



Module Title:	Business Intelligence & Visualization
Module Code:	B9BA104
Module Leader:	Clive Gargan
Assessment Title	Data Analysis & Visualization
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## **Introduction**

This Report aims to analyze European sample store data. This data contains order related data of a super store across different category and sub category for European countries for the year 2011 to 2014. Different metrics related to order like Sales, Profit, Profit Ratio, Discount, Quantity and other metrics has to be analyzed for different regions, country, category, subcategory and product.

The Data came from Tableau public sample and licensed to use for study purpose, Hence data is legitimate source for the analysis. Sample data contains 10000 rows and 20 columns.

## **Objective of the Visualization**

The Primary objective of the visualization is to analyze the Sales, Profit figures at different granular level. Different metrics like Sales, Profit, Discount are analyzed at category level, Sub category Level, Regional Level, across country, over different year. Factors analyzed are like top Sales across subcategory, Country with highest Sales and Profit, Top N and Bottom N Profit for product. The following Insights are made:

## **Insights intended to show**

The main agenda is to get insight into which country, category, subcategory, segment are doing well in terms of sales made and profit gained out of it. How much discount was applied for particular sale. To analyze top and Bottom Profits for Product. Following are in detail insights aimed with the dashboards and story created

1. Sales and Profit Overview
  - a. To get insight how Sales, Profit are doing across country, highlight top performing country with darker colors and country with least profit to be highlighted in orange color
  - b. To analyze Sales, Profit figures for each region across the date ordered

- c. To find out Sales and Profit made for each Category and Subcategory and get overview of profit made for particular sale
2. Sales Overview
  - a. To analyze how much sales was done for each country to highlight the country with highest sales with darker colors
  - b. To analyze Sales figures for each segment and shipment mode
  - c. To find out Top 5 Sales across different sub category
3. Profit Overview
  - a. To analyze how much Profit was made for each country and to highlight the country with highest profit with darker colors
  - b. To analyze Profit figures for each region and order date (across year)
  - c. To find out Profit across Category, Subcategory
4. Quantity and Discount Overview
  - a. Analyze Quantity Sold and Profit made across category
  - b. Analyze Sales made and discount applied on Sales across category and Sub Category
  - c. Quantity sold and Discount applied for each product and segment
5. As Profit is one of the main metric to evaluate how business is performing listed Top N and Bottom N(dynamic value can be provided) Profits for each product
6. To visualize profit clusters/ranges

### Visualization Process:

EU Superstore Story is collection of all the dashboards to give holistic picture of the analysis done to analyze EU Superstore order details. It gives overall picture on how sales, Profit figures are at different level. How much quantity of order were sold and what was discount applied. What are top 5 Sales, what are top N and bottom N Profits made for particular product. below figure shows the screenshot of EU Superstore story

