

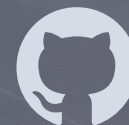
Maven Rail Challenge Dashboard

Maven Analytics

By:

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Full
Repository:





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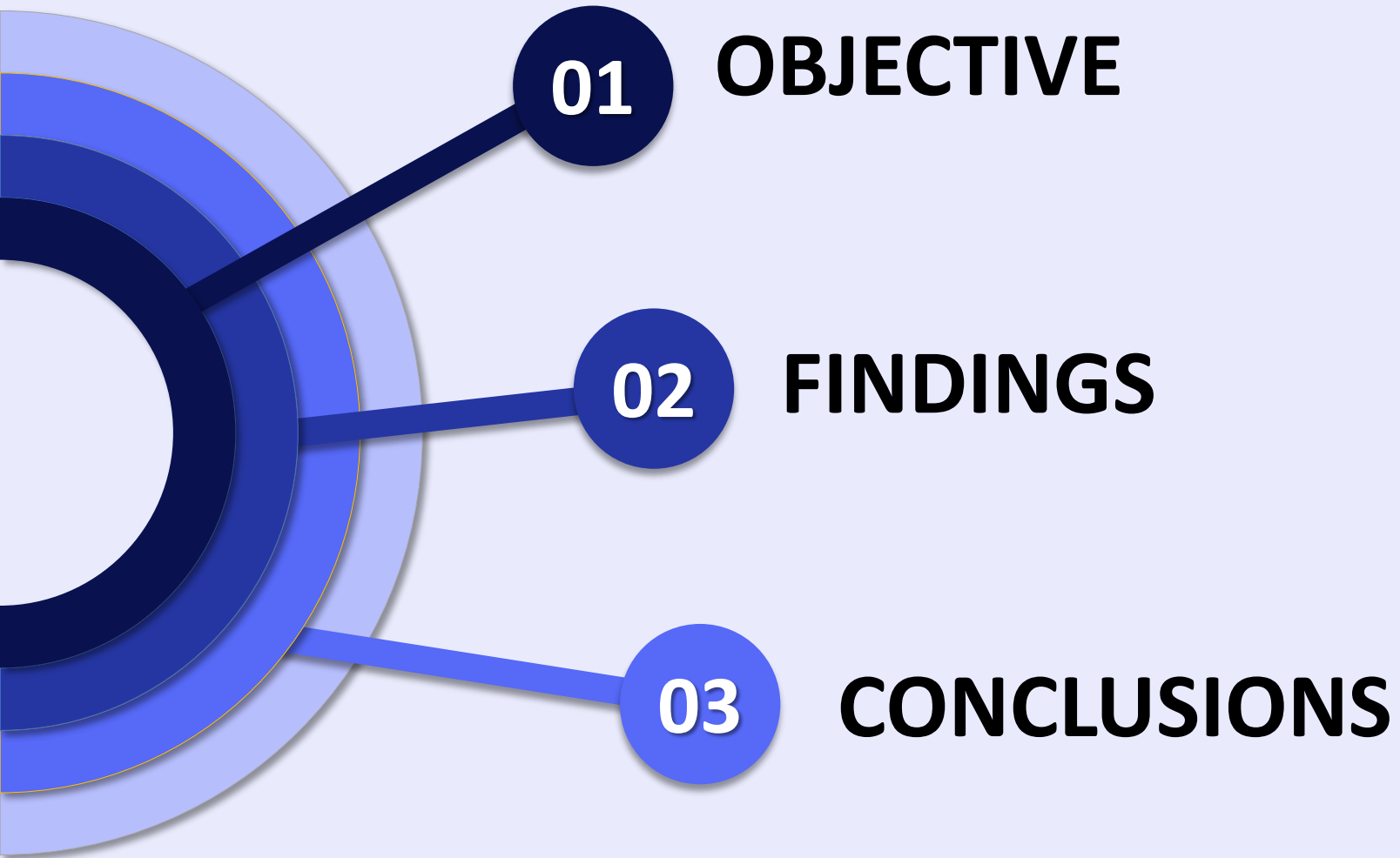
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“I am a graduate of the Faculty of Petroleum Engineering UPN "Veteran" Yogyakarta, seeking an opportunity to apply skills in data analysis and data science. I am skilled in operating Python for data processing, visualization, and machine learning. Tableau for data reporting, and SQL. highly enthusiastic individual, eager to learn new things, and can work in a team or individually, “





