

# Doodle Challenge

AdventureCycle Profit Loss Analysis  
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# Revenue, Cost, Profit Analysis

## Chart 1



- Purpose of this document is to analyze the potential drivers for profit loss in the profit of AdventureCycle company.
- As observed in the **chart 1**, the trend in the profit starts to decline after March 2008.
- On April 2008, the revenue and cost line gets closer, which causes the loss in profit on this date, which gives the first insight for the cause of profit loss.
- On the **chart 2** total number of orders in April 2008 is not lower than that of March 2008.
- Regarding the amount of orders, **chart 3** shows that the total number of orders follows the trend in the previous years, which indicates that the profit loss is not likely because of the decreasing demand.

## Chart 2

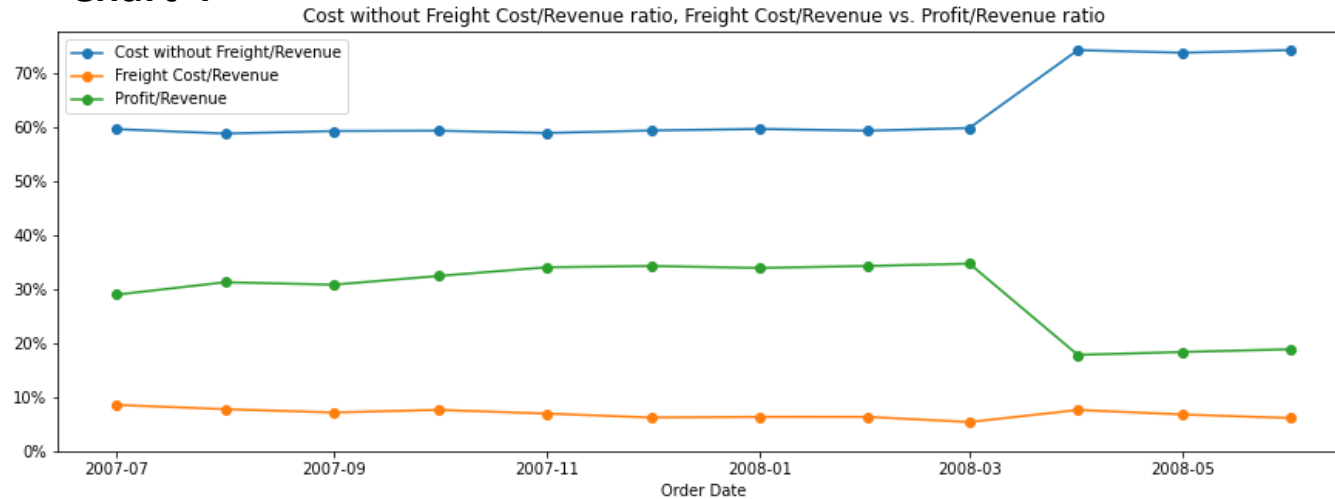


## Chart 3



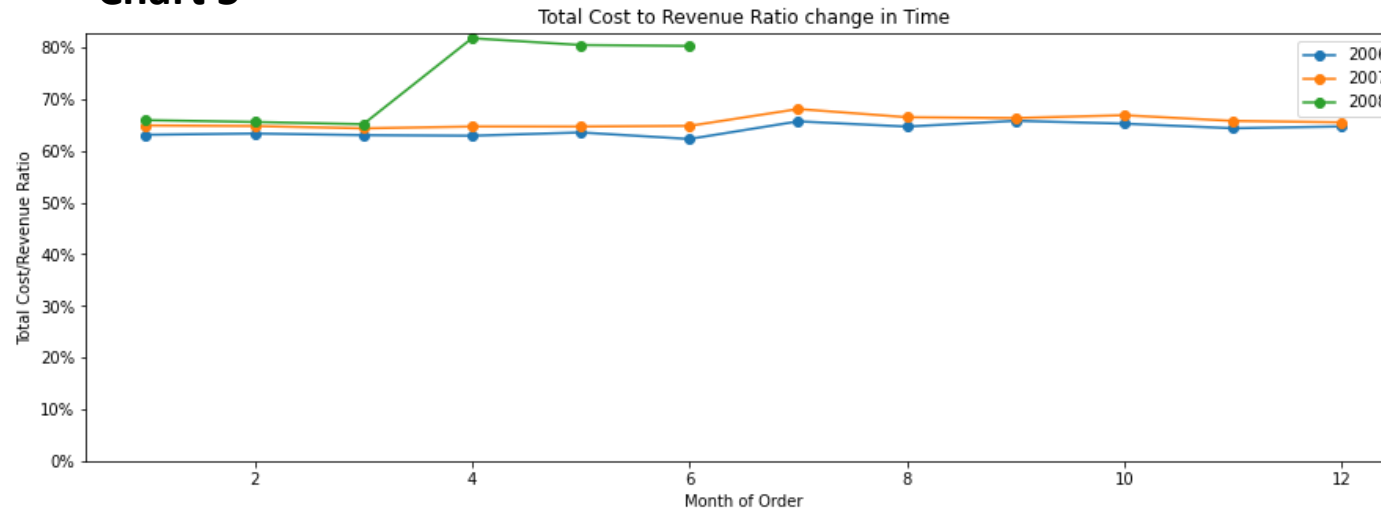
# Cost/ Revenue vs Profit Revenue

## Chart 4



- Having suspected that the costs increase has caused the profit loss, the cost and the revenue changes have been compared.
- On the **chart 4**, the increase in the cost/revenue ratio has been observed together with the decrease in profit revenue ratio starting on April 2008. In addition, the freight cost ratio has been visualized to see if the increase in total cost is a result of increase in total freight cost. **Chart 4** tells that the freight cost proportion in the cost has not been changed greatly and it's a weak possibility for freight cost being the reason for loss in profit in April 2008.
- In order to see if this happened in previous years, cost/ revenue ratios have been compared for three years on the **chart 5**. The deviation from the trend on the previous years has been observed on April 2008.
- This comparison confirms the suspicion of cost increase being the cause for profit loss.

## Chart 5



# Changes in revenue, cost and profit in four big categories

**Table 1**

| order_date       | line_profit |            | line_revenue |            | line_total_cost |            |
|------------------|-------------|------------|--------------|------------|-----------------|------------|
|                  | 2008-03-01  | 2008-04-01 | 2008-03-01   | 2008-04-01 | 2008-03-01      | 2008-04-01 |
| Product_Category |             |            |              |            |                 |            |
| Accessories      | -750        | -8,575     | 15,450       | 30,026     | 16,198          | 38,180     |
| Bikes            | 880,110     | 422,919    | 2,435,789    | 2,052,940  | 1,552,467       | 1,622,903  |
| Clothing         | -9,152      | -30,539    | 49,334       | 72,364     | 58,144          | 101,178    |
| Components       | 73,837      | 55,058     | 220,872      | 310,268    | 147,035         | 255,210    |

**Table 2**

|                  | line_profit | line_revenue | line_total_cost |
|------------------|-------------|--------------|-----------------|
| Product_Category |             |              |                 |
| Accessories      | -1,044%     | 94%          | 136%            |
| Bikes            | -52%        | -16%         | 5%              |
| Clothing         | -234%       | 47%          | 74%             |
| Components       | -25%        | 40%          | 74%             |

- As the deviation in profit occurred on April 2008, the sales data are filtered for March and April 2008.
- Revenue, cost and profits in four different product categories have been compared to understand the biggest profit driver for the company in March 2008 and the change in April 2008.