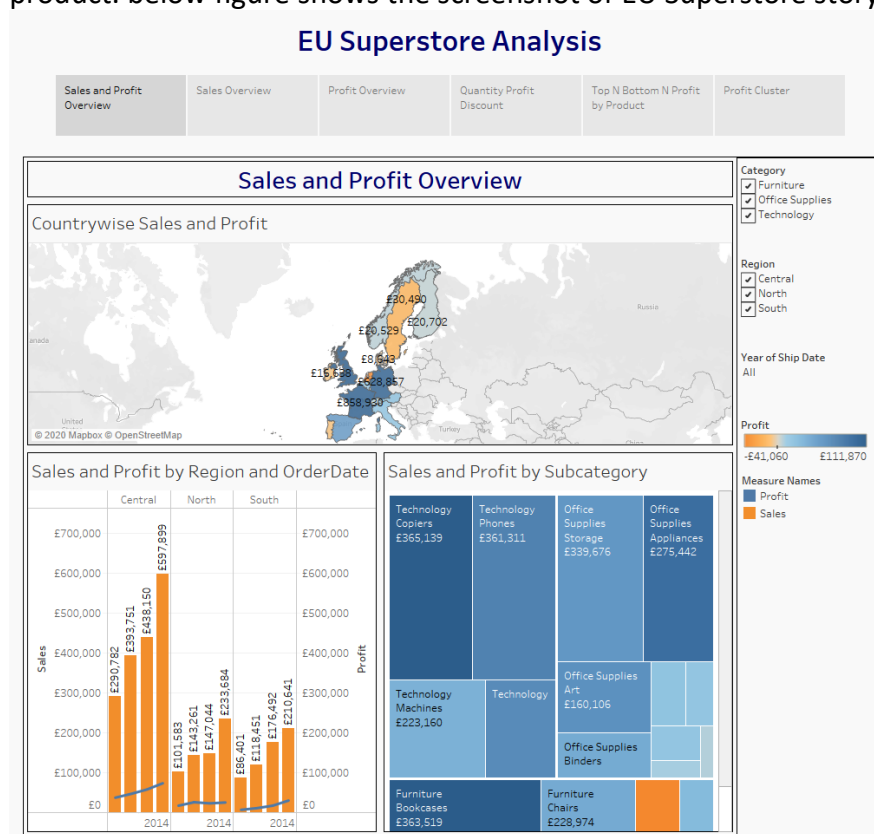


Figure 1: EU Superstore story

## 1. Sales and Profit Overview

Sales and Profit Overview Dashboard gives overview of how Sales and Profit figures for each country, region, category and sub category. Map has been chosen as country is demographic object to show sales and profit figure for each country. Countries with negative profits are shown in orange color to highlight low profit and with highest sales and profit is highlighted with dark blue color. The Dashboard **is interactive with Filter Action** being added if any country is selected in the country wise sales and profit map other two visuals get filtered accordingly enabling drilldown functionality. Sales and Profit by region and Order Date is combination chart which shows Sales and profit figure for each region across year, Profit is shown with line visual and sales with Bar graph, dual axis has been enabled to visualize the same. Tree map for sales and profit has been created for Category and Subcategory depicting the hierarchy. Filters Category and Region provided in the dashboard gives additional interactivity to analyze the sales and Profit.

