ADVENTUREWORKS
DASHBOARD PROJECT

Performed by: Long Nguyen Phi

GOALS AND OBJECTIVES

Knowledge

Through this project, I would like to enhance my analytical skills and proficiency in SQL and Power BI, crucial tools for data analytics. This project is a valuable opportunity for me to improve my skills in SQL and Power BI.

Business Insights

By using SQL for data extraction and manipulation, and Power BI for visualization, I aimed to uncover key business insights about sales, customers, and products that can drive strategic decision-making.

ABOUT DATASET

ADVENTUREWORKSDW

The AdventureWorksDW is a comprehensive, widely-used sample data warehouse developed by Microsoft. It simulates a fictional company named AdventureWorks Cycles, which specializes in manufacturing and selling bicycles and related accessories. It is a data warehouse database that contains a wealth of information structured to support business intelligence, reporting, and data analysis scenarios.

ABOUT DATASET

DATA MODELING

Data modeling is the process of creating a visual representation of a data system to communicate connections, relationships, and data flow within that system. In this project, the data model illustrates with various tables, such as DimProduct, DimCustomer, DimSalesTerritory, and DimDate, serving as dimension tables. These dimension tables are supplementary descriptive information about the data in the facts table.
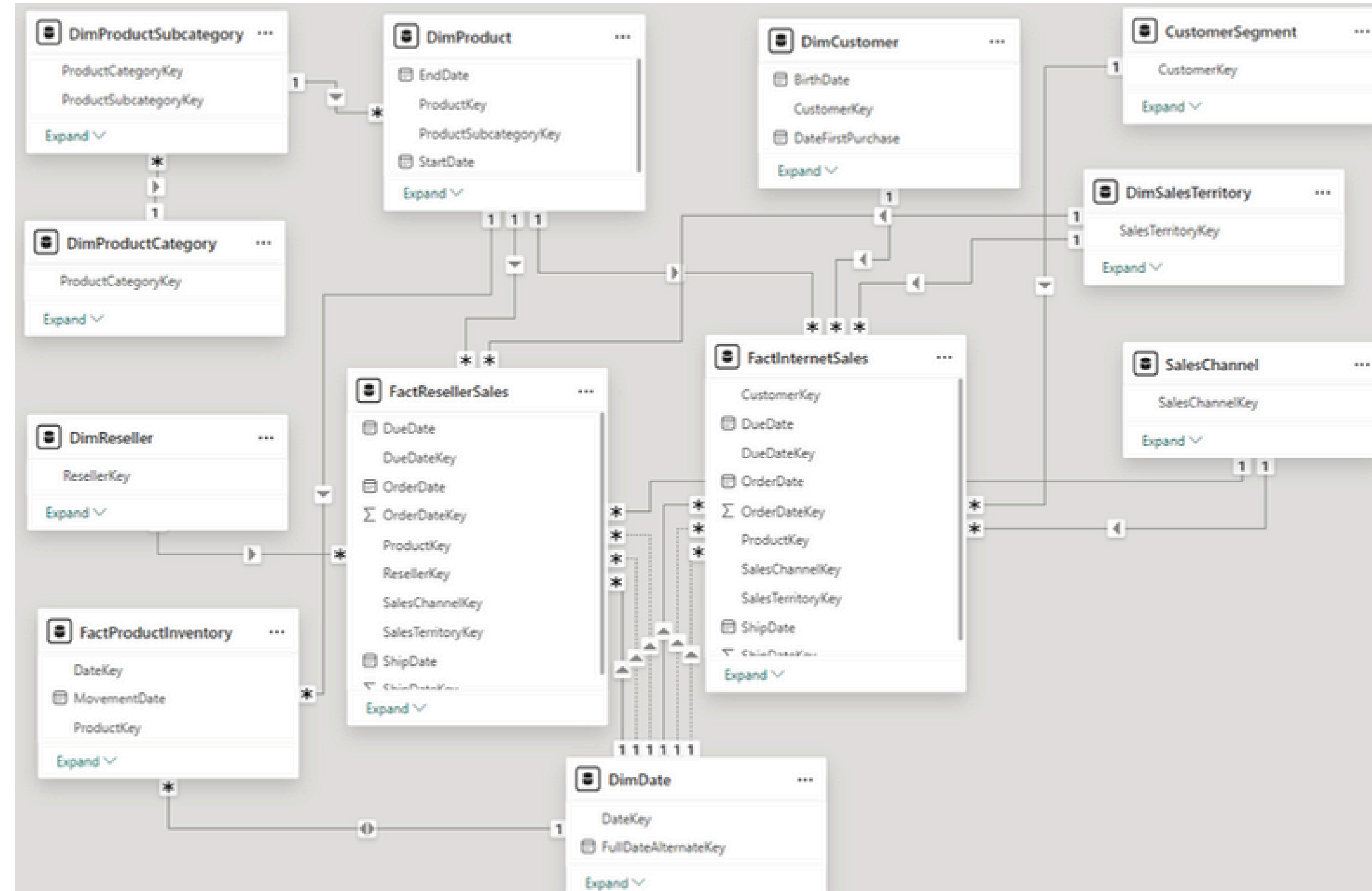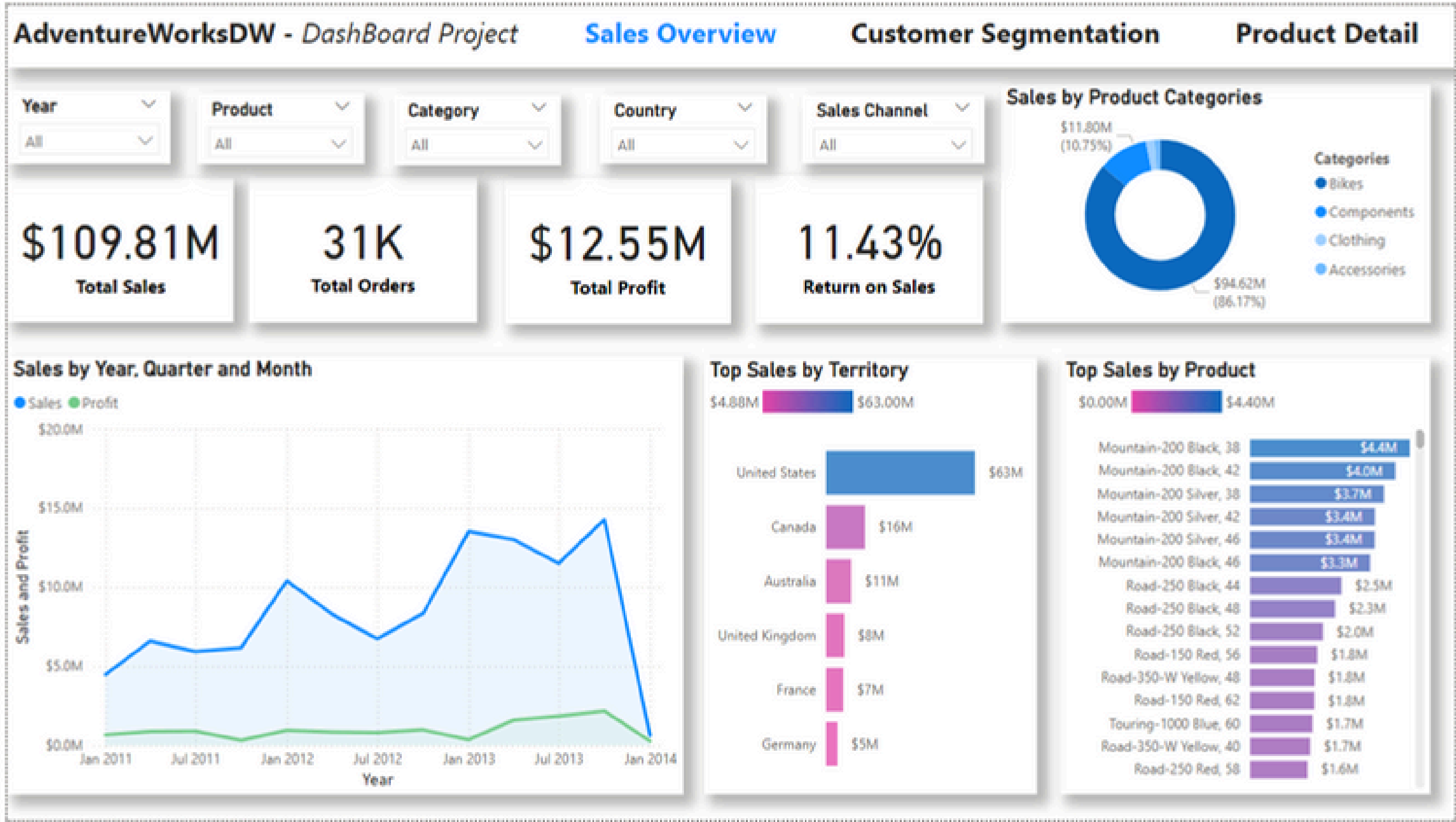
SALES OVERVIEW

