

UBER TRIP ANALYSIS DASHBOARD

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UBER TRIP ANALYSIS DASHBOARD – PROJECT REPORT

1. Project Title

→ Uber Trip Analysis using Power BI

2. Project Objective

The objective of this project is to analyze Uber trip data using **Power BI** to generate meaningful insights into booking trends, revenue performance, trip efficiency, time-based demand, and location patterns.

The dashboard enables stakeholders to make data-driven decisions on pricing strategies, driver allocation, marketing focus, and customer experience improvements based on real trip behavior.

3. Tools & Technologies Used

- **Power BI** – Data modeling, DAX measures, interactive dashboard creation.
- **Excel / CSV Dataset** – Source data containing trip-level records (trip ID, timestamps, locations, fare, distance, etc.).
- **DAX (Data Analysis Expressions)** – Used to build KPIs, dynamic measures, time-intelligence calculations, and dynamic titles.

These tools together support end-to-end data analysis from raw Uber data to business-ready visual insights.

4. Key Performance Indicators (KPIs)

The following **KPIs** are calculated and visualized across the dashboards to summarize overall performance:

- **Total Bookings** – Total number of trips completed (e.g., 103.7K trips).
- **Total Booking Value** – Total revenue generated from all completed trips (e.g., around \$1.6M).
- **Average Booking Value** – Revenue per trip, indicating average ticket size (e.g., \$15 per ride).
- **Total Trip Distance** – Total miles traveled across all completed rides (e.g., 349K miles).
- **Average Trip Distance** – Average distance per trip (e.g., 3 miles).
- **Average Trip Time** – Average trip duration (e.g., 16 minutes), useful for understanding trip efficiency and typical journey length.
- These KPIs form the foundation for performance monitoring and comparison across time, vehicle types, and locations.

5. Dashboard Overview

5.1 Dashboard 1: Overview Analysis

This dashboard provides a high-level summary of Uber trip performance, revenue, and service mix.

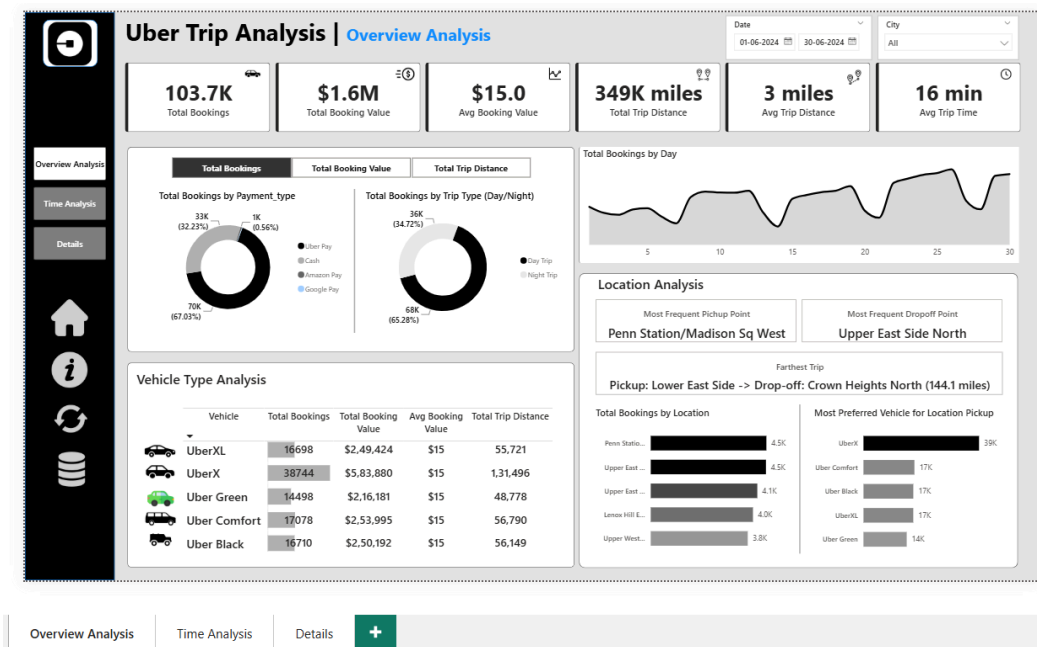
Key Insights (Example Values):

- Total Bookings: **103.7K**
- Total Booking Value: **\$1.6M**
- Average Booking Value: **\$15**
- Total Trip Distance: **349K miles**
- Average Trip Distance: **3 miles**
- Average Trip Time: **16 minutes**

Visual Analysis:

- **Bookings by Payment Type**
 - Bar/column chart comparing modes such as Uber Pay, Cash, Amazon Pay, and Google Pay.
 - Helps understand digital vs cash payment preference and guides payment partner strategies.
- **Bookings by Trip Type (Day/Night)**

- Segmentation of trips into Day vs Night categories.
- Reveals demand patterns across different times of the day and supports driver scheduling decisions.
- **Vehicle Type Analysis (Table/Matrix)**
 - Compares **UberX, UberXL, Uber Comfort, Uber Black, Uber Green**, etc. on:
 - Total bookings
 - Total revenue
 - Average booking value
 - Total trip distance
 - Helps identify top-performing vehicle categories and premium vs economy segment behavior.
- **Location Analysis**
 - Highlights:
 - Most frequent pickup point
 - Most frequent drop-off point
 - Farthest trip recorded
 - Top 5 pickup locations
 - Most preferred vehicle by location
 - Typically implemented using map visuals and tables to detect demand hotspots.

