



Data Analysis and Visualization of Customer Orders and Late Delivery Compensations at Tapau Technology Sdn Bhd

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ABSTRACT

This technical report presents a data analytics study conducted at the Careline Customer and Operation Department of Tapau Technology Sdn Bhd (TapauFood). The study aims to evaluate customer order trends and monitor service efficiency by analyzing late delivery compensations. Monthly customer data was extracted, combined, and cleaned using Microsoft Excel's Power Query Editor before being visualized using Power BI to identify high-demand regions. Additionally, a compensation analysis was performed by filtering delivery records exceeding 70 minutes, which subsequently initiated an RM3 wallet transaction refund to affected customers. The analysis identified Kepala Batas as the highest-performing region, accumulating 1,679 orders in May 2021. The findings empower the management to execute data-driven decisions for targeted marketing and to identify operational bottlenecks causing delayed deliveries.

Keywords: Compensation analysis, Data visualization, Food delivery, Power BI, Power Query Editor.

INTRODUCTION

Tapau Technology Sdn Bhd, operating under the brand TapauFood, is a Bumiputera-owned online food and grocery delivery company headquartered in Kepala Batas, Pulau Pinang. Established in 2020, the company aims to support small traders and boost the income of the Bumiputera and Muslim communities by providing a digital marketing and delivery platform. The Careline Customer and Operation Department oversees daily operational activities, addresses service inquiries, manages customer complaints, and ensures delivery efficiency. This department also manages customer accounts and order records to prevent fraud and maintain operational smoothness across the delivery network. To support the company's rapid expansion and maintain service quality, analytical studies were conducted. The first objective was to visualize monthly customer order trends to predict which locations demand the highest delivery frequencies. The second objective was to track daily delivery compensations due to delays, serving as an operational metric to gauge delivery efficiency and mitigate

financial losses.

THE PROPOSED METHOD

Customer Order Data Processing

Monthly customer data was systematically downloaded from Google Sheets and compiled into Microsoft Excel. Power Query Editor was utilized to combine multiple daily files, filter out null entries, and remove duplicated data to ensure high accuracy. The cleaned and structured data was then imported into the Power BI application. Within Power BI, the data was transformed into an interactive visualization to summarize order frequencies based on customer addresses.

Late Delivery Compensation Tracking

To maintain customer loyalty and satisfaction, TapauFood issues an RM3 wallet compensation for any delivery exceeding 70 minutes. Data was periodically exported from the Store-Wise Report system into Microsoft Excel. A filter was then applied to isolate delivery durations strictly greater than 70 minutes. Following validation, RM3 compensation transactions were executed via the system, and customers were notified via message. Finally, the daily compensation numbers were aggregated into a centralized monthly Excel tracking sheet.

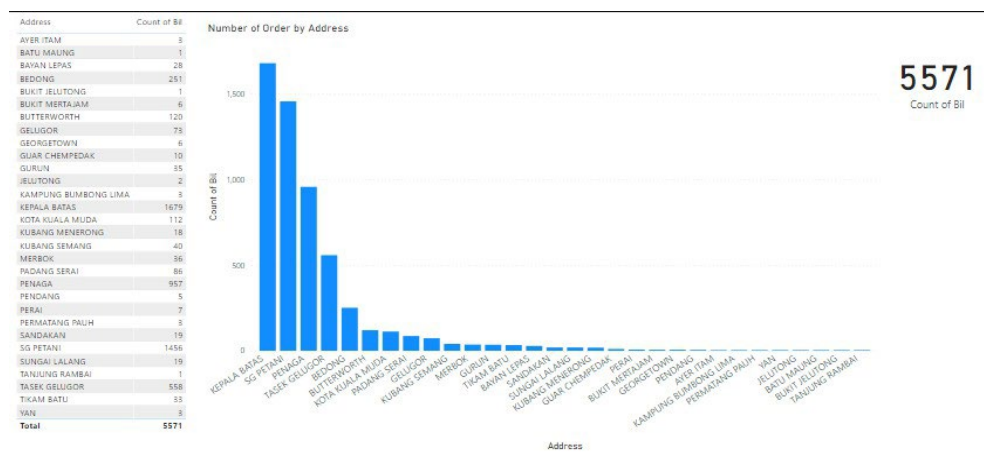
EVALUATION AND RESULTS

Order Trend Visualization

The Power BI visualization successfully mapped the distribution of customer orders across northern Malaysia (see Figure 1). The graphical analysis revealed that Kepala Batas generated the highest demand, recording exactly 1,679 orders in May 2021. This critical insight enables the management to accurately identify high-revenue geographical zones and optimize rider allocations in those specific areas.