Sales Overview provides a detailed analysis of sales performance across various aspects such as time, geography, sales channels, and products, offering a clear picture of revenue trends and growth opportunities.

SALES OVERVIEW

DASHBOARD

STATISTICS

$109.81M
TOTAL SALES

31K
TOTAL ORDERS

$12.55M
TOTAL PROFIT

11.43%
RETURN ON SALES

From January 2011 to February 2014, the company achieved total sales of $109.81 million, with a total profit of $12.55 million, resulting in a Return on Sales of 11.43%. The United States emerged as the top sales contributor with $63.00 million, followed by Canada with $16.36 million. The majority of sales were driven by the Bikes product category, accounting for $94.62 million (86.17% of total sales).

Notably, in January 2014, the company experienced a sharp month-on-month revenue decline, dropping from $5.39 million to $609.26 thousand.

PRODUCT SALES

BIKES

$94.62M
TOTAL SALES

$10.52M
TOTAL SALES

ACCESSORIES

$1.27M
TOTAL SALES

$634.39K
TOTAL SALES

COMPONENTS

$11.80M
TOTAL SALES

$1.03M
TOTAL SALES

CLOTHING

$2.12M
TOTAL SALES

$368.84K
TOTAL SALES

SALES CHANNELS

INTERNET

$29.36M
TOTAL SALES

$12.08M
TOTAL PROFIT

Internet Sales involve selling directly to consumers through the company's online platform. This channel allows for a higher profit margin and better customer engagement but typically involves smaller order volumes.

RESELLER

$80.45M
TOTAL SALES

$470.48K
TOTAL PROFIT

Reseller Sales involve selling products in bulk to third-party resellers who then sell to the end consumers. This channel generates higher sales volumes but at lower profit margins due to bulk pricing and intermediary costs.

CUSTOMER SEGMENTATION

Customer Segmentation is the identification and classification of customer segments based on purchasing behavior, demographics and other related criteria to adjust marketing strategies and improve customer satisfaction.