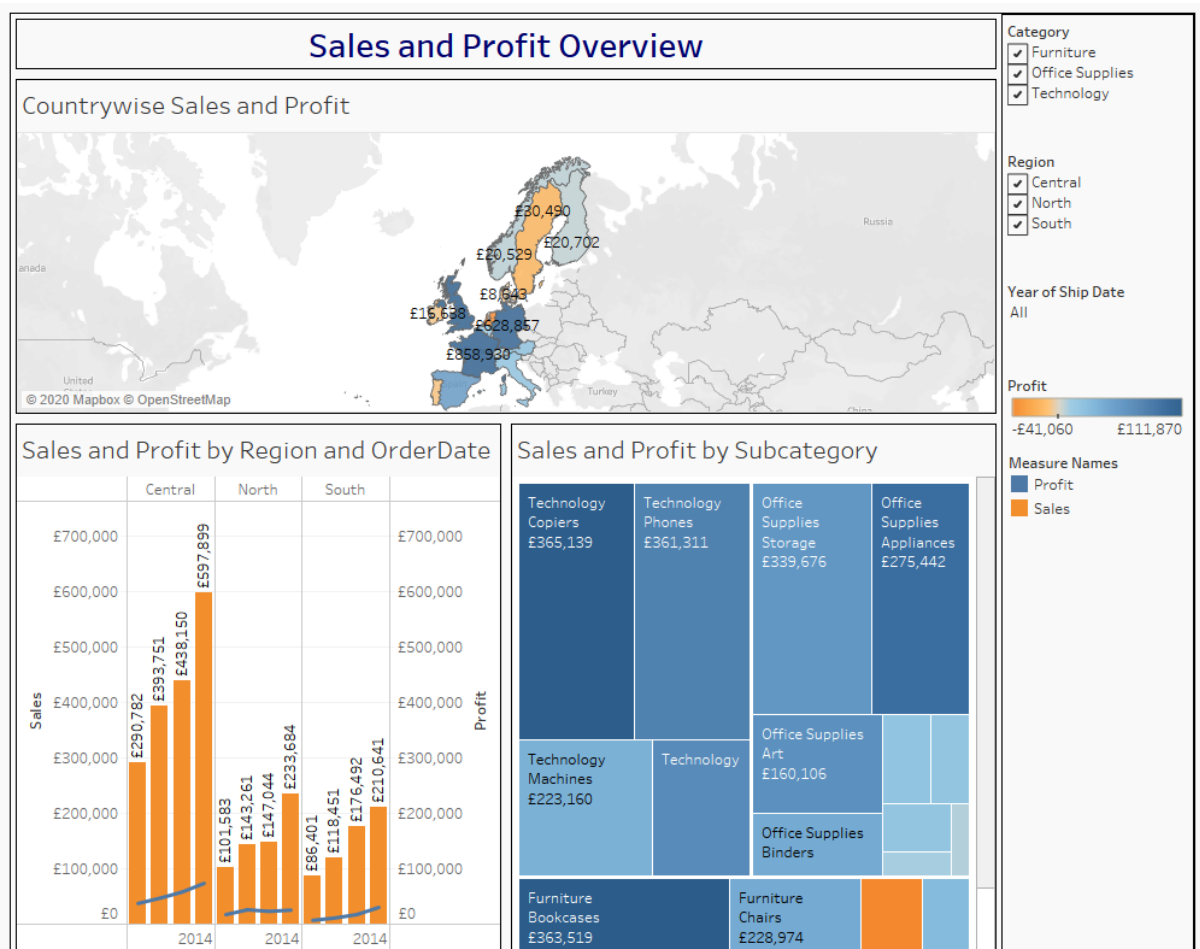


Figure 2: Sales and Profit Overview Dashboard

Edit Filter Action

Name:
Filter1

Source Sheets

Sales and Profit Overview

☒ Countrywise Sales and Profit  
☐ Sales and Profit by Region and OrderDate  
☐ Sales and Profit by Subcategory

Run action on:  

Hover

Select

Menu

☐ Run on single select only

Target Sheets

Sales and Profit Overview

☒ Countrywise Sales and Profit  
☒ Sales and Profit by Region and OrderDate  
☒ Sales and Profit by Subcategory

Clearing the selection will:  
☐ Leave the filter  
☒ Show all values  
☐ Exclude all values

Target Filters

☐ Selected Fields    ☒ All Fields

Source Field	Target Field	Target Data Source

Add Filter...    Edit...    Remove

Figure 3: Action filter applied in Sales and Profit overview dashboard with Hover functionality

## 2. Sales Overview

Sales Overview Dashboard gives overall sales by country, segment with different shipment mode and Top 5 sales for subcategory. Sales by country shows country wise sales, Map visual is chosen as country is demographic object. The Dashboard is **interactive with Filter Action** being added if any country is hover over in the country wise sales map other two visuals get filtered accordingly enabling drilldown functionality. Segment wise stacked chart showing sales for each segment for different shipment mode, consumer segment is with highest sales. Third graph shows top 5 sales by subcategory. Filters on category and subcategory provides additional interactivity.

