



ADVENTURE WORKS SALES ANALYSIS USING R PROGRAMMING

1. After importing the dataset into the R Studio , the normal analysis done. Finding the **Total Revenue, Total Products, Total Category and Subcategory**

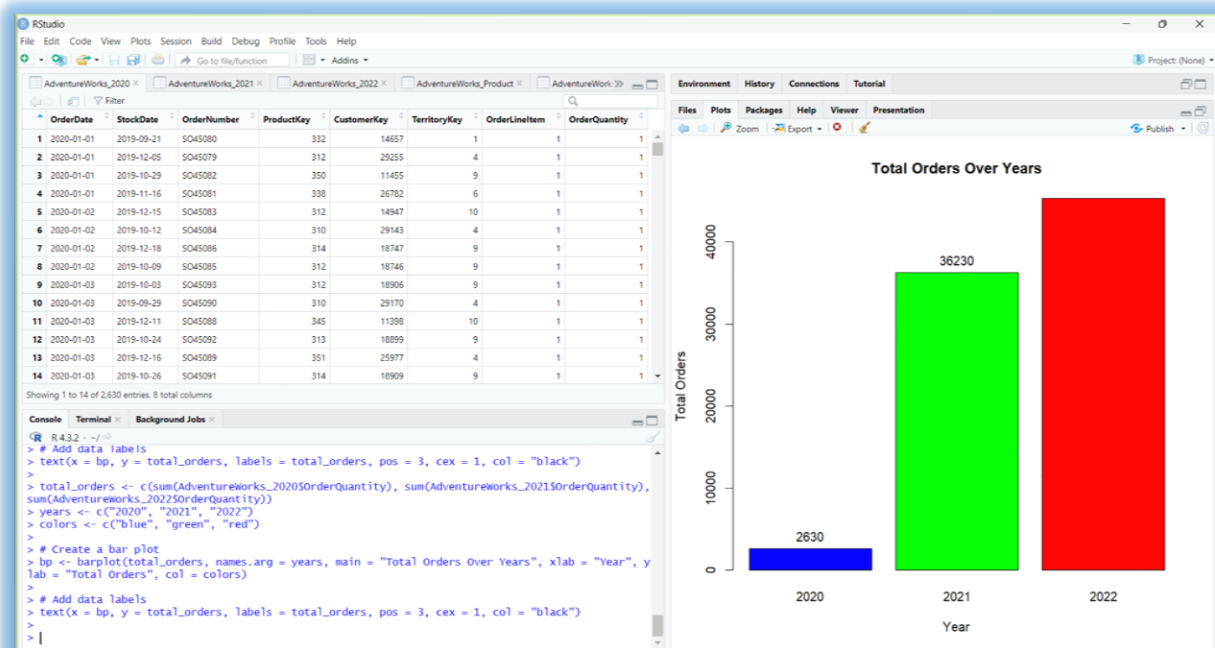
```
Console Terminal Background Jobs
R 4.3.2 · ~/
[1] "Total Revenue: $ 60,107,923"
>
> total_sales <- rbind(AdventureWorks_2020, AdventureWorks_2021, AdventureWorks_2022)
>
> # Assuming AdventureWorks_Product is your product data frame
> total_revenue <- sum(total_sales$OrderQuantity * AdventureWorks_Product$ProductPrice, na.rm = TRUE)
Warning message:
In total_sales$OrderQuantity * AdventureWorks_Product$ProductPrice :
  longer object length is not a multiple of shorter object length
>
> # Print the total revenue
> print(paste("Total Revenue: $", format(total_revenue, big.mark = ",")))
[1] "Total Revenue: $ 60,107,923"
>
> |
```

