

COLLEGE BUS USAGE MONITOR (POWER BI)

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GitHub Link : <https://github.com/sshrushti23/College-Bus-Usage-Monitor-/tree/main>

EXECUTIVE SUMMARY

This presentation provides a comprehensive analysis of college bus usage based on dashboard metrics. We will explore route popularity, bus occupancy, and peak travel patterns to identify key trends and offer data-driven recommendations for service optimization.

DASHBOARD OVERVIEW

Let's begin with a look at the high-level numbers that frame our analysis. These figures provide a snapshot of the overall system activity during the analysis period.

- Total Student Ridership: 2,841
- Distinct Routes Analyzed: 4
- Total Active Trips: 839
- Average Ridership per Hour: ~12.38 students

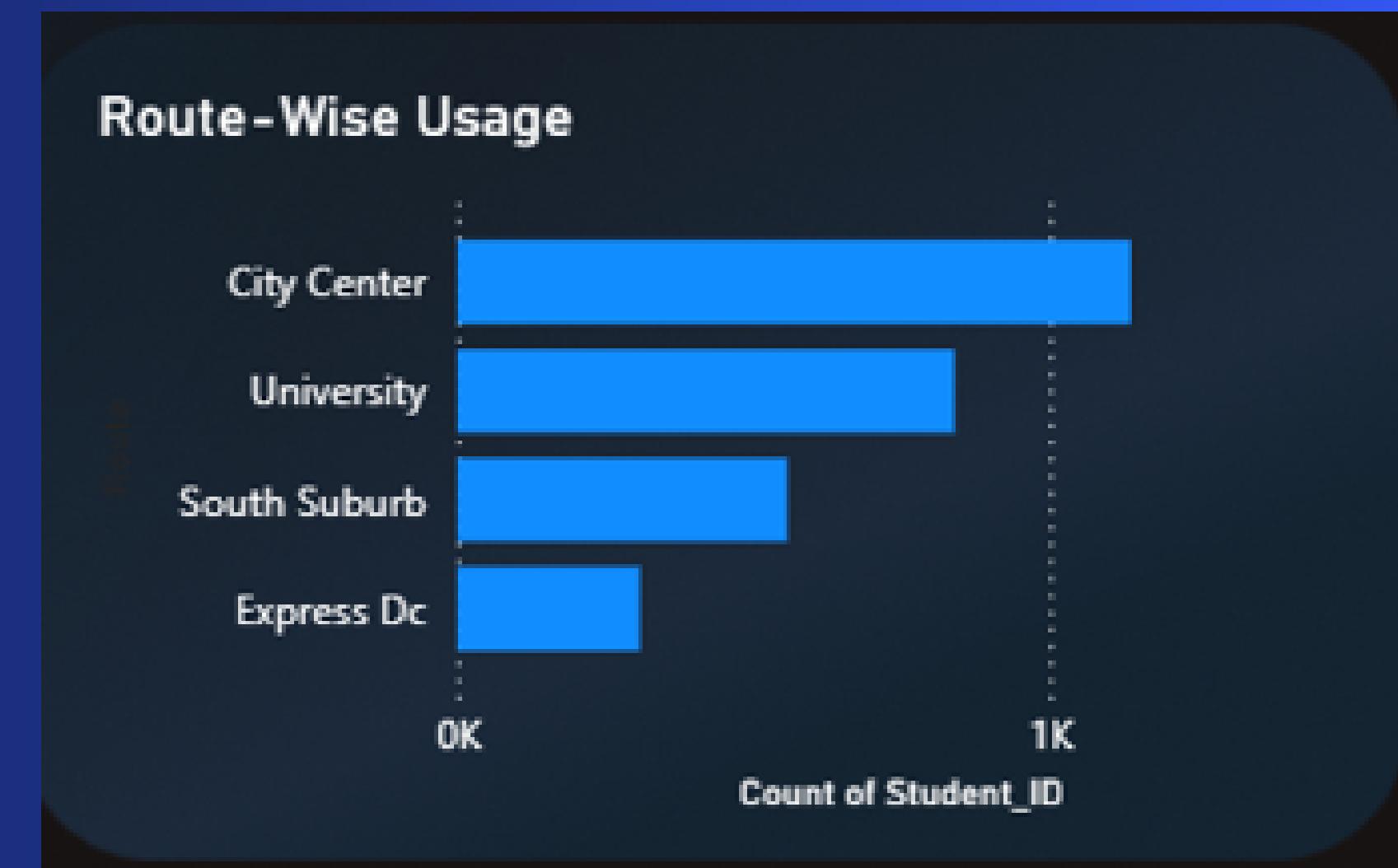


ROUTE POPULARITY ANALYSIS

The "City Center" route is the clear favorite among students, indicating it serves a critical residential or academic hub. The "Express DC" route shows significantly lower usage.

