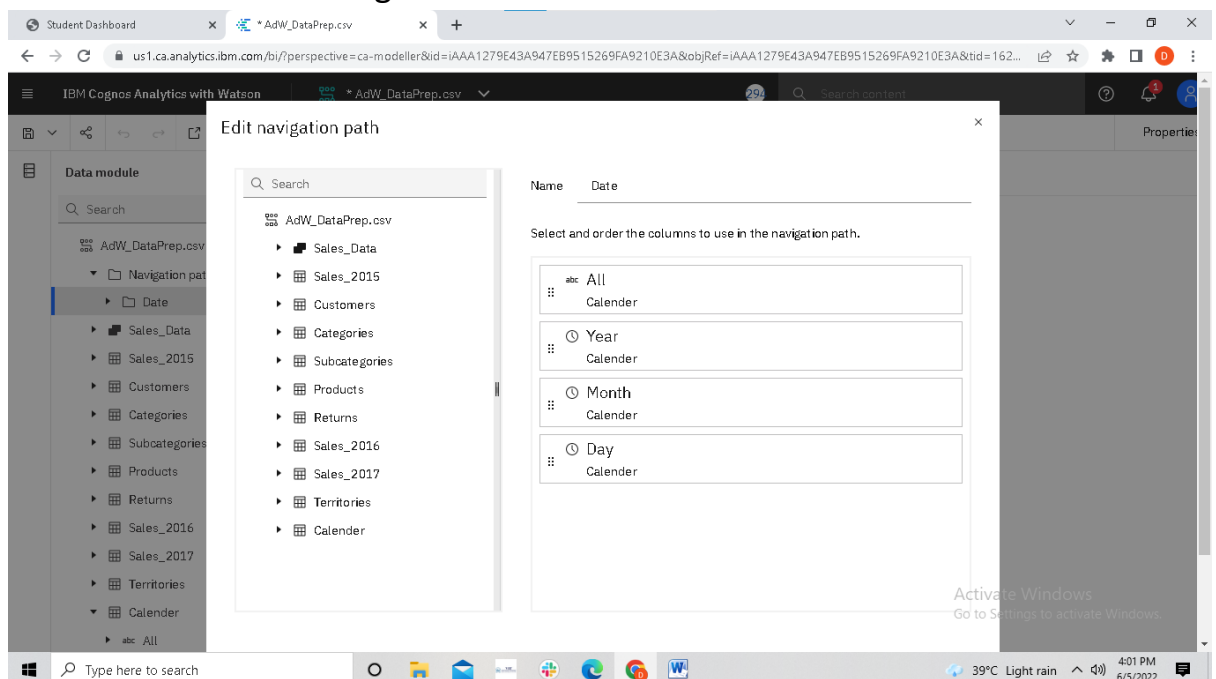
Fig: create navigation path for calendar data

6. Product wise Order Quantity, Return Quantity and Return Rate
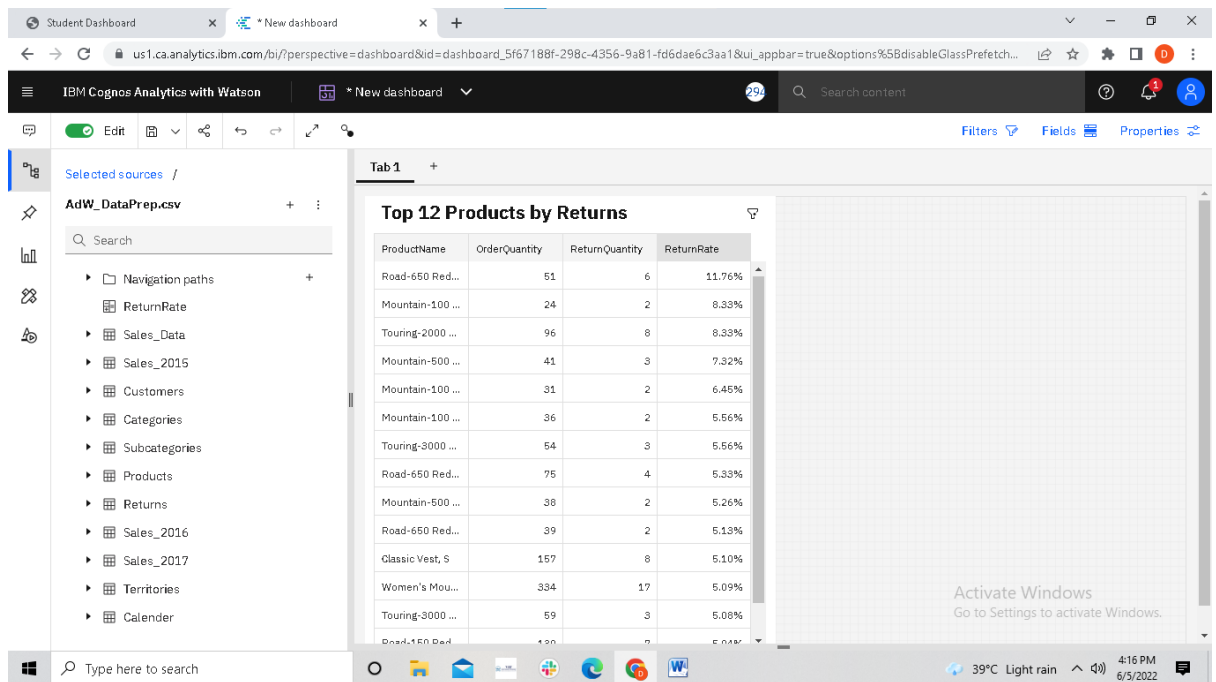