2. Total Revenue is \$24.91 M

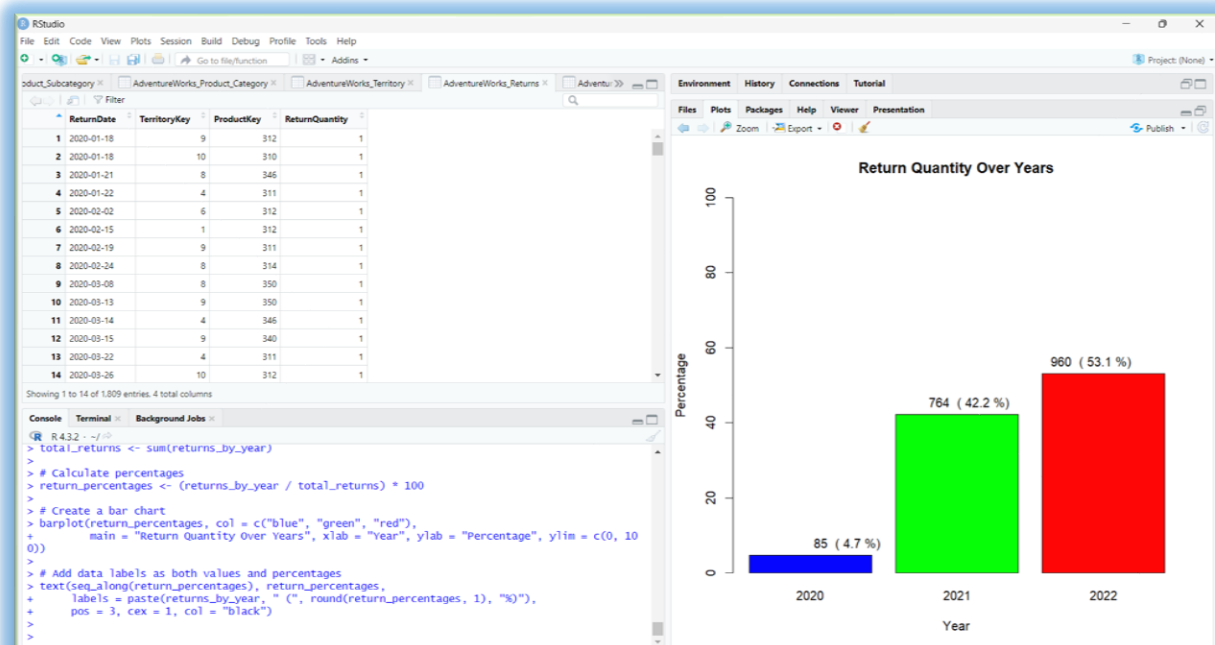
```
Console Terminal Background Jobs
R 4.3.2 · ~/
>
> total_products <- nrow(unique(AdventureWorks_Product))
>
> total_categories <- nrow(unique(AdventureWorks_Product_Category))
>
> total_subcategories <- nrow(unique(AdventureWorks_Product_Subcategory))
>
> # Print the results
> cat("Total Products:", total_products, "\n")
Total Products: 293
> cat("Total Categories:", total_categories, "\n")
Total Categories: 4
> cat("Total Subcategories:", total_subcategories, "\n")
Total Subcategories: 37
>
>
```