- As observed in **table 1**, Bikes category is the biggest profit source followed by Components category on March and April 2008. Accessories and Clothing categories cause loss in both March and April.
- In all categories except bikes revenue has increased from March to April. In the same categories except Bikes, the cost has increased relatively more than the revenue increase, which causes loss in profit on April.
- Last but not least, revenue in the bikes category decreases when the cost increases, which causes the biggest loss in profit.
- As can be seen on **table 2** there is a decrease in profit in each category. The profit change in Bikes on April 2008 is more than half of previous month.

# Changes in revenue, cost and profit in Bikes category

**Table 3**

| order_date           | line_profit |            | line_revenue |            | line_total_cost |            |
|----------------------|-------------|------------|--------------|------------|-----------------|------------|
|                      | 2008-03-01  | 2008-04-01 | 2008-03-01   | 2008-04-01 | 2008-03-01      | 2008-04-01 |
| Product_Sub_Category |             |            |              |            |                 |            |
| Mountain Bikes       | 285,153     | 179,621    | 666,291      | 637,286    | 381,138         | 453,758    |
| Road Bikes           | 260,231     | 129,800    | 803,784      | 751,053    | 540,866         | 621,253    |
| Touring Bikes        | 334,726     | 113,498    | 965,714      | 664,601    | 630,463         | 547,893    |

**Table 4**

| Product_Sub_Category | line_profit | line_revenue | line_total_cost |
|----------------------|-------------|--------------|-----------------|
|                      | 2008-03-01  | 2008-04-01   | 2008-03-01      |
| Mountain Bikes       | -37%        | -4%          | 19%             |
| Road Bikes           | -50%        | -7%          | 15%             |
| Touring Bikes        | -66%        | -31%         | -13%            |

- As seen on **the table 3** in Mountain Bikes and Road Bikes the decrease in revenue together with the increase in cost caused loss in profit on April 2008.
- The biggest profit source Touring Bikes in Bikes category saw one third of the March revenue which results a loss in profit about two thirds of March profit.

# Recommendations

- Although the revenue follows a similar trend with the trends in previous years, the cost is rising starting from April 2008.
- There is no big deviation in the freight cost whereas the cost **without** freight shows deviation compared to previous years.
- As a result a further analysis to understand the reason of the increase in cost is needed.
- It's recommended that the main cost sources of company to be analyzed on region, city, branch and sales person levels for a more effective cost management strategy.

# Improvements for data analysis projects

- As creating visuals took the most of the time, using an interactive dashboard where you can select dimensions, measures, filters would help to decrease the time spent for analysis when a new analysis needed in the future.
- A BI tool such as Tableau, Qlik Sense, Looker, Power BI can be used for data visualisation.
- If the cost for an BI tool needs to be avoided, a dashboard web application can be built with Dash for the end users.
- As there was not much data quality issue the data cleaning did not take much time. But a good data governance strategy can prevent the data quality issues as the amount of data increases.