Fig: Top 12 products by
Returns(productName,OrderQuantity,ReturnQuantity,ReturnRate)
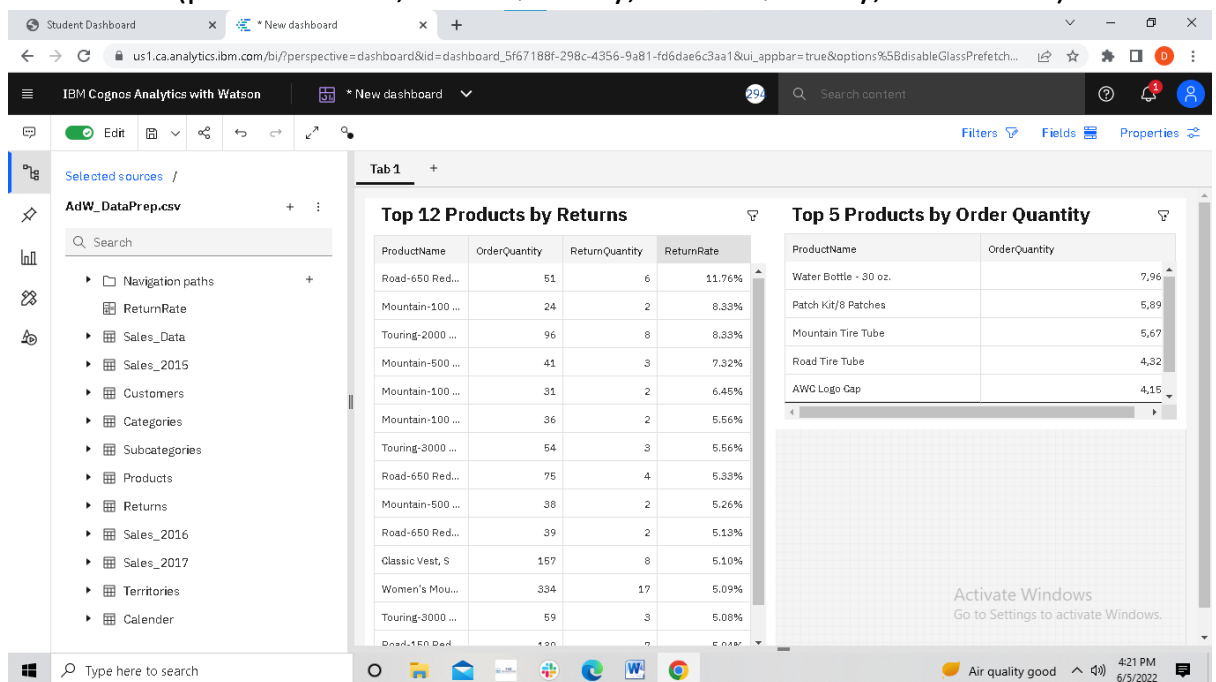
Fig: Top 5 product by OrderQuantity
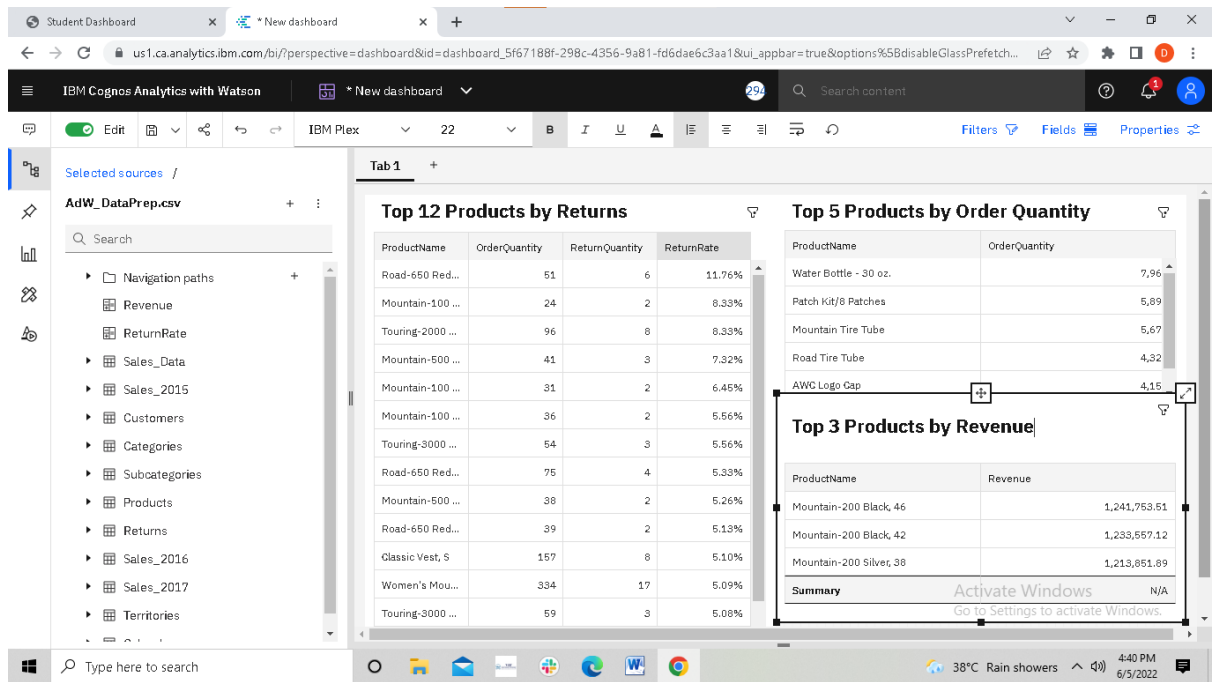