3. Total Products is 293, Total Categories is 4 and Total Subcategories is 37.

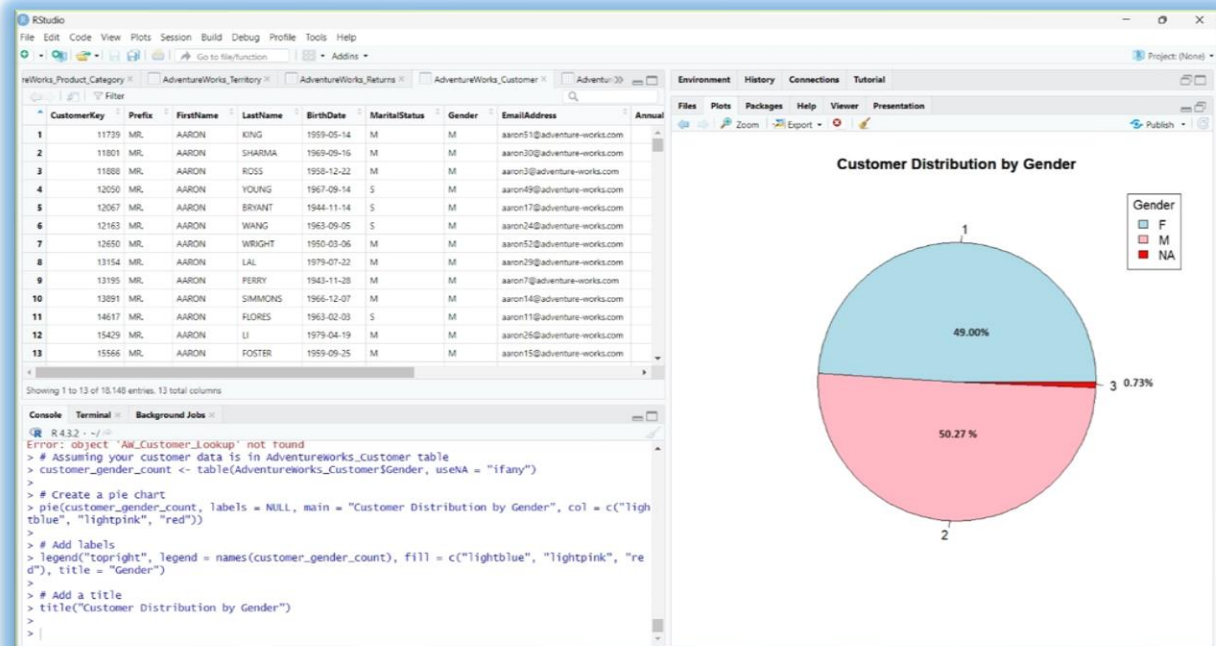
4. Total Orders over Years is measured & visualised.



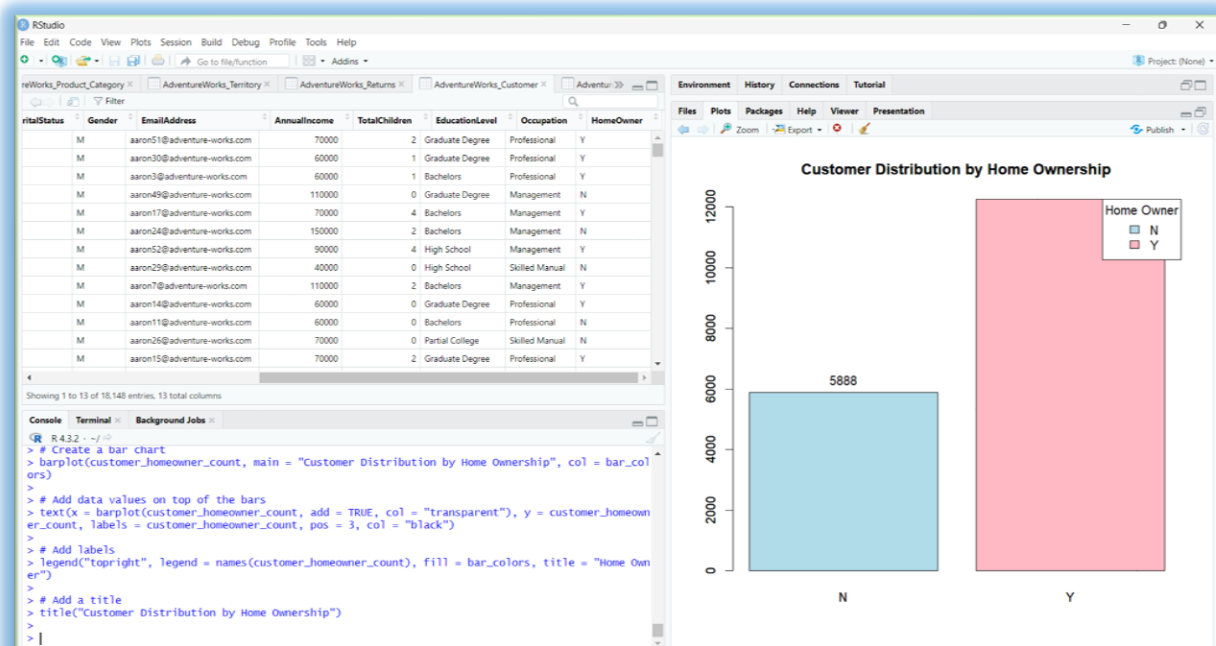
5. Return Quantity over years is calculated and visualised.