01

OBJECTIVE

- Determine peak travel times
- Identify the most popular routes
- Analyze revenue from different ticket types & classes
- Diagnose on-time performance and contributing factors

02

FINDINGS

A. Peak Travel Time

AVERAGE HOURLY TRANSACTION																								
Journey Day ▲	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Mon	6	5	7	4	7	5	25	21	16	9	3	7	7	9	8	8	18	21	23	4	9	5	6	5
Tue	7	4	7	4	8	7	25	23	17	10	4	7	5	10	6	9	18	21	27	4	8	5	6	6
Wed	7	5	8	4	8	6	26	24	20	8	4	9	7	13	7	9	21	23	28	4	9	5	7	6
Thu	8	6	8	5	9	7	26	21	19	11	5	8	6	9	7	10	17	24	25	3	8	5	7	6
Fri	6	5	7	5	8	5	26	23	19	10	5	9	5	10	7	9	20	21	22	4	8	5	5	5
Sat	8	6	7	4	10	6	24	23	17	9	4	8	6	11	6	9	17	21	25	3	9	4	6	5
Sun	7	5	9	5	9	5	25	25	17	10	4	8	7	11	7	9	19	23	27	4	9	5	7	5

Based on a table representing average transactions by train departure time and day, it is evident that there is no single day with a significantly higher number of transactions than others, indicating a relatively balanced distribution. However, there is a slight tendency for more transactions to occur on Wednesdays and Sundays compared to other days.

Meanwhile, in terms of hours, it is clear that peak passenger times are divided into two periods: 6-8 am, when most people begin their activities, and 4-6 pm, when the majority of people finish their routines, such as work and other activities.

B. Routes

I. Busiest Station

Station	Total Involvement
Birmingham New Street	9878
Manchester Piccadilly	9618
Liverpool Lime Street	9583
London Euston	6521
York	4946

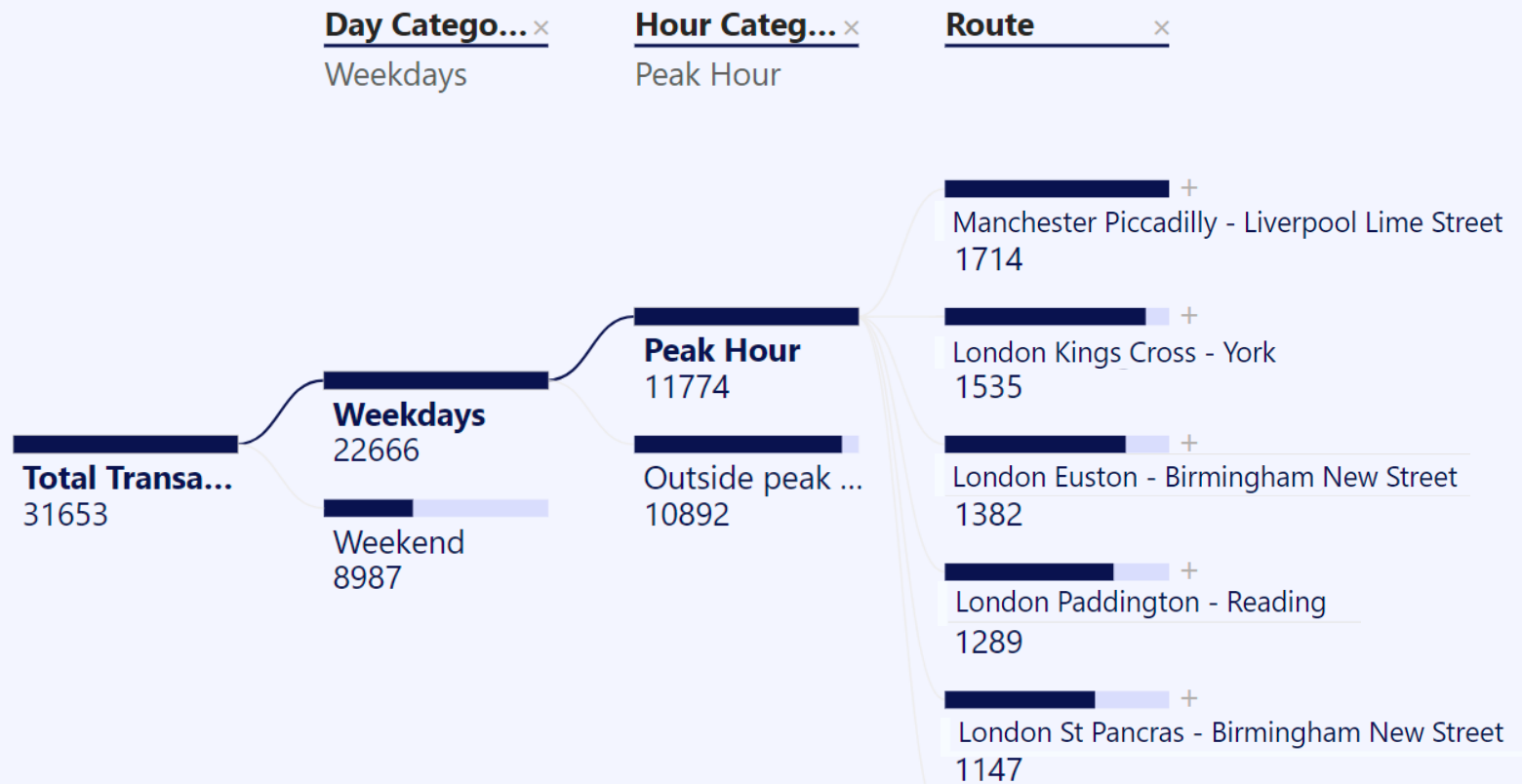
Birmingham New Street, Manchester Piccadilly, and Liverpool Lime Street have significantly higher levels of involvement in departures and arrivals compared to other stations.