Fig: Top 3 products by revenue

7. Showing the Revenue by Education Level with Tree Map
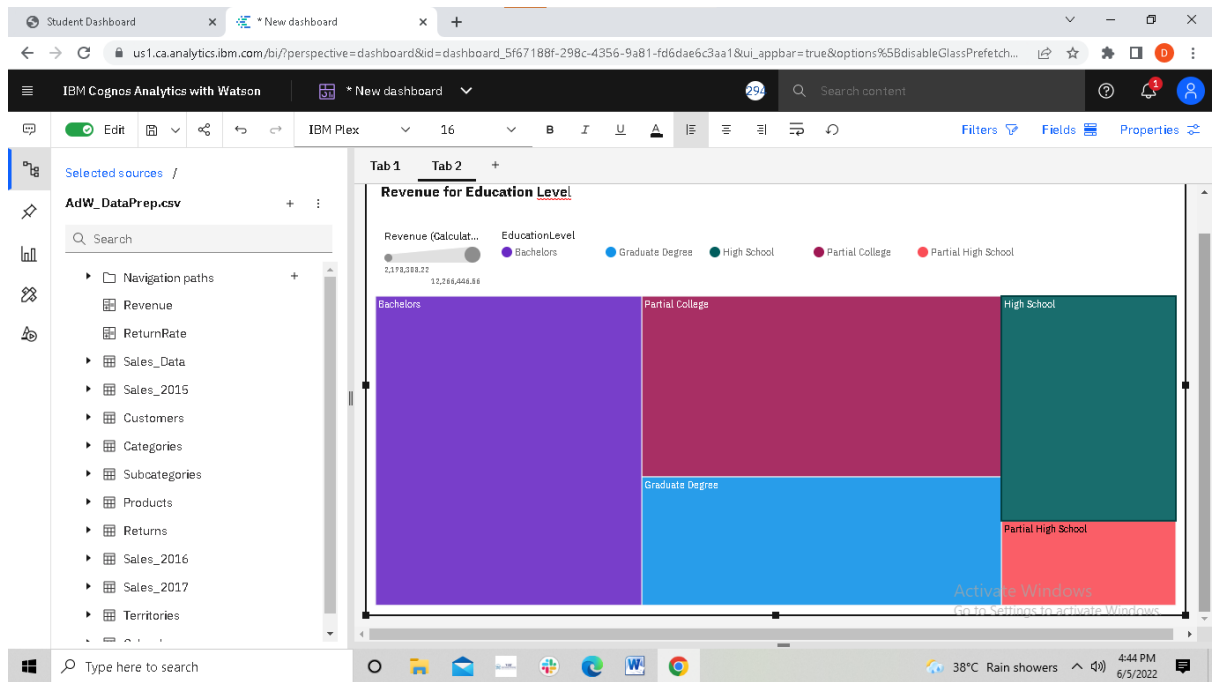
Fig: Revenue for EducationLevel