CUSTOMER SEGMENT

DASHBOARD

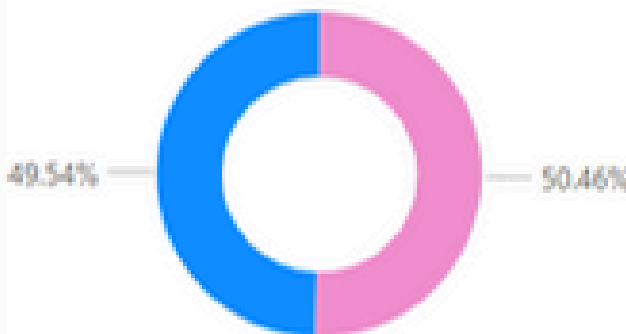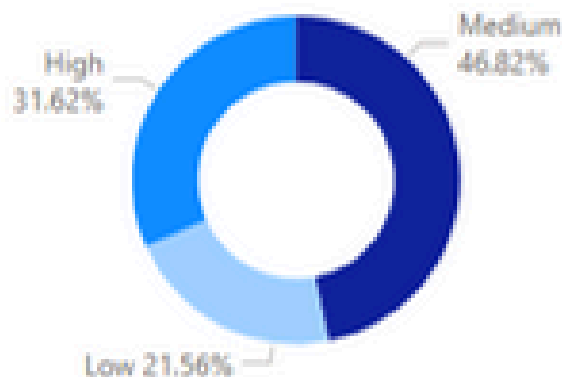**AdventureWorksDW - *DashBoard Project***   **Sales Overview**   **Customer Segmentation**   **Product Detail**

Customer Name	Orders	Revenue
Nichole Nara	5	$13,295.38
Kaitlyn J Henderson	5	$13,294.27
Margaret He	5	$13,269.27
Randall M Dominguez	5	$13,265.99
Adriana L Gonzalez	5	$13,242.7
Rosa K Hu	5	$13,215.65
Brandi D Gill	5	$13,195.64
Brad She	5	$13,173.19
Francisco A Sara	5	$13,164.64
Maurice M Shan	6	$12,909.67
Janet Munoz	6	$12,489.17
Lisa Cai	7	$11,469.19
Lacey C Zheng	7	$11,248.46
Jordan C Turner	7	$11,200.77
Larry Munoz	7	$11,068.01
Larry M Vazquez	4	$10,899.62
Kate K Anand	4	$10,872.06
Lawrence S Alonso	4	$10,836.9
Terrance V Rodriguez	4	$10,829.22
Aaron L Wright	4	$10,813.63
Clarence H Gao	4	$10,799.52
Bonnie F Nath	4	$10,793.27
	27659	$29,358,677.89

Sales by Gender

49.54% / 50.46%

Sales by Income

Medium 46.82%
High 31.62%
Low 21.56%

Sales by Education

High School 15.8%
Bachelors 33.72%
Graduat... 18.6%
Partial College 26.31%
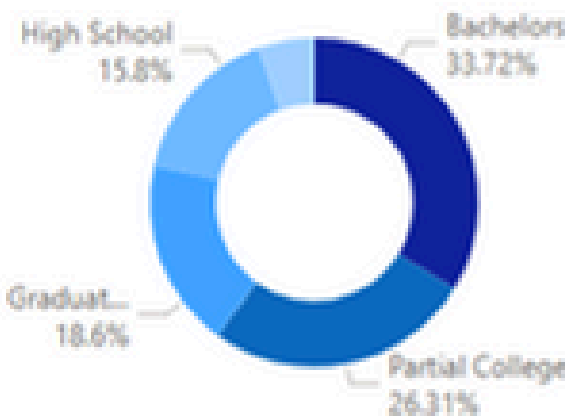
$29.36M — Total Sales

28K — InternetOrders

18,484 — No. Customer

$1.59K — Sales per Customer

Sales by Age (until 2014)