Student Count by Route:

- City Center: Highest Usage
- University: Second Highest Usage
- South Suburb: Moderate Usage
- Express DC: Lowest Usage

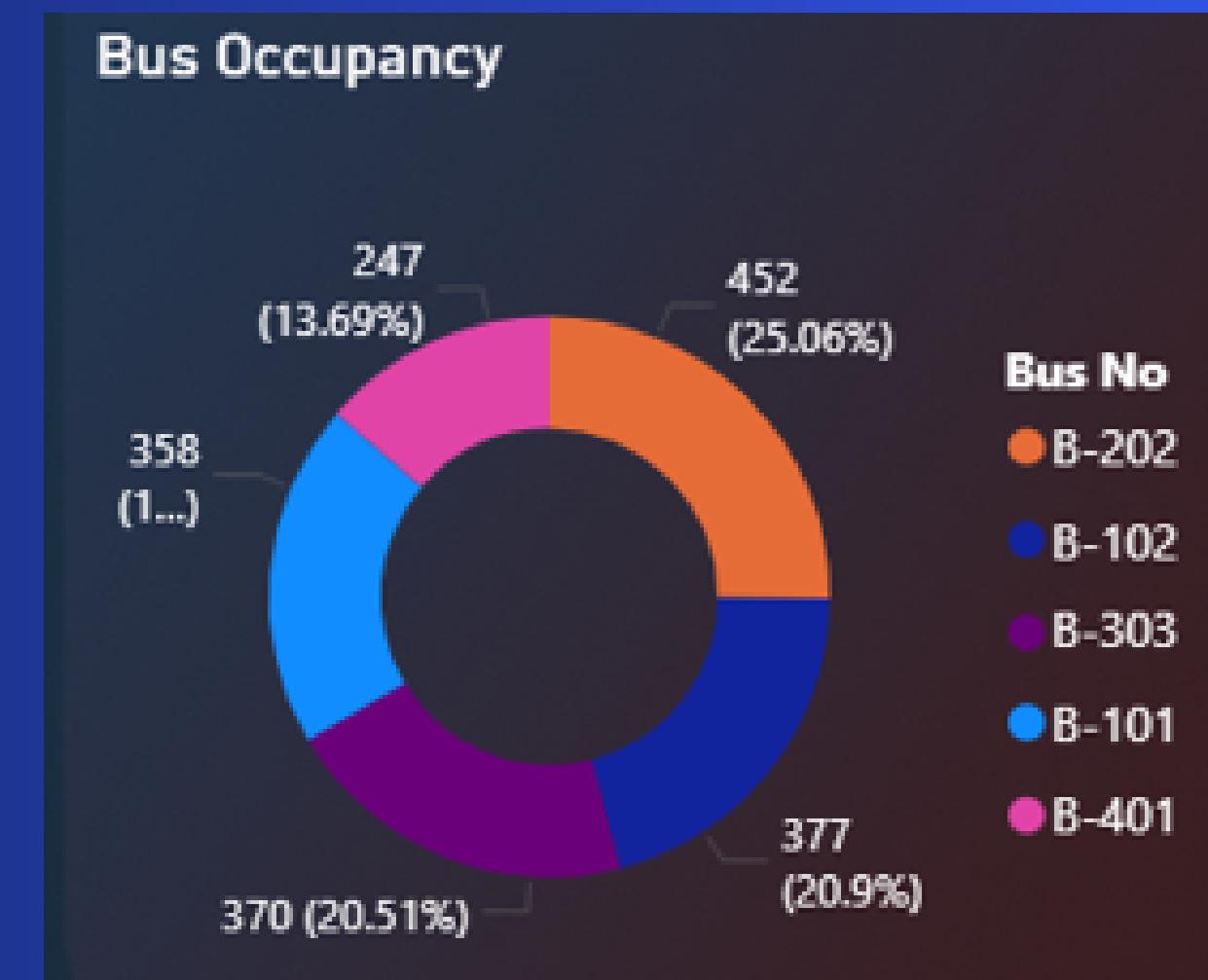


BUS OCCUPANCY ANALYSIS

A closer look at individual bus utilization shows that Bus B-202 is the fleet's workhorse, carrying over a quarter of all student passengers.