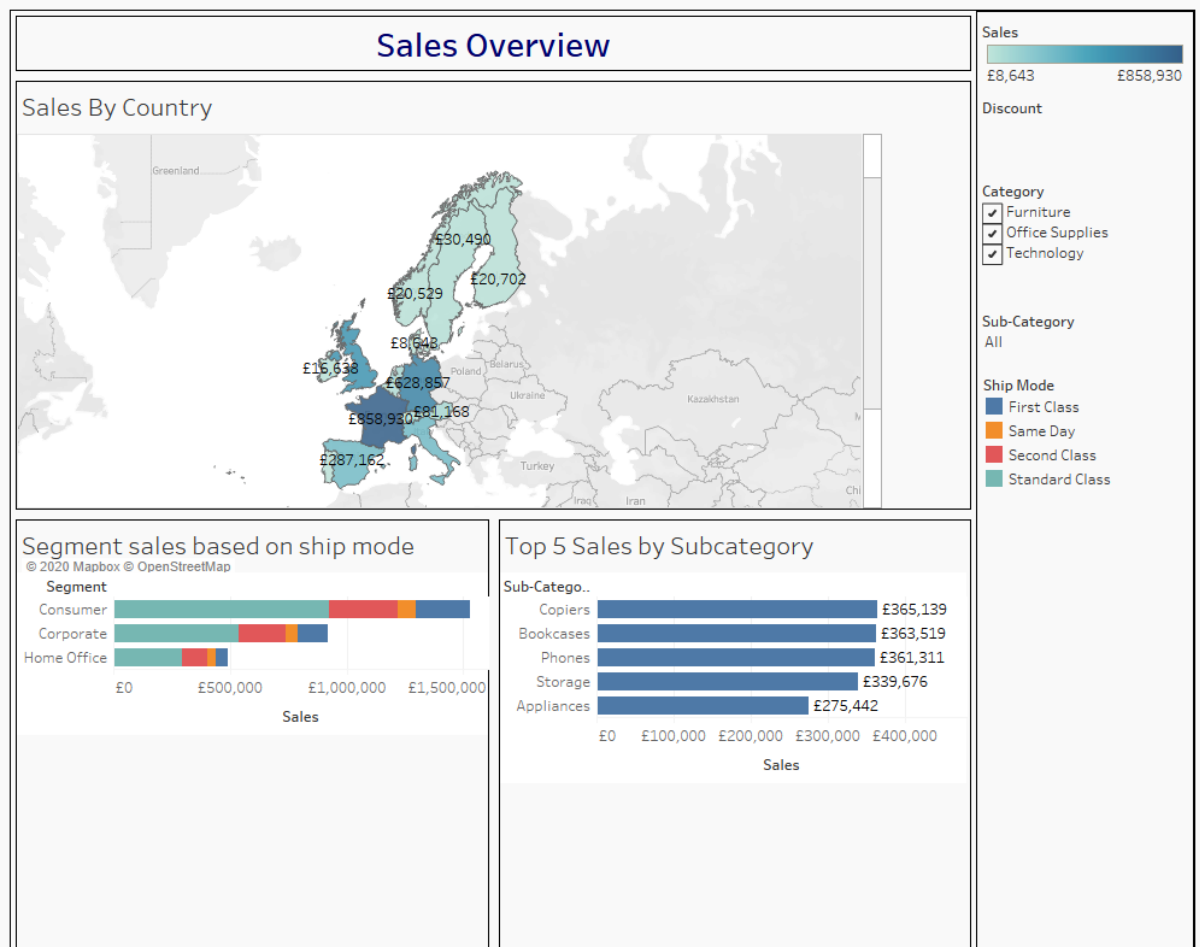


Figure 4: Sales overview dashboard

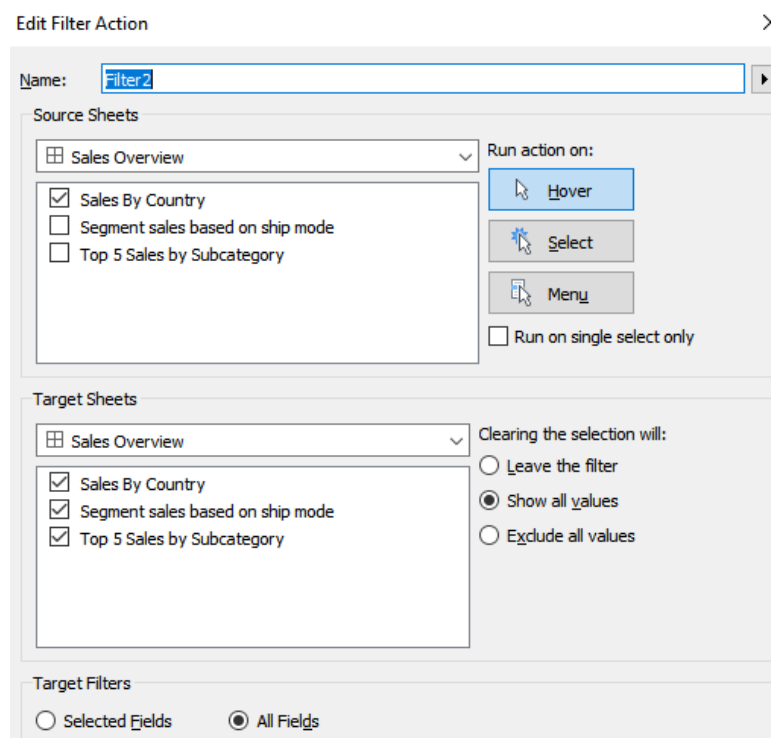


Figure 5 : Action filter applied in Sales overview dashboard with Hover

functionality

### 3. Profit Overview

Profit Overview Dashboard gives overall Profit by country, category, Subcategory, region and year. Profit by country shows country wise Profit, Map visual is chosen as country is demographic object. The Dashboard **is interactive with Filter Action** being added if any country is hover over in the country wise Profit map other two visuals get filtered accordingly enabling drilldown functionality. Profit across Region and order date will show profit for all years across regions. Profit Line graph for subcategory across year shows trend.

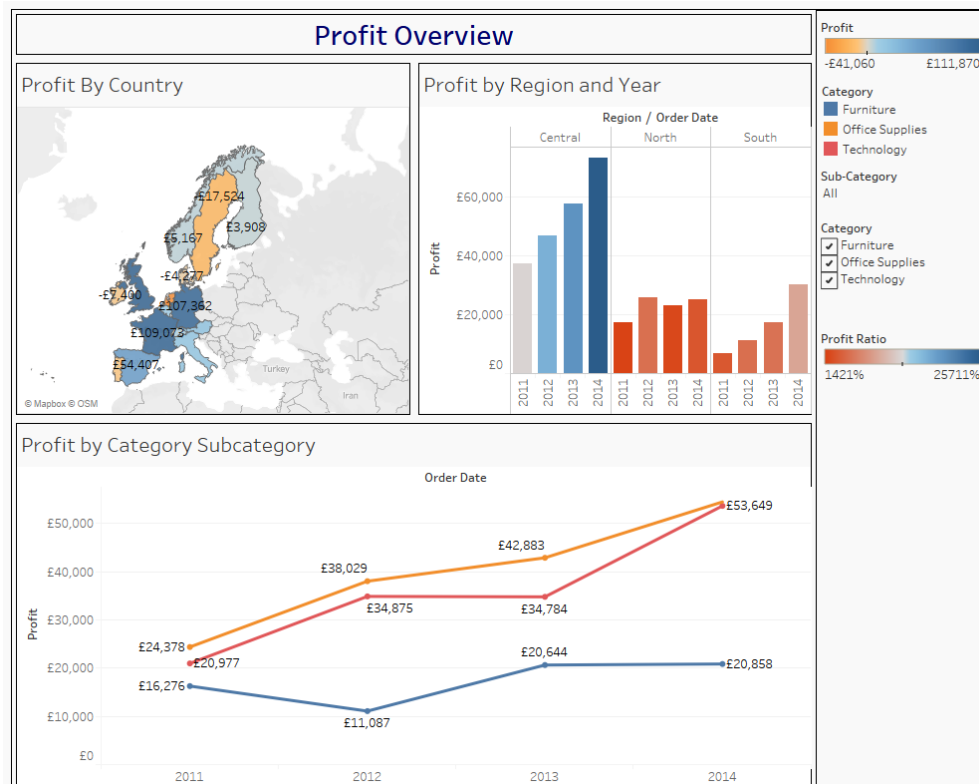


Figure 6: Profit Overview Dashboard

Edit Filter Action

Name:

Source Sheets

☐ Profit Overview

Run action on:

☒ Hover

☐ Select

☐ Menu

☐ Run on single select only

Target Sheets

☐ Profit Overview

Clearing the selection will:

☐ Leave the filter

☒ Show all values

☐ Exclude all values

Target Filters

☐ Selected Fields

☒ All Fields

Source Field	Target Field	Target Data Source

Figure 7: Action filter applied in Profit Overview Dashboard with Hover functionality

#### 4. Quantity Sold and Discount Applied Overview

Quantity and Discount Overview Dashboard gives overall quantity sold and discount applied for category, sub category, segment and Product. Profit and Quantity Sold by category gives category wise profit made for quantity Sold. The Dashboard is interactive with Filter Action being added if any category is selected other two visuals get filtered accordingly enabling drilldown functionality. Sales and Discount Bar chart across category and Sub category will show sales made across sub category and discount applied. Quantity and Discount scatter plot shows quantity sold across segment and Product name.