39 34 30 45 46 43 32 44 40 36 51 29 48 52 53 38 33 49 54 62 57 35 41 31 55 60 65 47 28 64 63 42 37 50 56 61
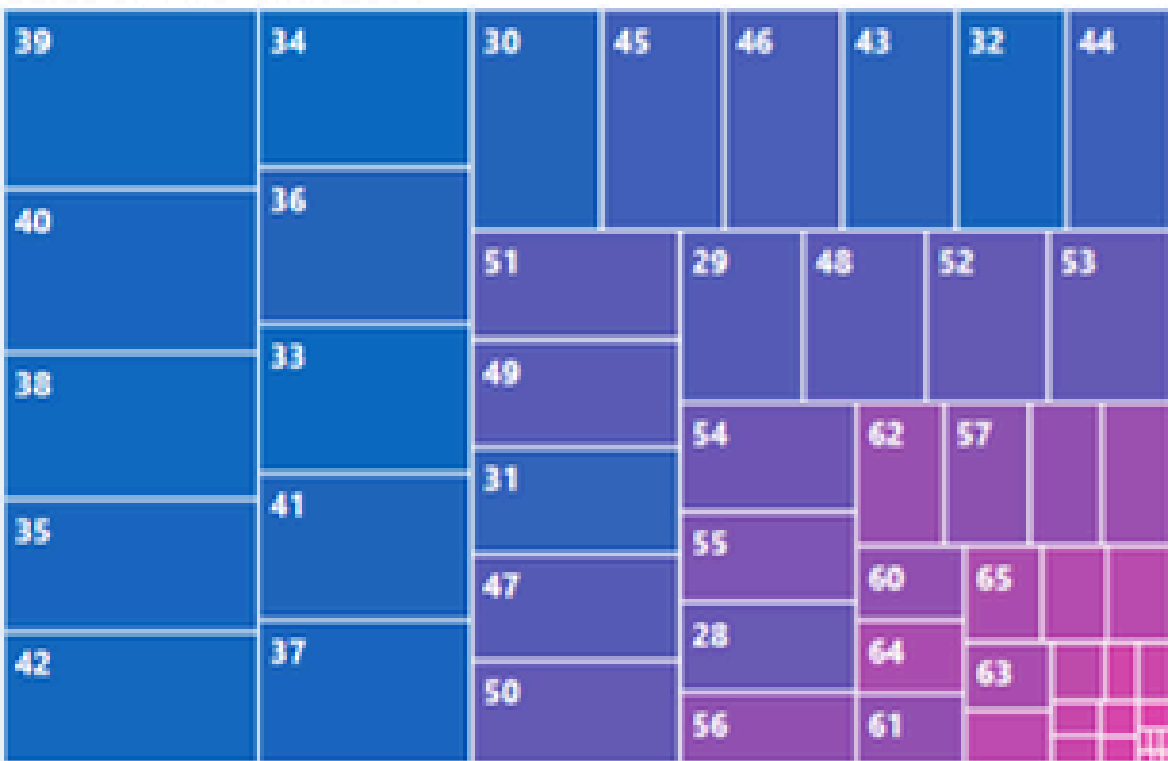
GENDER

49.54%

50.46%

The company's sales are nearly evenly distributed between male and female customers. Males contribute $14.55 million, representing 49.54% of total sales, while females contribute slightly more, with $14.81 million, accounting for 50.46% of total sales. This balanced gender distribution indicates that the company's products appeal equally to both male and female customers.

INCOME

31.62%
HIGH INCOME

46.82%
MEDIUM INCOME

21.56%
LOW INCOME

The company's sales are showing that medium-income customers are the largest group, contributing $13.75 million (46.82%) of total sales. This indicates that the company's pricing and product offerings are well-suited to this income group. However, there is potential to increase market share among both high and low-income segments.

Note: High income refers to customers with an income level over $75K a year, medium income is between $35K and $75K a year, and low income is below $35K a year.

EDUCATION

33.72%
BACHELORS

26.31%
PARTIAL COLLEGE

39.97%
OTHERS

The company's sales by education level show that customers with a Bachelor's degree contribute $9.9 million, accounting for 33.72% of total sales. Those with partial college education generate $7.72 million, representing 26.31% of total sales. The remaining 39.97% of sales come from customers with other educational backgrounds. This distribution highlights that a significant portion of the company's customers have at least college education.

PRODUCT DETAIL

Product Detail is the in-depth analysis of product performance, including best sellers, inventory levels, and profit, enabling more informed product management and development decisions.