8. Country Wise Sales using Geographical map.
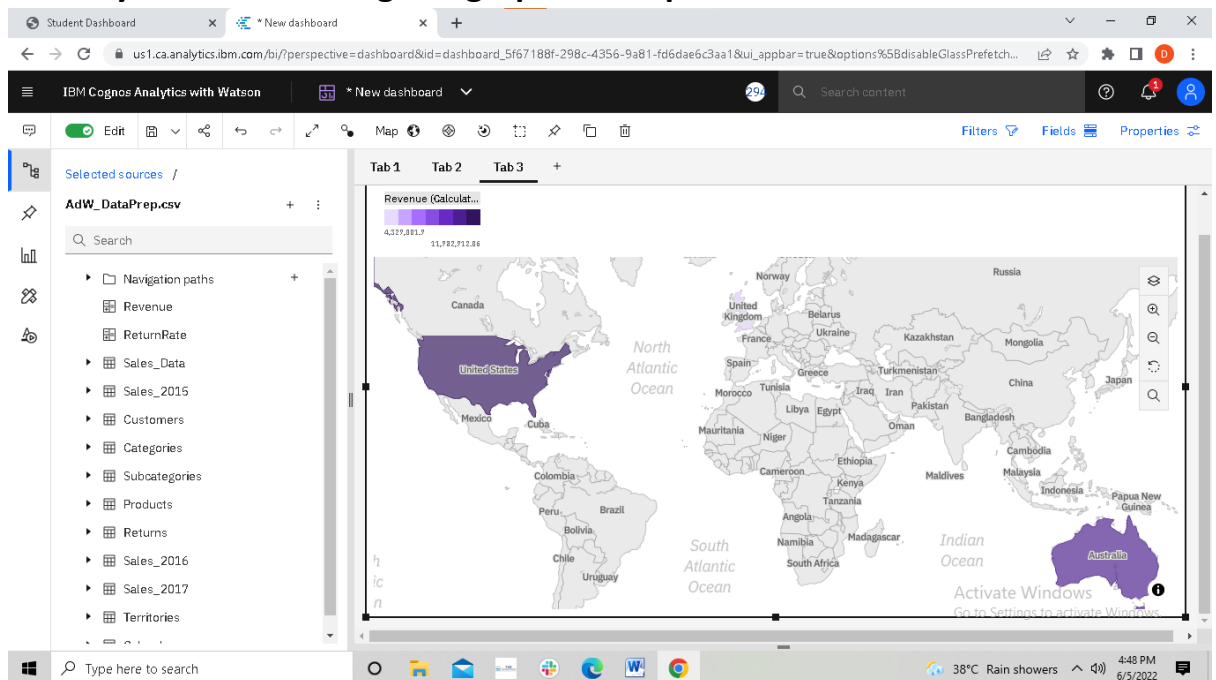
Fig: Revenue for Country Regions
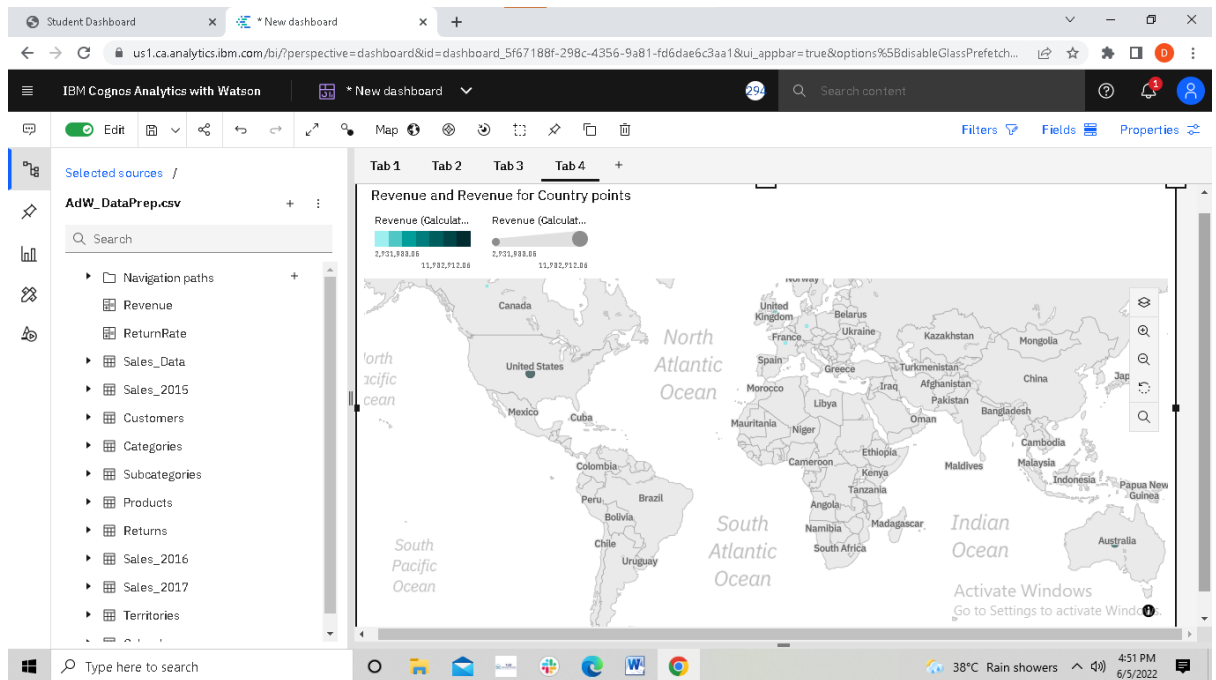
Fig: Revenue and Revenue for Country Points