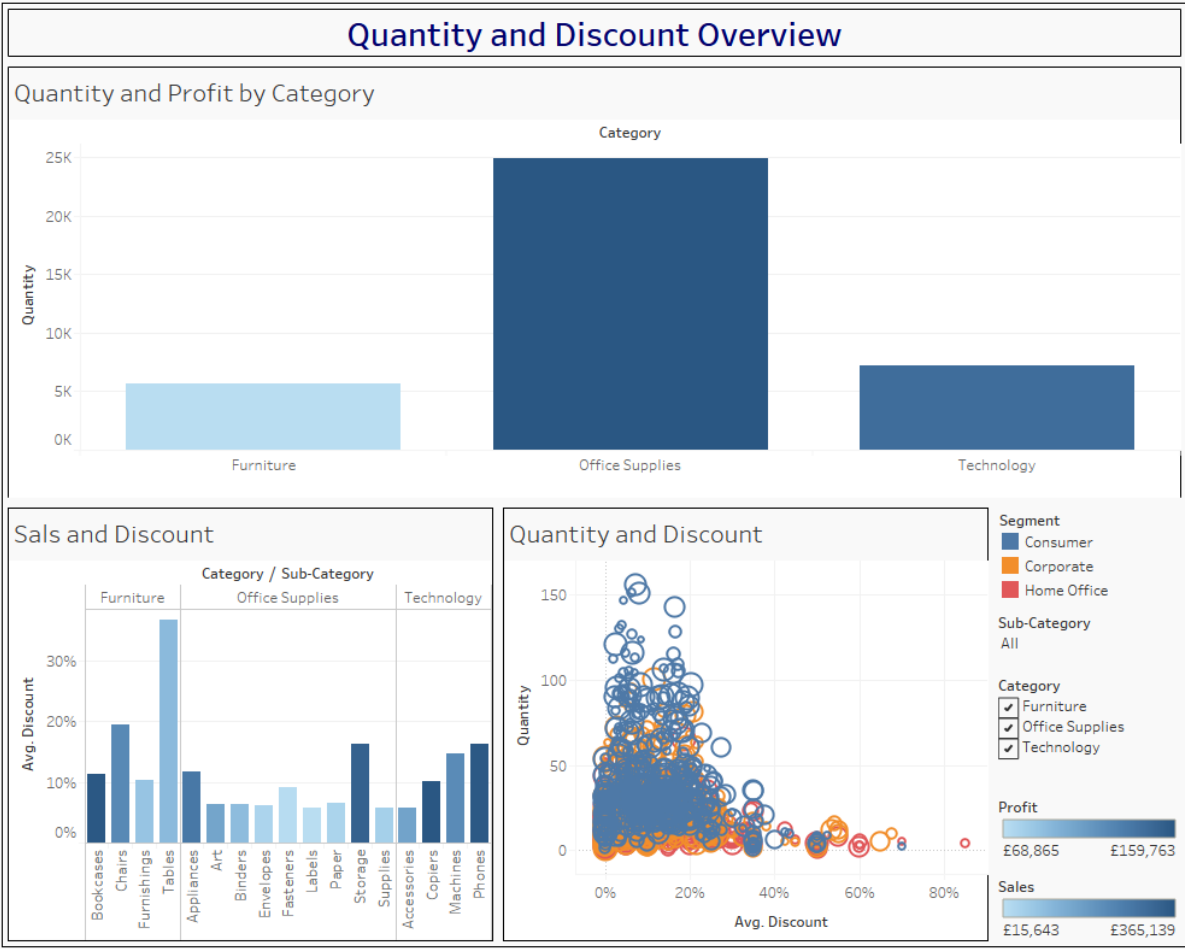


Figure 8 : Quantity and Discount Overview



Edit Filter Action

Name:
Filter4

Source Sheets

Quantity and Discount Overview

☒ Quantity and Discount  
☒ Quantity and Profit by Category  
☒ Sales and Discount