PRODUCT DETAIL

DASHBOARD

Year	Product	Product Category	Country
All	All	All	All

Top 5 Product by Profit

Product	Total Profit
Mountain-200 Black, 38	$872,822.96
Mountain-200 Black, 42	$863,801.65
Mountain-200 Silver, 38	$829,131.56
Mountain-200 Silver, 42	$775,988.26
Mountain-200 Silver, 46	$793,956.39
Total	**$4,135,700.81**

$33.56M
Inventory Value

94K
Stock on Hand

$453.14
Cost Average

$770.57
Retail Price Average

Inventory Value by Year and Quarter

Inventory Value: $34.68M, $34.71M, $33.67M, $34.35M, $32.89M, $33.59M, $33.66M, $31.92M, $33.56M

Y-axis: $35.0M, $34.5M, $34.0M, $33.5M, $33.0M, $32.5M, $32.0M, $31.5M

X-axis: Jan 2011, Jul 2011, Jan 2012, Jul 2012, Jan 2013, Jul 2013, Jan 2014 — Year

Product Profit by Month - Matrix Table

Product	January	February	March	April	May
Mountain-200 Black, 38	$65,240.16	$56,475.39	$58,811.20	$45,437.53	$65,56
Mountain-200 Black, 42	$64,413.92	$53,171.23	$60,644.16	$53,069.37	$74,58
Mountain-200 Silver, 38	$75,130.32	$54,207.75	$56,692.93	$56,658.34	$55,99
Mountain-200 Black, 46	$62,497.11	$57,176.85	$68,821.92	$39,145.95	$58,65
Mountain-200 Silver, 46	$43,761.51	$54,636.68	$49,056.48	$46,592.21	$56,09
Mountain-200 Silver, 42	$63,406.42	$60,407.54	$58,220.82	$53,774.22	$54,86
Road-150 Red, 48	$35,174.50	$33,767.52	$26,732.62	$36,338.16	$31,80
Road-150 Red, 62	$35,101.51	$36,362.49	$43,373.06	$38,884.46	$34,17
Road-150 Red, 52	$22,511.68	$21,104.70	$35,174.50	$30,758.91	$35,94

STATISTICS

$33.56M
INVENTORY VALUE

$435.14
COST AVERAGE

94K
STOCK ON HAND

$770.57
RETAIL PRICE AVERAGE

At the time of statistics, the company's inventory value stands at $33.56 million, with a stock on hand of 94,000 units. The average cost is $453.14 per unit, while the retail price average is $770.57.

The top products by profit include the Mountain-200 Black, 38, generating $872.82K in profit, followed by the Mountain-200 Black, 42 at $863.80K, and the Mountain-200 Silver, 38 at $829.13K. These figures indicate a strong preference and profitability for the Mountain-200 series.

INVENTORY VALUE

The company's inventory value fluctuated significantly from January 2011 to January 2014. Starting at $33.67 million in January 2011, the inventory value peaked at $34.71 million in July 2011 before experiencing a series of rises and falls. The lowest point was $31.92 million in January 2013, followed by a recovery to $34.35 million in July 2013. By January 2014, the inventory value stabilized at approximately $33.56 million.