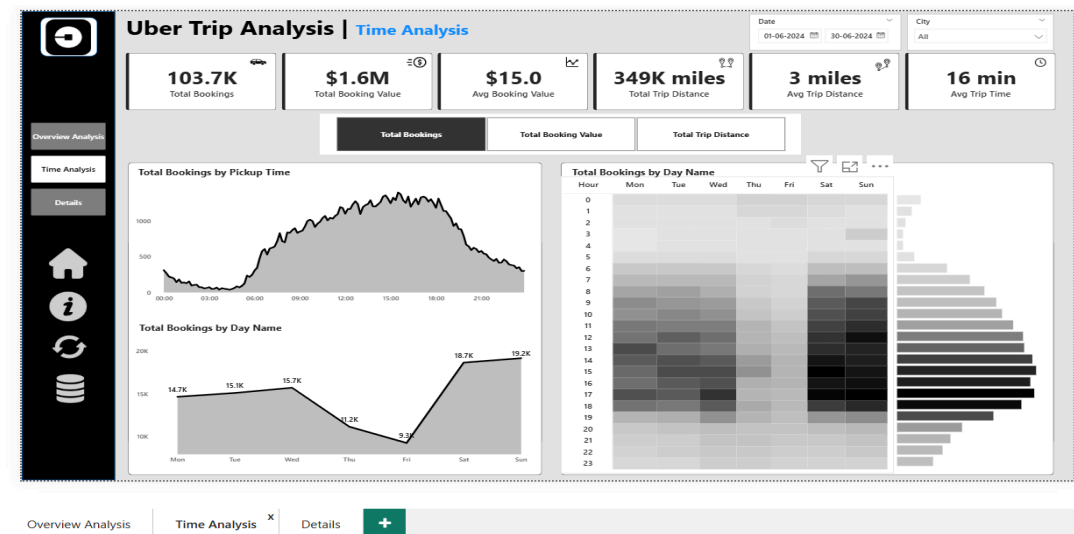


5.2 Dashboard 2: Time Analysis

This dashboard focuses on **time-based demand** and seasonality.

Key Visuals:

- **Total Bookings by Pickup Time (Area Chart)**
 - Shows trip volume distribution across 24 hours.
 - Identifies peak hours (e.g., morning and evening rush periods).
- **Bookings by Day Name (Line Chart)**
 - Compares bookings across days of the week.
 - Distinguishes weekday vs weekend trends and helps in staffing and promotions.
- **Hourly Heatmap (Matrix)**
 - Rows: Hours (0–23)
 - Columns: Days (Mon–Sun)
 - Values: Dynamic measure (Bookings / Revenue / Distance)
 - This heatmap clearly highlights peak booking hours and underutilized periods.
- **Dynamic Measure Selector**
 - A disconnected table powers a **measure selector** with options like:
 - Total Bookings
 - Total Booking Value
 - Total Trip Distance
 - All time-based charts update dynamically based on the selected metric, improving exploratory analysis.



5.3 Dashboard 3: Details Tab

This tab provides **record-level detail** for deeper analysis and validation.

Features:

- A grid/table showing:
 - Trip ID
 - Pickup date & time
 - Vehicle type
 - Payment type
 - Number of passengers
 - Trip distance
 - Total booking value
 - Pickup location
- **Drill-through functionality** from Overview and Time dashboards to the Details tab, preserving filters like date, city, or vehicle type.
- **Bookmark** to toggle between filtered data and full dataset, making it easy to reset views or compare focused segments with the overall population.youtube+1