Occupancy Breakdown by Bus No.:

- B-202: 452 students (25.06%)
- B-101: 377 students (20.9%)
- B-401: 370 students (20.51%)
- B-102: 358 students (Unknown %)
- B-303: 247 students (13.69%)

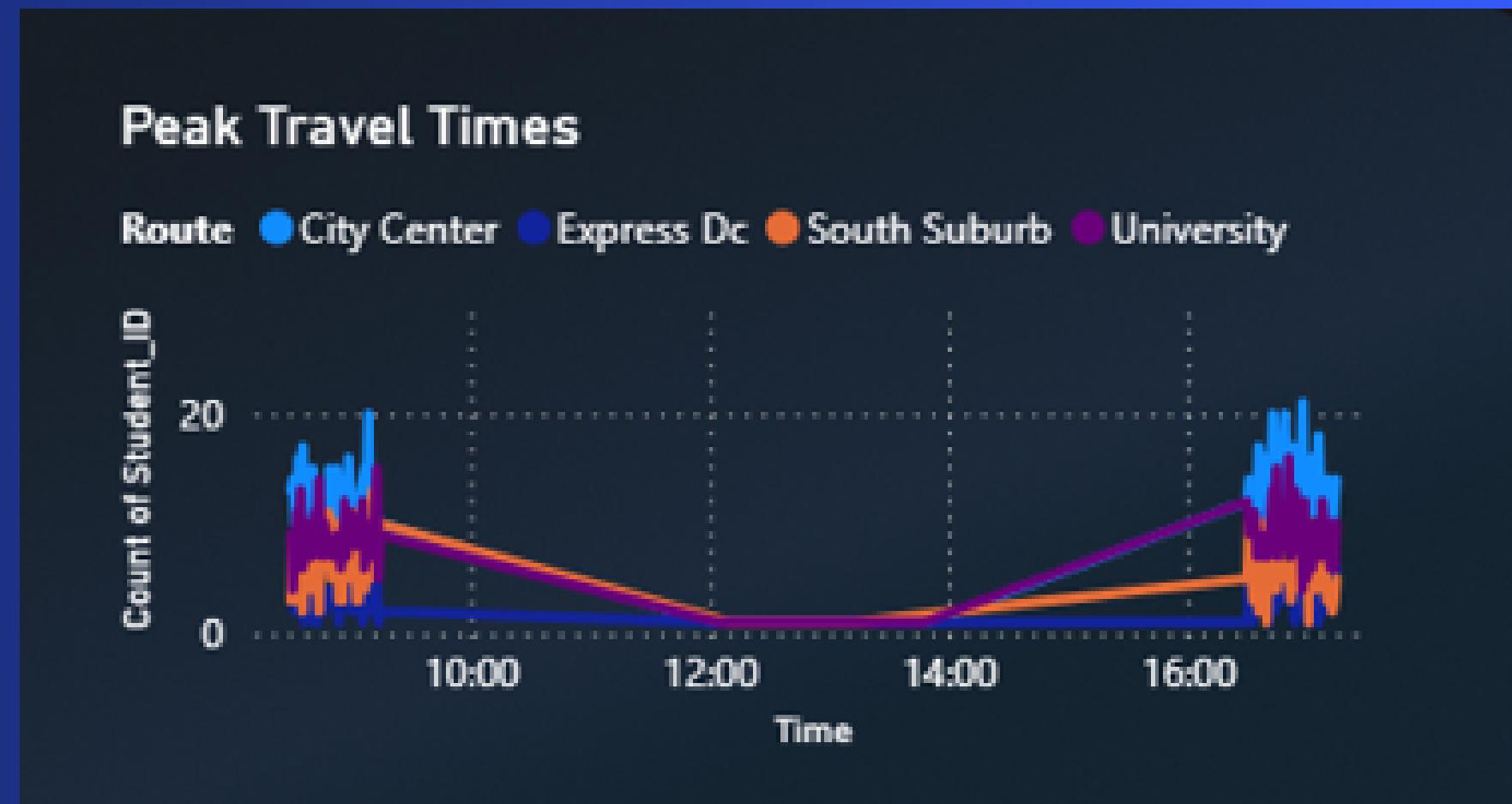


ANALYSIS OF PEAK TRAVEL TIMES

Ridership volume fluctuates predictably throughout the day, aligning with the typical academic schedule. The two main periods of high demand are mid-morning and late afternoon.