The observed fluctuations in inventory value indicate variability in inventory management, which could impact operational efficiency and financial performance. A consistent and optimized inventory level is crucial for meeting customer demand without overstocking or understocking.
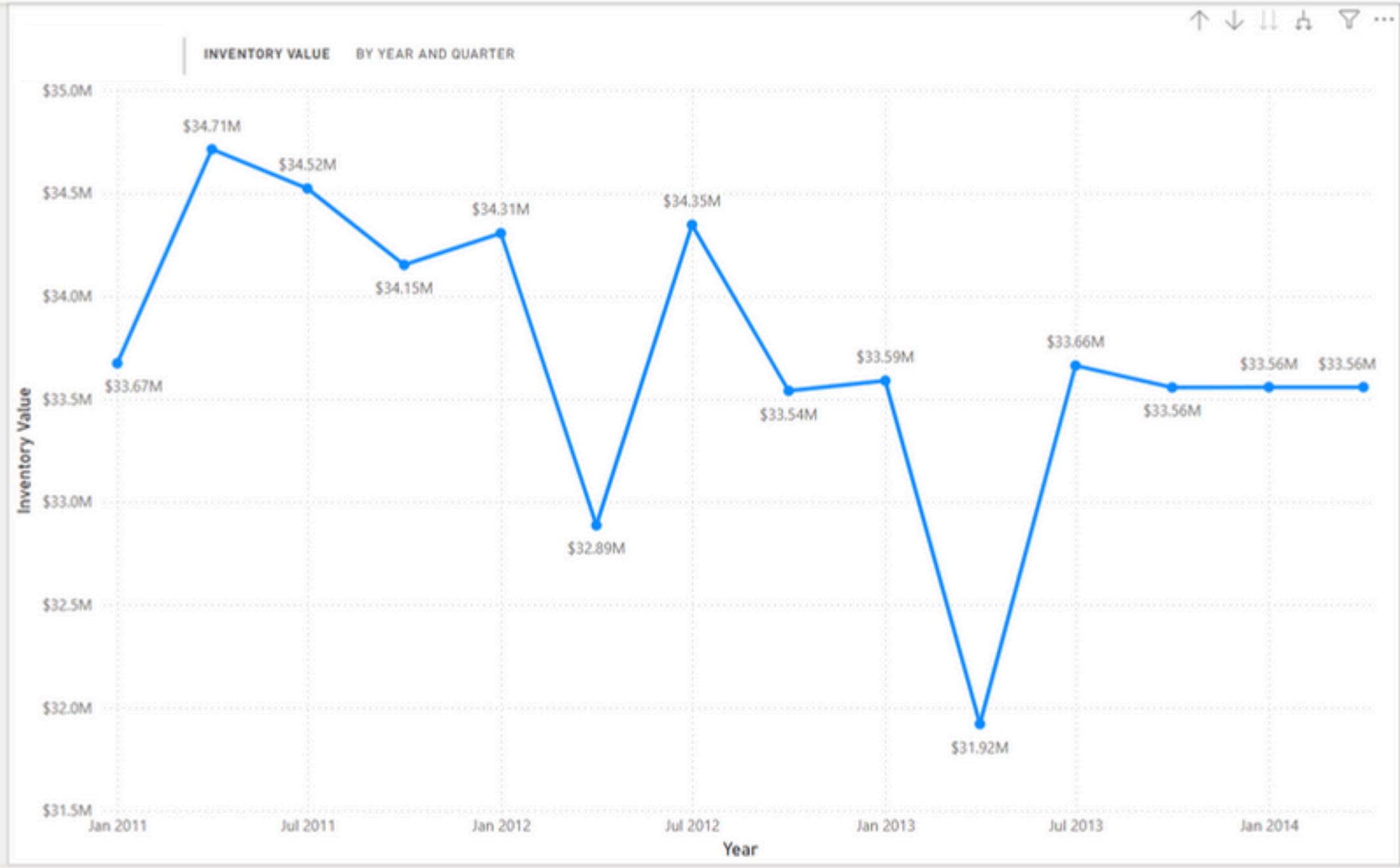
PROFIT BY MONTH

The table shows product profit by month figures for various products, highlighting key trends and performance throughout the year. The Mountain-200 series, especially the Mountain-200 Black, 38, and Mountain-200 Silver, 38, are standout performers with consistently high profits each month. For instance, the Mountain-200 Black, 38 achieved its highest profit in December at $96,846.47. On the other hand, products of Touring-3000 series have relatively lower and even months that bring negative profits.