9. Revenue by month using Pie Chart
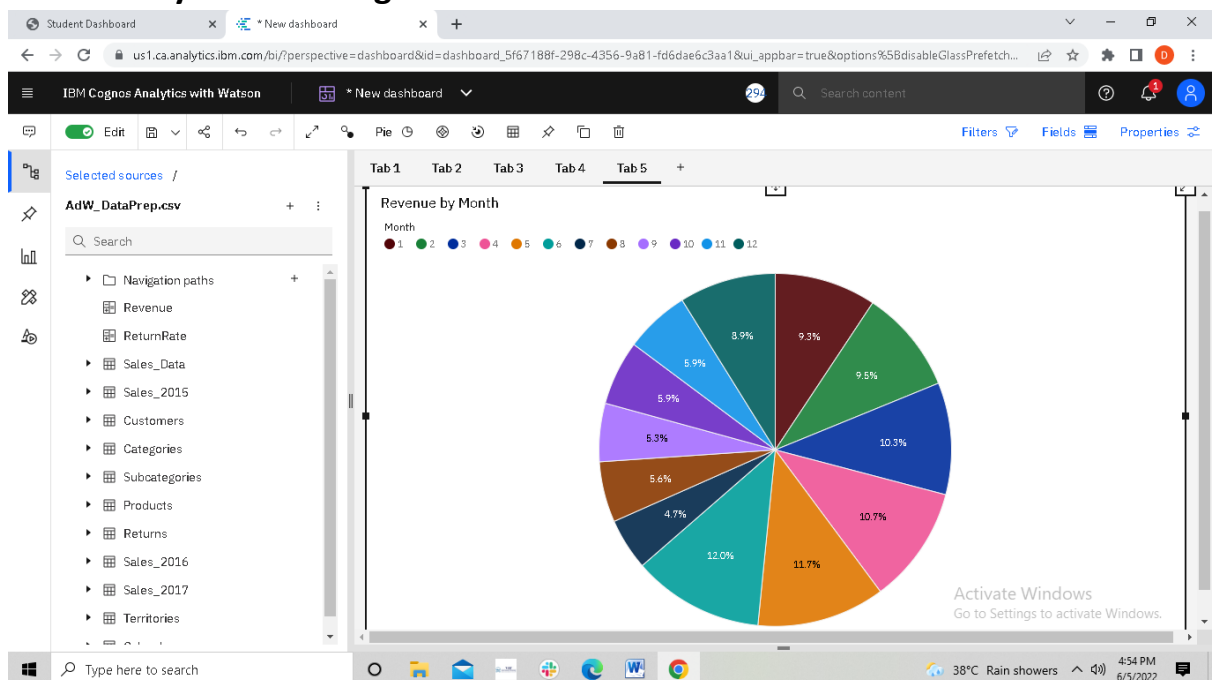
Fig: revenue by month

10. Summary of Revenue, Orders and Returns.
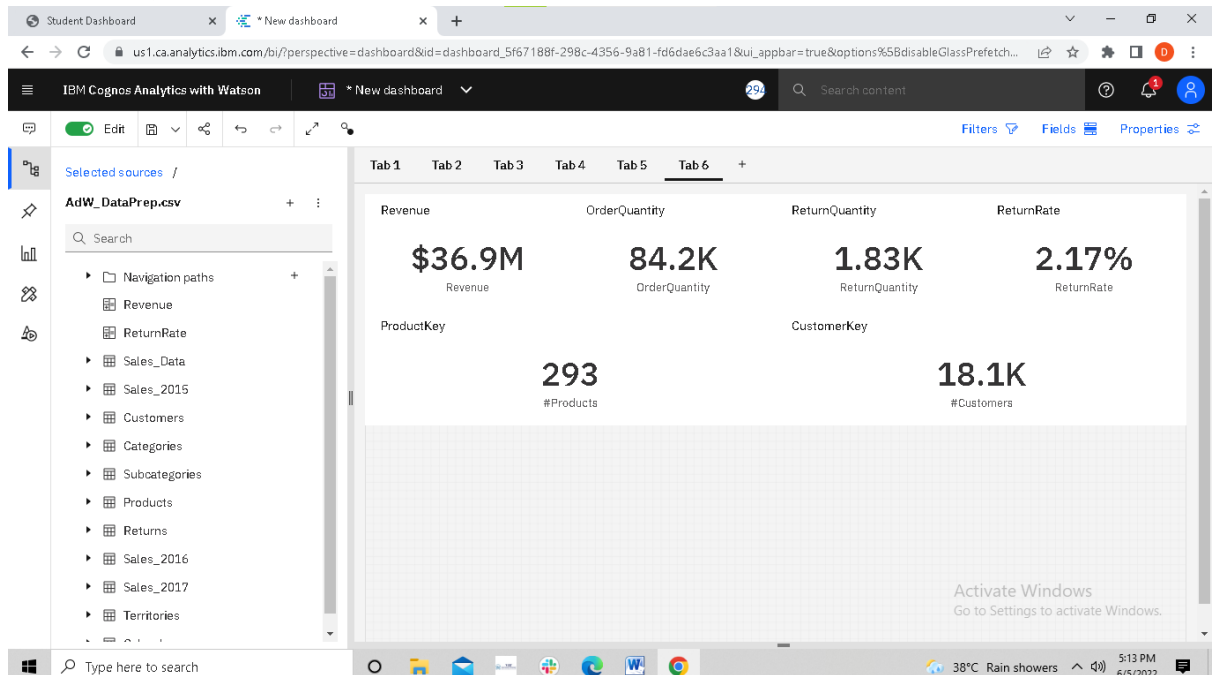