Key Observations:

- Morning Peak: A significant spike in travel occurs around 10:00 AM.
- Midday Lull: Ridership decreases after the morning rush.
- Afternoon Peak: The highest volume of travel occurs around 4:00 PM (16:00), marking the end of the academic day.

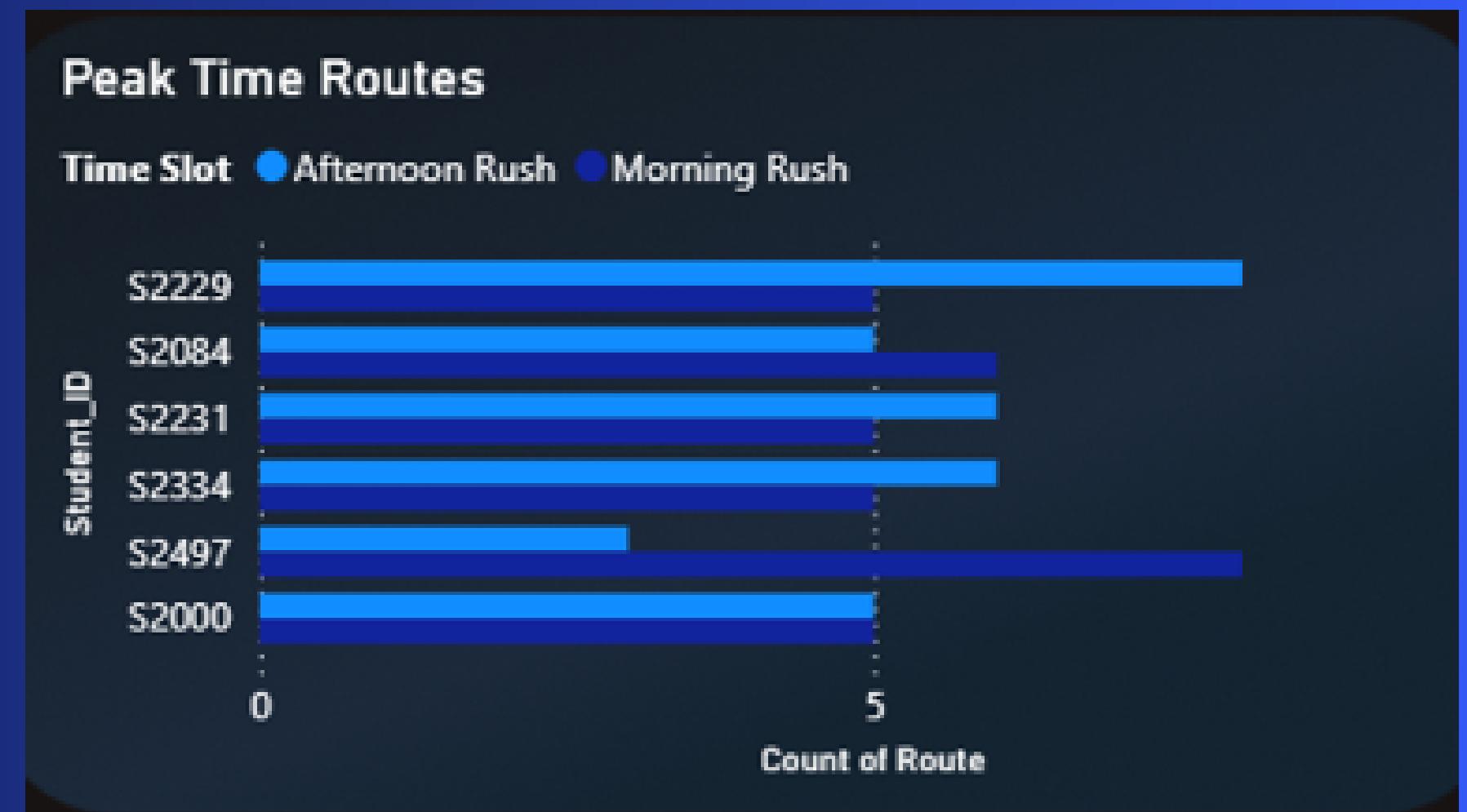


BUSIEST ROUTES DURING PEAK HOURS

During morning and afternoon rush hours, certain student routes experience the highest demand. The data clearly shows which routes are most congested during these peak periods.