Trip ID	Pickup Date	Pickup Hour	Vehicle	Payment type	Num of passengers	Trip Distance	Total Booking Value	Pickup Location	Total Bookings
1	01 June 2024	00:42:50	UberX	Uber Pay	1	5.60	\$21.5	East Village	1.0
2	01 June 2024	00:06:29	Uber Black	Cash	1	1.72	\$8.0	Lincoln Square East	1.0
3	01 June 2024	00:08:05	Uber Black	Cash	1	3.41	\$13.0	Sutton Place/Turtle Bay North	1.0
4	01 June 2024	00:28:20	UberX	Cash	1	1.81	\$9.0	Prospect-Lefferts Gardens	1.0
5	01 June 2024	00:38:05	Uber Black	Cash	1	1.89	\$8.0	Garment District	1.0
6	01 June 2024	00:06:00	UberX	Cash	6	3.29	\$14.0	Central Harlem	1.0
7	01 June 2024	00:40:41	UberX	Cash	2	2.05	\$8.5	Lincoln Square East	1.0
8	01 June 2024	00:32:01	Uber Comfort	Cash	2	3.54	\$12.5	Clinton East	1.0
9	01 June 2024	00:20:27	Uber Green	Cash	1	1.10	\$5.5	Clinton East	1.0
10	01 June 2024	00:54:40	UberX	Uber Pay	2	1.90	\$11.6	Lenox Hill East	1.0
11	01 June 2024	00:18:51	UberXL	Uber Pay	1	6.66	\$28.5	Clinton East	1.0
12	01 June 2024	00:17:18	Uber Comfort	Uber Pay	2	13.12	\$36.5	Kips Bay	1.0
13	01 June 2024	00:00:31	Uber Green	Cash	1	12.59	\$37.0	JFK Airport	1.0
14	01 June 2024	00:21:51	UberXL	Cash	1	1.10	\$5.5	Clinton East	1.0
15	01 June 2024	00:29:31	UberX	Cash	1	9.00	\$27.0	Morningside Heights	1.0
16	01 June 2024	00:46:55	Uber Black	Uber Pay	1	2.12	\$10.4	Kips Bay	1.0
17	01 June 2024	00:46:26	UberXL	Uber Pay	1	3.00	\$13.0	Midtown North	1.0
18	01 June 2024	00:14:47	Uber Comfort	Uber Pay	1	3.10	\$14.6	Greenwich Village South	1.0
19	01 June 2024	00:42:52	UberXL	Uber Pay	1	5.63	\$21.3	East Williamsburg	1.0
20	01 June 2024	00:20:49	Uber Green	Uber Pay	1	1.53	\$8.6	Clinton East	1.0
21	01 June 2024	00:44:00	Uber Comfort	Cash	1	1.70	\$8.5	Fort Greene	1.0
22	01 June 2024	00:04:52	UberXL	Uber Pay	1	5.80	\$25.5	Penn Station/Madison Sq West	1.0
23	01 June 2024	00:50:26	Uber Comfort	Uber Pay	1	2.50	\$10.5	Penn Station/Madison Sq West	1.0
24	01 June 2024	00:03:50	Uber Comfort	Uber Pay	1	4.59	\$21.2	Clinton East	1.0
26	01 June 2024	00:02:46	UberX	Cash	1	1.08	\$7.0	East Village	1.0
27	01 June 2024	00:11:35	Uber Green	Cash	1	1.90	\$7.0	Clinton East	1.0
28	01 June 2024	00:43:11	UberX	Uber Pay	1	8.18	\$33.2	Kips Bay	1.0
Total					146478	3,48,933.81	\$15,53,672.8		103728.0

6. Advanced Power BI Features Used

The dashboard leverages several advanced Power BI capabilities:

- **Dynamic Titles** driven by selected measures or filters to make pages context-aware.
- **Slicers** for Date, City, and possibly Vehicle Type to support flexible filtering and segmentation.
- **Bookmarks** for page navigation, scenario views (e.g., “Peak Hours View”), and explanation popups.
- **Conditional Formatting** in tables to highlight high revenue, long trips, or outliers using color scales and icons.
- **Inactive Relationship Activation** using DAX to switch between pickup-based and drop-off-based analysis when both relate to the same date table.
- **Clear Filters Button** created via bookmarks or “Reset” buttons to quickly restore default views and improve user experience.
- These features make the report more interactive, intuitive, and suitable for non-technical stakeholders.

7. Business Impact & Insights

Using the Uber Trip Analysis Dashboard, stakeholders can derive the following types of insights:

- Identification of **peak booking hours and days**, allowing better driver allocation, surge pricing, and incentive planning.
- Analysis of **customer payment preferences** (digital wallets vs cash) to guide partnerships and offers.
- Comparison of **vehicle performance** (UberX vs premium types) for fleet planning, category expansion, and targeted promotions.
- Detection of **high-demand locations** and hotspots, enabling optimized driver positioning and reduced waiting times.
- Improved understanding of **trip efficiency** through distance and time metrics, supporting route optimization and service-level monitoring.

Overall, the dashboard transforms raw ride data into decisions that can improve profitability, utilization, and customer satisfaction.

8. Conclusion

The **Uber Trip Analysis Dashboard** successfully converts raw trip data into **actionable business insights** using Power BI. It combines KPIs, time-series analysis, geospatial views, and drill-through capabilities to give a 360° view of Uber's operational performance.

By integrating dynamic visuals, DAX-based measures, and interactive navigation, the solution supports strategic decision-making in areas like demand management, pricing, driver deployment, and customer experience. This project also demonstrates strong proficiency in Power BI data modeling, DAX, and dashboard design suitable for real-world analytics use cases.