PRODUCT PROFIT BY MONTH – MATRIX TABLE

Product	January	February	March	April	May	June	July	August	September	October	November	December
Mountain-200 Black, 38	$65,240.16	$56,475.39	$58,811.20	$45,437.53	$65,563.25	$79,746.98	$61,144.66	$86,849.35	$75,760.26	$74,153.23	$106,794.49	$96,846.47
Mountain-200 Black, 42	$64,413.92	$53,171.23	$60,644.16	$53,069.37	$74,583.20	$79,531.03	$69,291.99	$78,951.66	$62,099.12	$76,303.48	$89,943.21	$101,799.28
Mountain-200 Silver, 38	$75,130.32	$54,207.75	$56,692.93	$56,658.34	$55,993.09	$66,970.48	$60,093.13	$70,683.20	$72,111.53	$64,019.23	$94,677.41	$101,894.16
Mountain-200 Black, 46	$62,497.11	$57,176.85	$68,821.92	$39,145.95	$58,657.47	$76,859.84	$75,298.44	$76,766.40	$60,760.77	$72,439.65	$77,697.86	$81,966.98
Mountain-200 Silver, 46	$43,761.51	$54,636.68	$49,056.48	$46,592.21	$56,091.50	$73,039.88	$66,977.73	$81,976.41	$69,794.01	$66,143.28	$92,529.06	$93,357.63
Mountain-200 Silver, 42	$63,406.42	$60,407.54	$58,220.82	$53,774.22	$54,864.52	$70,148.24	$57,943.61	$68,756.35	$60,261.75	$57,918.41	$82,388.61	$87,897.76
Road-150 Red, 48	$35,174.50	$33,767.52	$26,732.62	$36,338.16	$31,800.90	$40,340.11	$44,877.36	$47,156.02	$40,364.44	$51,839.27	$44,342.06	$37,623.48
Road-150 Red, 62	$35,101.51	$36,362.49	$43,373.06	$38,884.46	$34,176.88	$38,787.13	$51,717.61	$42,862.08	$36,021.84	$37,574.81	$44,001.40	$27,458.30
Road-150 Red, 52	$22,511.68	$21,104.70	$35,174.50	$30,758.91	$35,948.84	$34,736.52	$36,362.49	$41,503.77	$36,240.83	$36,386.83	$44,415.05	$45,968.03
Road-150 Red, 56	$33,426.87	$21,587.06	$28,938.27	$24,741.67	$41,041.46	$40,096.79	$33,329.54	$32,745.56	$38,689.81	$31,727.90	$42,351.10	$37,404.49
Road-150 Red, 44	$35,174.50	$21,104.70	$28,139.60	$36,338.16	$20,545.06	$44,561.05	$33,572.87	$24,668.67	$37,574.81	$39,152.12	$35,973.17	$34,760.85
Road-250 Red, 58	$36,871.87	$21,224.10	$21,501.25	$22,259.74	$19,124.43	$24,328.89	$16,215.12	$17,284.85	$13,196.54	$18,719.56	$13,435.23	$12,511.86
Road-250 Black, 52	$20,896.84	$16,181.04	$24,261.19	$19,727.81	$26,395.44	$27,057.95	$26,302.02	$13,784.61	$17,100.19	$11,071.35	$17,646.70	$14,943.51
Road-250 Black, 58	$21,210.91	$11,583.92	$24,067.11	$19,222.00	$12,037.01	$21,568.37	$12,817.58	$18,976.40	$9,649.32	$19,068.97	$11,484.55	$23,775.46
Road-250 Black, 48	$22,625.86	$30,216.93	$18,410.12	$18,048.73	$8,721.77	$20,748.83	$12,334.33	$21,138.91	$19,069.02	$11,639.97	$9,193.62	$10,093.09
Road-250 Black, 44	$25,305.41	$18,939.60	$19,815.49	$8,483.30	$11,898.12	$10,758.51	$17,754.06	$12,450.57	$9,779.96	$11,426.18	$10,803.32	$11,667.82

THANK YOU

See more information at my github:

Click here