II. Popular Route

5 Most Popular Routes	
Route	Total Transaction
Manchester Piccadilly - Liverpool Lime Street	4628
London Euston - Birmingham New Street	4209
London Kings Cross - York	3922
London Paddington - Reading	3873
London St Pancras - Birmingham New Street	3471

The Manchester Piccadilly—Liverpool Lime Street route is one of the most popular, as evidenced by the high number of transactions. Additionally, four of the five most popular routes originate from stations in London.

Birmingham New Street, listed as one of the busiest stations, appears to function primarily as a destination station, with at least 75% of its involvement attributed to incoming traffic.



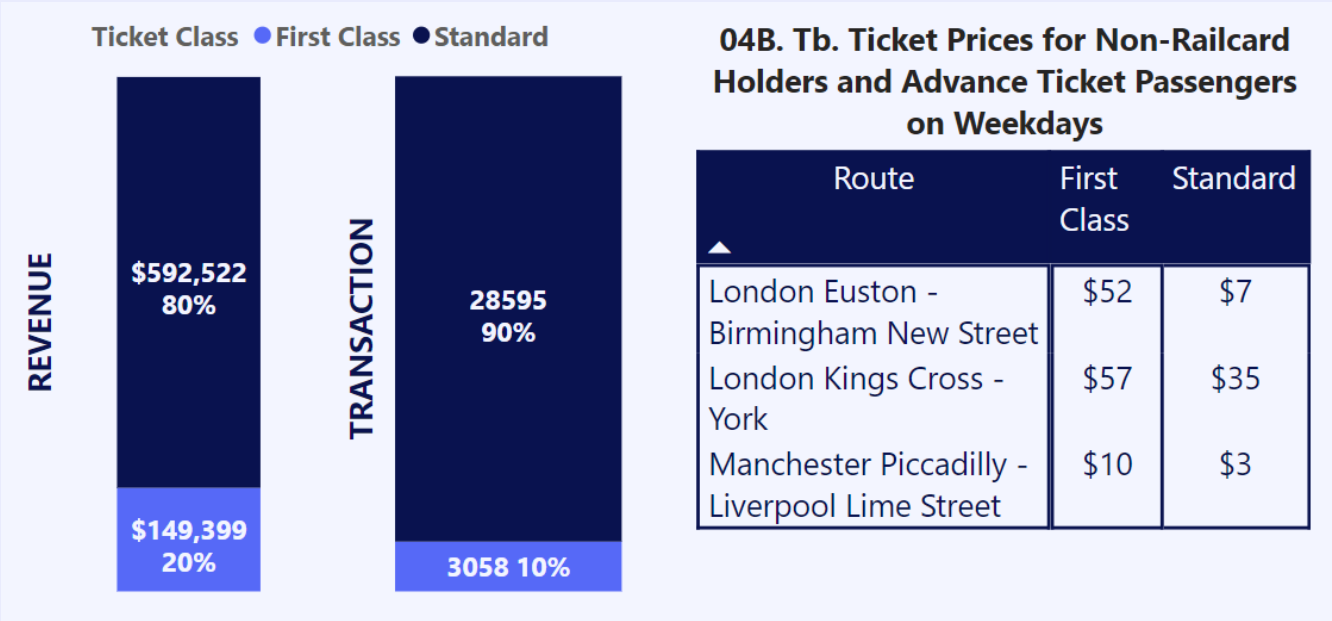
Further analysis using a Decomposition Tree was conducted to examine the relationship between Peak Time and popular routes. The findings revealed that over 70% of transactions occur on weekdays, with total peak-hour transactions surpassing those outside peak hours. Additionally, the analysis confirmed that the top five popular routes alone account for approximately 60% of all transactions.