Run action on:  

Hover

Select

Menu

☐ Run on single select only

Target Sheets

Quantity and Discount Overview

☒ Quantity and Discount  
☒ Quantity and Profit by Category  
☒ Sales and Discount

Clearing the selection will:  
☐ Leave the filter  
☒ Show all values  
☐ Exclude all values

Target Filters

☐ Selected Fields
☒ All Fields

Source Field	Target Field	Target Data Source

Figure 9 :Action filter applied in Quantity and Discount Overview dashboard with Select functionality

## 5. Top N and Bottom N Profit by Product

This visual show Top N and Bottom N profits for a product. The chart is enabled with dynamic filtering to choose Top and Bottom values. User can mention values by entering values for top and Bottom visual and chart will be displayed accordingly. **These filters are created with parameters** and Set was created for Top products and bottom product using these parameters and then combined set created combining both sets for top and bottom to include both profits in one set and then this combined set was added to filter to show Top and bottom values of Profit.

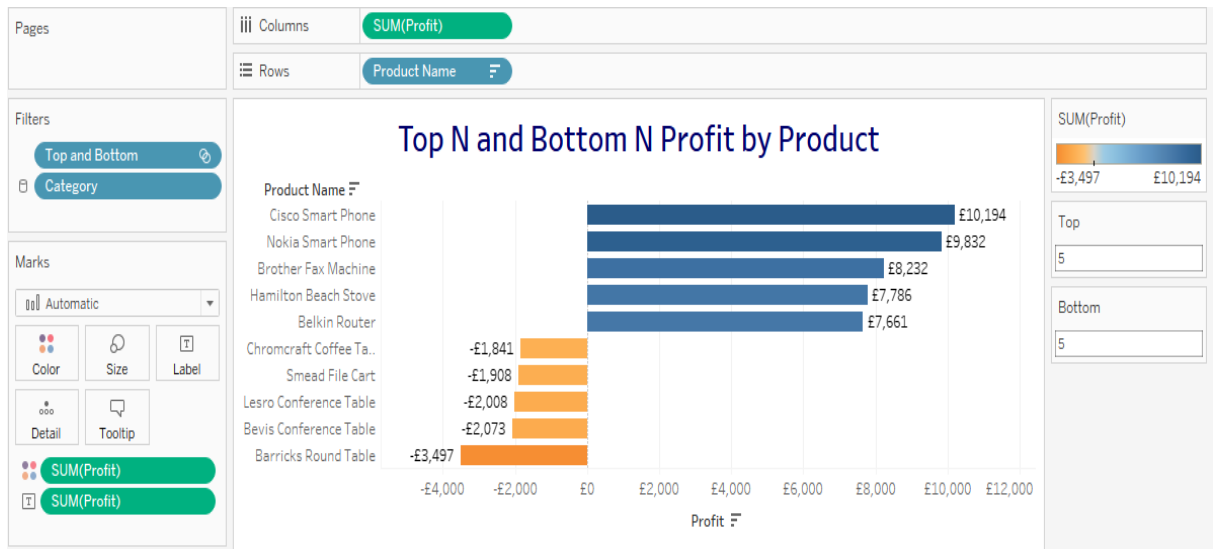


Figure 10 : Top and Bottom Profits by Product Name

## 6. Profit Clusters to show the Profit range

The below visual shows the profit clusters for different countries. clusters were added based on Sum(Profit) by adding clusters from Analytics Tab.