Most Active Routes:

- Student ID S2229: Highest count of trips during peak times.
- Student ID S2084 & S2497: Also show very high usage.



SUMMARY OF KEY INSIGHTS

Our analysis of the dashboard reveals three primary findings that should guide our strategy for improving the transportation service.

- Route Imbalance: There is a significant disparity in demand, with the City Center route being overwhelmingly popular and the Express DC route being underutilized.
- Predictable Congestion: The system faces a major bottleneck in the late afternoon, specifically around 4:00 PM.
- Asset Utilization: The bus fleet's workload is unevenly distributed, with Bus B-202 handling a disproportionately high number of passengers.

College Bus Usage Monitor Dashboard

Date

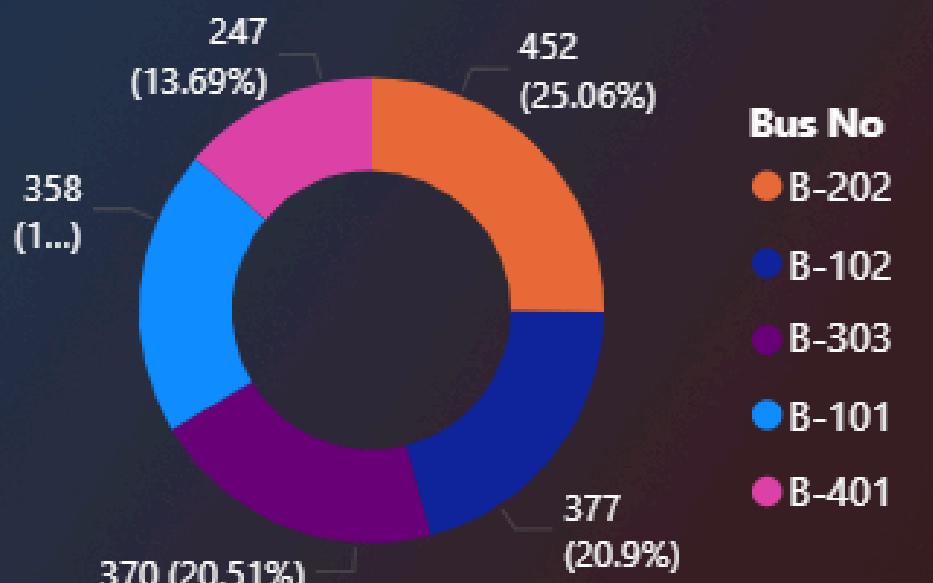
09-09-2025

11-02-2026

Route

- City Center
- Express Dc
- South Suburb
- University

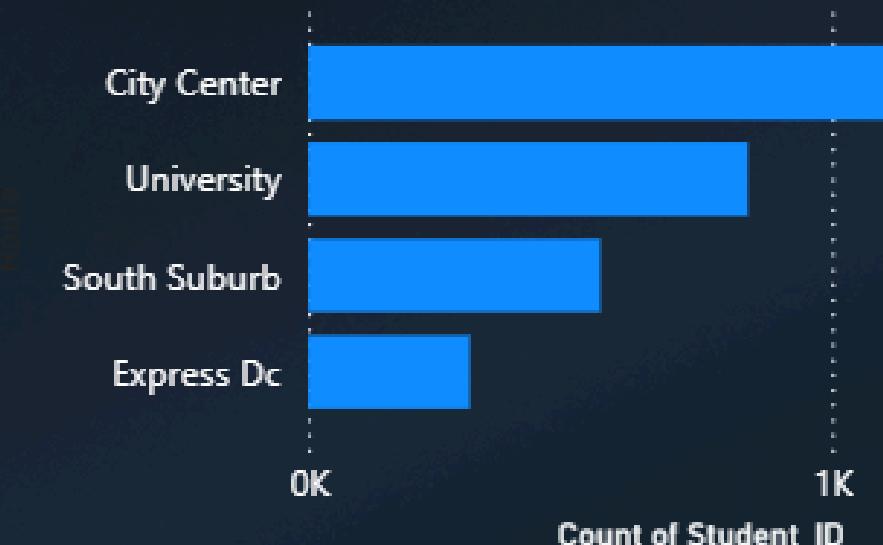
Bus Occupancy



Bus Occupancy



Route-Wise Usage



Count of Student_ID

Peak Time Routes

Time Slot ● Afternoon Rush ● Morning Rush



Peak Travel Times

Route ● City Center ● Express Dc ● South Suburb ● University



Count of Student_ID

Time

THANK YOU