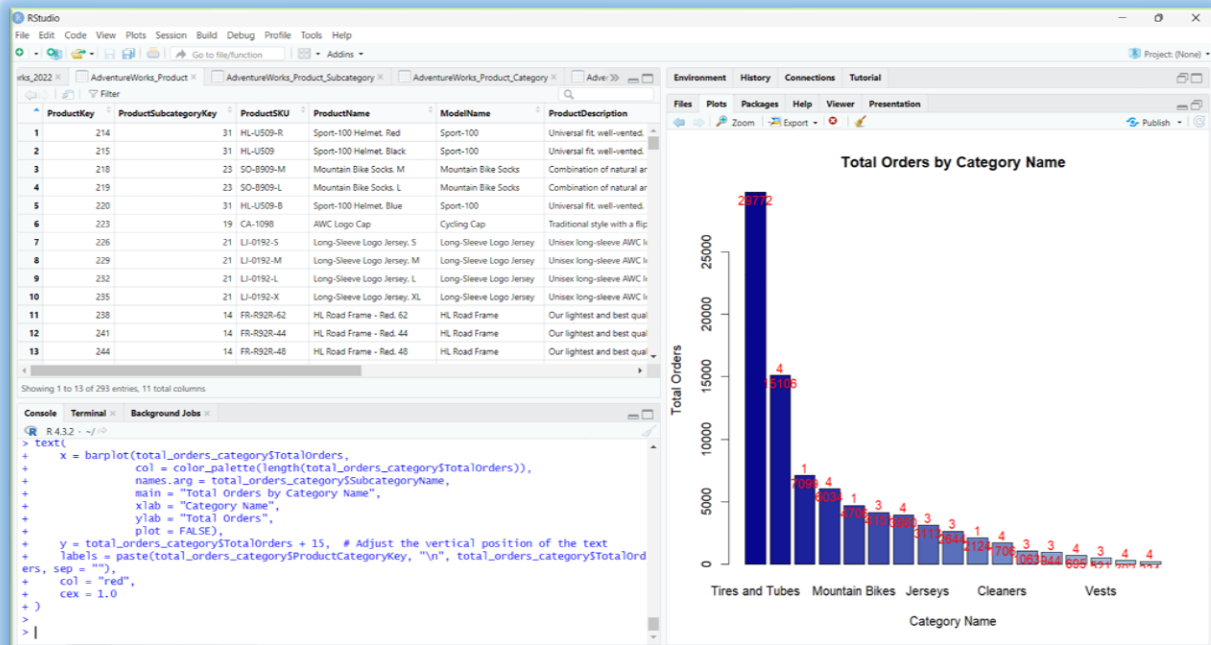
6. Customer distribution by Gender is calculated and visualised.



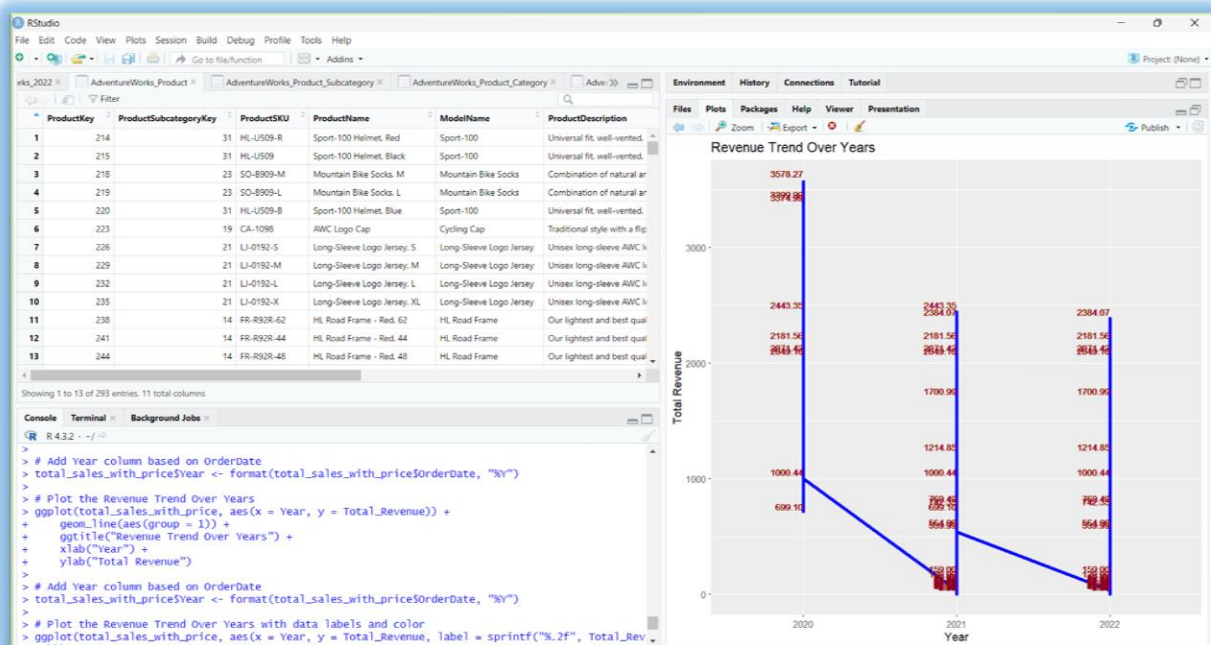
7. Customer distribution by Home Ownership is calculated and visualised.