Fig: summary of Revenue order and returns

11. Monthly Forecast of Revenue
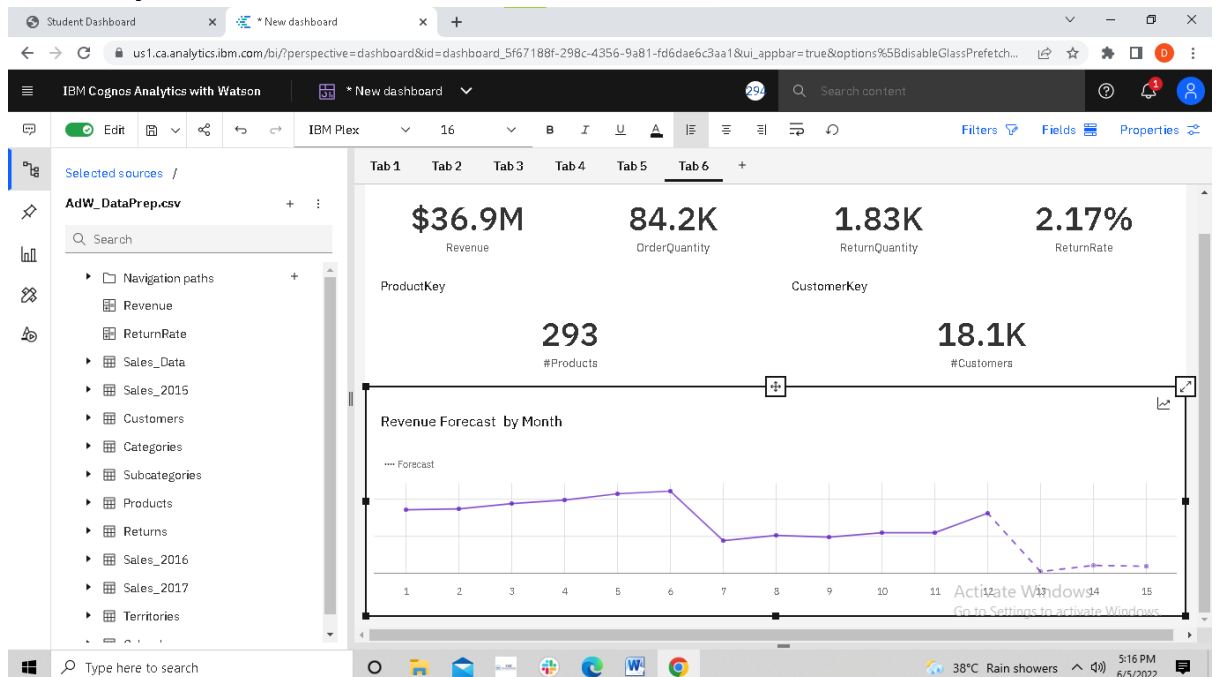
Fig: Revenue Forecast

Advantage and Disadvantage of creating Dashboard

Advantage:

- <u>Enhanced Visibility</u>: Dashboards increase visibility by making information available whenever it is needed, allowing organisations to better adapt to changing market conditions.