C. Revenue



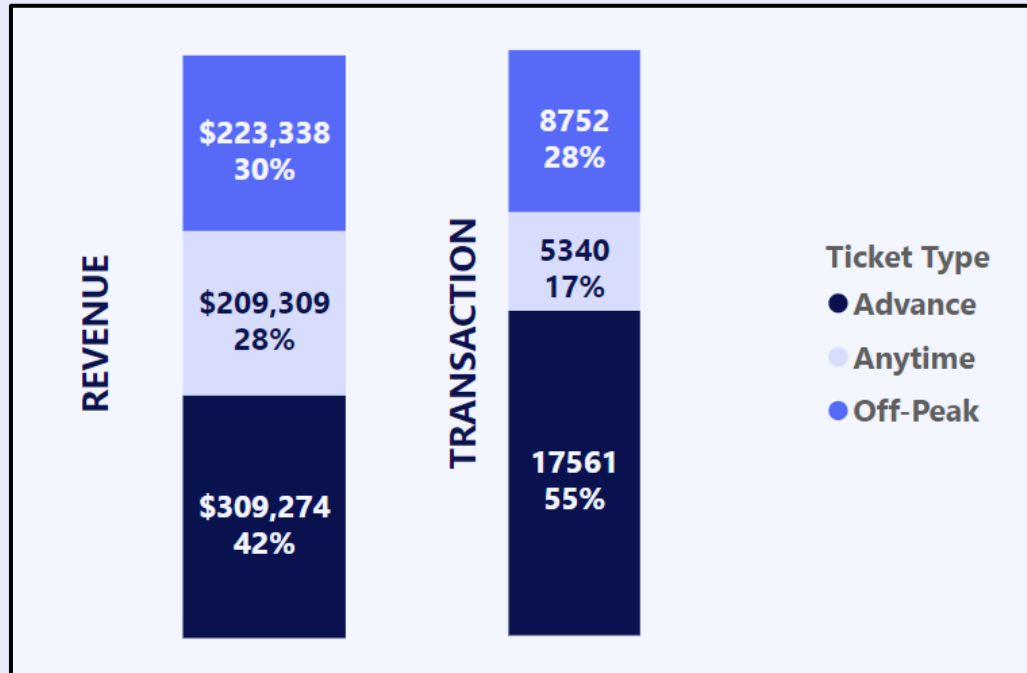
Total revenue is calculated by summing the ticket prices for each transaction, after first filtering out transactions with a "Refund" status.

I. Ticket Class



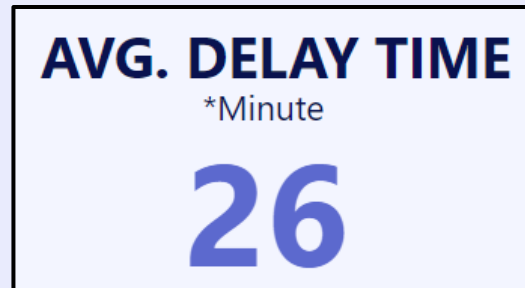
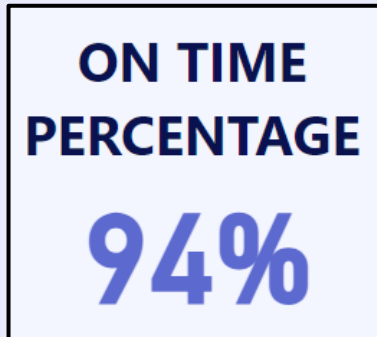
The data shows that Standard Class tickets dominate both in revenue and transaction volumes. While they account for the majority of sales, First Class tickets, though fewer in number, still contribute significantly to overall revenue. This highlights the higher frequency of Standard Class purchases due to their lower price point, complemented by the substantial revenue from the premium pricing of First Class tickets.