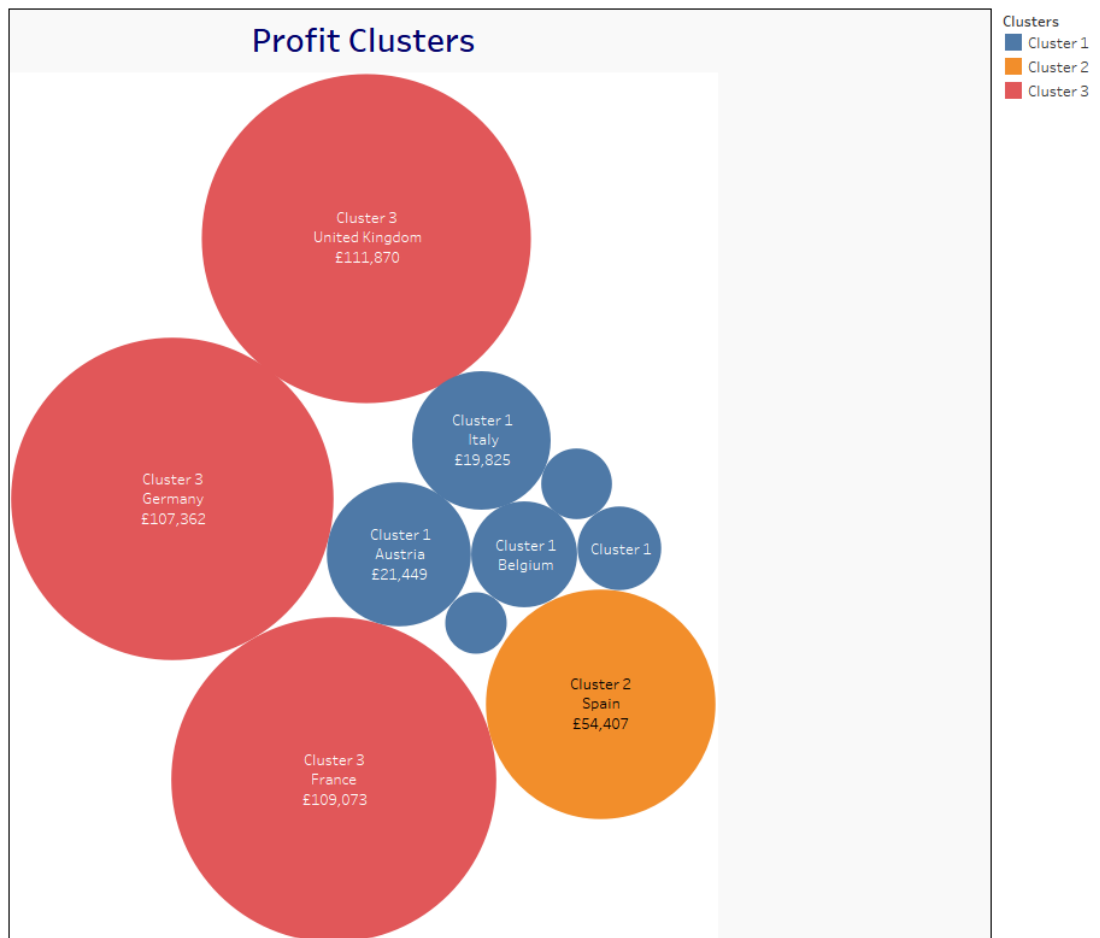


Figure 11 : Profit Clusters formed for different countries

## **Conclusion**

The aim of the visualization was to analyze Profit and Sales figures based on country, category, sub category, region and order date and different dashboard were created to analyze the same. Sales and Profit gives overall overview about how much sales was made and how much profit was gained .Further Sales and Profit overviews were analyzed at different granular levels. Since Profit is the main metric top and Bottom profit values for product was analyzed.

France has the highest overall sales and profit with sales £858930 and profit £109073 respectively. Netherland has the lowest profit values and hence highlighted in orange color in map visual with profit -£41060 and sales £77520 overall. Office Suppliers category has highest Profit across all categories and copiers sub category has highest sales among all sub categories overall. Consumer segment has highest sales among all the segments.

Contents of the zip folder - Business Intelligence and Visualization\_CA\_Nagarathna\_Sali

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- 1) Tableau – TWB format file (.twb)
- 2) Tableau Packaged workbook file (.twbx)
- 3) BI\_CA\_report
- 4) PDF of Main tableau Data analysis Story board
- 5) Data set