Figure 1

Data visualization of the customers' location in May 2021 using Power Bi



Order Trend Visualization

The monthly tracking sheet reliably consolidated the total number of late deliveries per day (see Figure 2). The analysis extracted vital operational metrics, mapping out the longest and least time taken for delayed completions. By monitoring these metrics systematically, the company can evaluate rider efficiency, identify logistical bottlenecks, and minimize the profit margins lost to compensations.

Figure 2

Total number of compensation orders per day in May 2021 that took more than 70 minutes to complete delivery

DATE	AMOUNT OF COMPENSATION	COMPLETED IN
5/1/2021	60	71 minit - 382 minit (1 jam 11 minit - 6 jam 22 minit)
5/2/2021	42	70 minit - 144 minit (1 jam 10 minit - 2 jam 24 minit)
5/3/2021	60	70 minit - 149 minit (1 jam 10 minit - 2 jam 29 minit)
5/4/2021	71	70 minit - 228 minit (1 jam 10 minit - 3 jam 48 minit)
5/5/2021	100	71 minit - 340 minit (1 jam 11 minit - 5 jam 40 minit)
5/6/2021	80	70 minit - 216 minit (1 jam 10 minit - 3 jam 36 minit)
5/7/2021	67	70 minit - 340 minit (1 jam 10 minit - 5 jam 27 minit)
5/8/2021	40	70 minit - 129 minit (1 jam 10 minit - 2 jam 09 minit)
5/9/2021	78	70 minit - 327 minit (1 jam 10 minit - 5 jam 27 minit)
5/10/2021	51	71 minit - 167 minit (1 jam 11 minit - 2 jam 47 minit)
5/11/2021	83	70 minit - 246 minit (1 jam 10 min - 4 jam 6 minit)
5/12/2021	44	72 minit - 180 minit (1 jam 12 minit - 3 jam 00 minit)
13/5/2021	50	71 minit - 152 minit (1 jam 11 minit - 2 jam 32 minit)
14/5/2021	84	70 minit - 282 minit (1 jam 10 minit - 4 jam 42 minit)
15/5/2021	98	71 minit - 175 minit (1 jam 11 minit - 2 jam 55 minit)
16/5/2021	88	71 minit - 216 minit (1 jam 11 minit - 3 jam 36 minit)
17/5/2021	141	70 minit - 170 minit (1 jam 10 min - 3 jam 50 minit)
18/5/2021	94	70 minit - 208 minit (1 jam 10 minit - 3 jam 88 minit)
19/5/2021	74	70 minit - 211 minit (1 jam 10 minit - 3 jam 31 minit)
20/5/2021	39	71 minit - 152 minit (1 jam 11 minit - 2 jam 32 minit)
21/5/2021	33	70 minit - 122 minit (1 jam 10 min - 2 jam 02 minit)
22/5/2021	41	70 minit - 182 minit (1 jam 10 min - 3 jam 02 minit)
23/5/2021	25	70 minit - 131 minit (1 jam 10 minit - 2 jam 10 minit)
24/5/2021	41	71 Minit - 223 Minit (1 Jam 11 Minit - 3 Jam 23 Minit)
25/5/2021	23	70 Minit - 97 Minit (1 Jam 10 Minit - 1 Jam 37 Minit)
26/5/2021	30	71 minit - 166 minit (1 jam 11 minit - 2 jam 46 minit)
27/5/2021	27	70 minit - 127 minit (1 jam 10 min - 2 jam 07 minit)

CONCLUSION

The application of data analytics in Tapau Technology Sdn Bhd significantly enhanced the Careline Customer and Operation Department's ability to monitor and summarize business performance. Utilizing Power Query Editor alongside Power BI allowed for the efficient cleaning and visualization of large datasets, facilitating evidence-based decision-making regarding market demands and customer locations. Furthermore, the structured tracking of late delivery compensations provided transparent operational metrics to continuously assess service quality. Future developments could involve automating the extraction of the Store-Wise Report directly into Power BI to create a real-time dashboard for delayed deliveries, thereby reducing the manual Excel filtering workload.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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