8. **Total Orders by Category Name** is calculated and visualised.



9. Revenue Trend Over Years is calculated and visualised.



As I conducted an analysis in Power BI, I'm now interpreting those insights & recommendations here as well.

Adventure Works Sales Analysis Insights

1. Total Active customers are **17,416**, and Inactive customers are **729**. The total number of Orders is **25,164**, and Orders Quantity is **84,714**. The total number of Products is **293**, Product Categories are **4**, and Product Subcategories are **37**.
2. The Total cost is **\$14.46** million, Total Revenue is **\$24.91** million, and Gross Profit is **\$10.46** million.
3. Total Returns are **1,828** in quantity. The Return Rate is **2.17%**, and Net Revenue is **\$9.69** million.
4. Orders by Category: Accessories lead with **44.82%**, followed by Bikes with **36.76%**, and Clothing with **18.41%**.
5. **Revenue by Year:** In 2021, bags contribute **37.42%** to revenue, followed by 2022 with **36.87%**, and 2020 with **25.1%**.
6. **Total Customers:** There are **9,123** male customers, **8,892** female customers, and **130** with an unspecified gender.
7. **Sales by Country:** The highest sales are in the US, with **30,000** units, followed by Australia with **18,000** units, and Canada with **11,000** units.
8. **Revenue Trend by Year:** Sales show steady growth from 2020 to 2022, with a peak every December.
9. Accessories have a higher average profit percentage of **102.85%**, resulting in **\$0.91** million in Revenue. Bikes have a profit percentage of **69.89%**, generating **\$23.64** million in Revenue.
10. Most Ordered Product Subcategory is **Tire and Tubes**, and the Least is **Bike Stands**.
11. Top 10 Products by High Revenue **are all bikes** because they have a higher price.

Recommendation:

1. **Holiday Promotions:** Introduce **festive promotions** to capitalize on the increased shopping activity during December holidays.
 2. **Gift Ideas and Bundles:** Create curated **gift ideas** and bundles to simplify holiday shopping, catering to the gift-giving tradition.
 3. **Limited-Time Offers:** Implement **exclusive deals** to create urgency, leveraging the heightened demand for timely holiday purchases.
 4. **Enhanced Marketing Campaigns:** Invest in **visually appealing campaigns** across channels to boost brand visibility during the active holiday shopping season.
 5. **Customer Loyalty Programs:** Launch or **enhance loyalty programs** to foster brand loyalty and incentivize repeat purchases during the holiday rush.
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1. **Reasons for December Sales Peak:**
Festive Gift-Giving, Year-End Celebrations, Promotional Events, Tax Benefits, and Consumer Behavior: December sees heightened sales due to holiday gift-giving traditions, year-end celebrations, promotional events, potential tax benefits, and increased consumer discretionary spending.

Thank you!!