- <u>Timesaving Efficiency</u>: We no longer waste significant time creating reports from numerous systems thanks to dashboards. Instead, data is extracted from a source and shown as an easy-to-understand visual summary.
- <u>Better Forecasting</u>: Using historical data, future demand may be more precisely forecasted with more insight into the data. Businesses may prepare for demand variations more effectively, defining quantifiable targets and deliverables for improved success.
- <u>Better Decision Making</u>: A dashboard helps firms to analyse crucial data quickly and thoroughly, whether you're offering reporting and analysis for the entire organisation or functional sections of the business. Visualized interaction is used to convey large volumes of information in an understandable manner. Better business decisions may be made with the capacity to clearly discern what the data truly means.

Disadvantage:

- Users attempting to include too much information without comprehending restrictions or taking into account their individual demands from the spectrum of distinct measurables deep data analysis presents.
- The technology used to create dashboards differs from other software solutions already in use in businesses and might be difficult to grasp at first.
- The company has no set rules or hierarchy for how dashboard analytics are used. This implies that each employee may apply the measurements in a variety of ways, resulting in a diversified collection of data being reported.

Dashboard
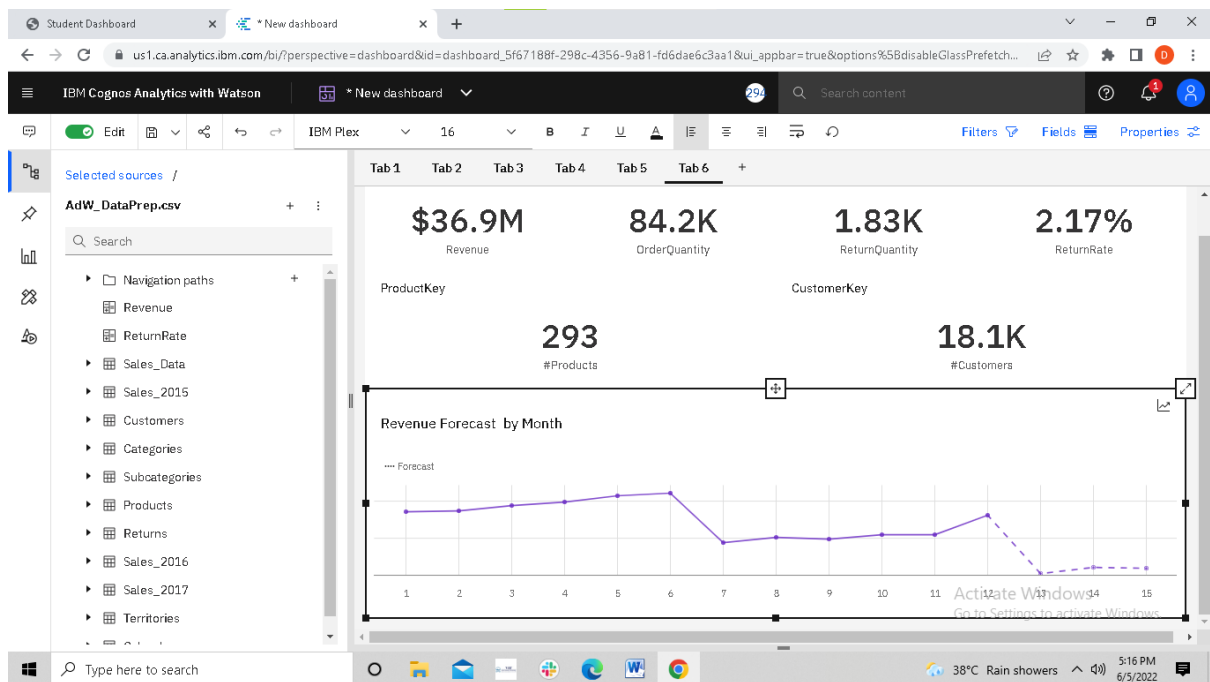
Conclusion

This way, with the help of diagrams, graphs, and maps we can understand given data. This understanding of data allows us to ask the right questions to reach our desired goals by optimizing methods. With this project, we learned how to upload and prepare data. We also statistical concepts which helped in calculations and plotting of graphs and maps to make a dashboard.