II. Ticket Type



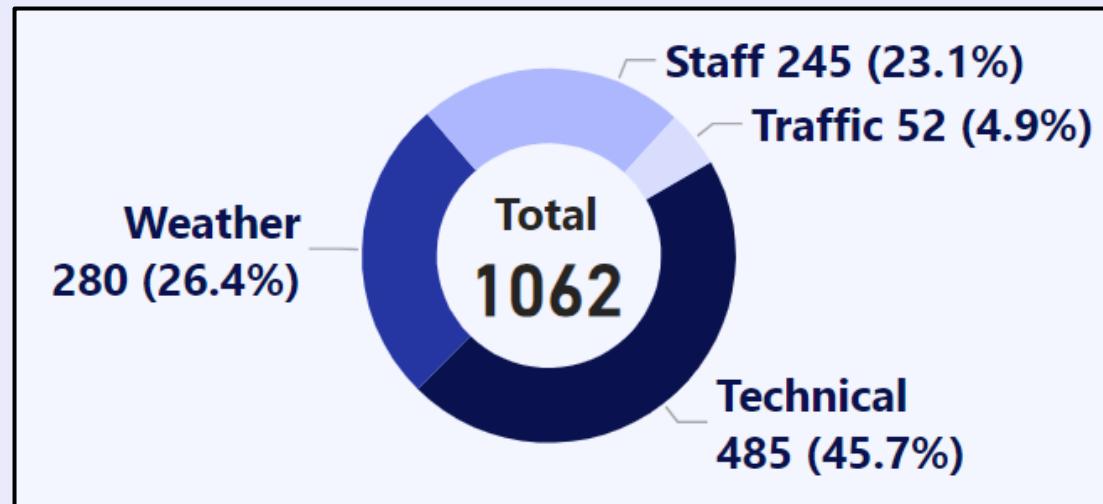
The revenue distribution shows that Advance tickets contribute 42% to total revenue, while they account for 55% of total transactions. In contrast, Anytime tickets generate 28% of revenue but represent only 17% of transactions. This indicates that while Advance tickets are the most frequently purchased, Anytime tickets yield higher revenue per transaction.

D. On-Time Performance



It was recorded that at least 6% of all trips experienced delays ranging from 1 to 59 minutes, with an average delay of 26 minutes.

I. Reason for Delay



Of the 1,062 trips that experienced delays, 45% were due to technical issues, and 23% were caused by staff-related factors. This indicates that delays can still be minimised by improving these areas of service.

Among the available routes, several with specific departure stations boast an on-time performance rate of up to 100%. One example is London St Pancras station, which has served 2,235 trips and functions as the departure station for at least three routes. This consistent on-time performance demonstrates a commitment to reliable service, ultimately enhancing user satisfaction and loyalty.

The information in the table further supports the conclusion that technical and staff-related factors are the primary causes of delays.

SUMMARY OF DELAYS FOR EACH DEPARTURE STATION					
Departure Station	Total Trip	On Time	Avg. Delay, Min	Most Problem	Refund
<div><div></div>Birmingham New Street</div>	1335	92%	24	Technical	5%
<div><div></div>Bristol Temple Meads</div>	15	100%	0		0%
<div><div></div>Edinburgh Waverley</div>	43	0%	15	Staff	100%
<div><div></div>Liverpool Lime Street</div>	2893	90%	25	Weather	5%
<div><div></div>London Euston</div>	2936	97%	32	Technical	0%
<div><div></div>London Kings Cross</div>	2531	98%	16	Technical	0%
<div><div></div>London Paddington</div>	2506	98%	34	Technical	0%
<div><div></div>London St Pancras</div>	2235	100%	0		0%
<div><div></div>Manchester Piccadilly</div>	3394	88%	27	Weather	2%
<div><div></div>Oxford</div>	124	88%	19	Technical	11%
<div><div></div>Reading</div>	439	100%	0		0%
<div><div></div>York</div>	630	93%	22	Staff	0%

1. there is no single day with a significantly higher number of transactions than others, Meanwhile, in terms of hours, it is clear that peak passenger times are divided into two periods: 6-8 am, and 4-6 pm
2. The Manchester Piccadilly—Liverpool Lime Street route is one of the most popular, while Birmingham New Street is listed as one of the busiest stations.
3. The Standard Ticket Class contributes significantly to overall revenue, accounting for 80% (\$592K).
4. Among all ticket types, the Advanced Ticket Type generates the most revenue, contributing \$309K, which is 42% of the total revenue.
5. With an on-time rate of 94%, the main causes of delays are technical and staff-related issues, indicating that there is room for improvement in on-time performance.

THANK YOU
