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TRANSJAKARTA CUSTOMER ANALYSIS



ABOUT TRANSJAKARTA

TransJakarta, also known as Jakarta BRT, is a fast bus system in Jakarta, Indonesia, started in January 2004 to ease rush hour traffic. It uses special lanes just for buses called 'corridors' to make travel faster. More corridors have been added as more people use the system, and there are plans to add more.



TRANSJAKARTA

The introduction of TransJakarta has helped reduce traffic congestion, cut down travel times for commuters and mitigate the city's carbon footprints by encouraging public transport as opposed to private vehicles.



PROBLEM

- Passenger counts keep rising in the past few years, and will continue to rise.
- More corridors and routes have been made but which to optimize?
- How can we improve our facilities with the growing amount of passengers?

GOALS

- Determine which specific areas of the TransJakarta system (corridors, peak hours) that can be improved.
- Identify our passenger demographic and study their behavior to anticipate their needs.



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DATA CLEANING

ORIGINAL DATASET

	transID	payCardID	payCardBank	payCardName	payCardSex	payCardBirthDate	corridorID	corridorName	direction	tapInStops	...	tapInStopsLon	stopStartSeq	tapInTime	tapOutStops	tapOutStopsName
0	EIIW227B8L34VB	180062659848800	emoney	Bajragin Usada	M	2008	5	Matraman Baru - Ancol	1.0	P00142	...	106.84402	7	2023-04-03 05:21:44	P00253	Tegalan
1	LGXO740D2N47GZ	4885331907664776	dki	Gandi Widodo	F	1997	6C	Stasiun Tebet - Karet via Patra Kuningan	0.0	B01963P	...	106.83302	13	2023-04-03 05:42:44	B03307P	Sampoerna Strategic
2	DJWR385V2U57TO	4996225095064169	dki	Emong Wastuti	F	1992	R1A	Pantai Maju - Kota	0.0	B00499P	...	106.81435	38	2023-04-03 05:59:06	B04962P	Simpang Kunir Kemukus

tapOutStopsLat	tapOutStopsLon	stopEndSeq	tapOutTime	payAmount
-6.203101	106.85715	12.0	2023-04-03 06:00:53	3500.0
-6.217152	106.81892	21.0	2023-04-03 06:40:01	3500.0
-6.133731	106.81475	39.0	2023-04-03 06:50:55	3500.0
-6.183068	106.93194	29.0	2023-04-03 06:28:16	3500.0
-6.135355	106.81143	15.0	2023-04-03 06:57:03	3500.0

	index	Total Null Values	Percentage
0	tapOutStops	2289	6.039578
1	corridorName	1930	5.092348
2	tapOutTime	1344	3.546174
3	stopEndSeq	1344	3.546174
4	tapOutStopsLon	1344	3.546174
5	tapOutStopsLat	1344	3.546174
6	tapOutStopsName	1344	3.546174
7	corridorID	1257	3.316623
8	tapInStops	1213	3.200528
9	payAmount	1007	2.656992

Columns: 22
Rows: 37,900

Since the missing values are relatively high, they needed to be treated instead of dropped to make data more viable for analysis.

DATA CLEANING

NEW DATASET

	transID	payCardID	payCardBank	payCardName	payCardSex	payCardBirthDate	corridorID	corridorName	direction	tapInStops	...	tapOutStopsLon	stopEndSeq	tapOutTime	payAmount	tapInHour
0	EIIW227B8L34VB	180062659848800	emoney	Bajragin Usada	M	2008	5	Matraman Baru - Ancol	arrival	P00142	...	106.85715	12.0	2023-04-03 06:00:53	3500.0	5
1	LGXO740D2N47GZ	4885331907664776	dki	Gandi Widodo	F	1997	6C	Stasiun Tebet - Karet via Patra Kuningan	departure	B01963P	...	106.81892	21.0	2023-04-03 06:40:01	3500.0	5
2	DJWR385V2U57TO	4996225095064169	dki	Emong Wastuti	F	1992	R1A	Pantai Maju - Kota	departure	B00499P	...	106.81475	39.0	2023-04-03 06:50:55	3500.0	5
3	JTUZ800U7C86EH	639099174703	flazz	Surya Wacana	F	1978	11D	Pulo Gebang - Pulo Gadung 2 via PIK	departure	B05587P	...	106.93194	29.0	2023-04-03 06:28:16	3500.0	5
4	VMLO535V7F95NJ	570928206772	flazz	Embuhan Mardhiyah	M	1982	12	Tanjung Priok - Pluit	departure	P00239	...	106.81143	15.0	2023-04-03 06:57:03	3500.0	6

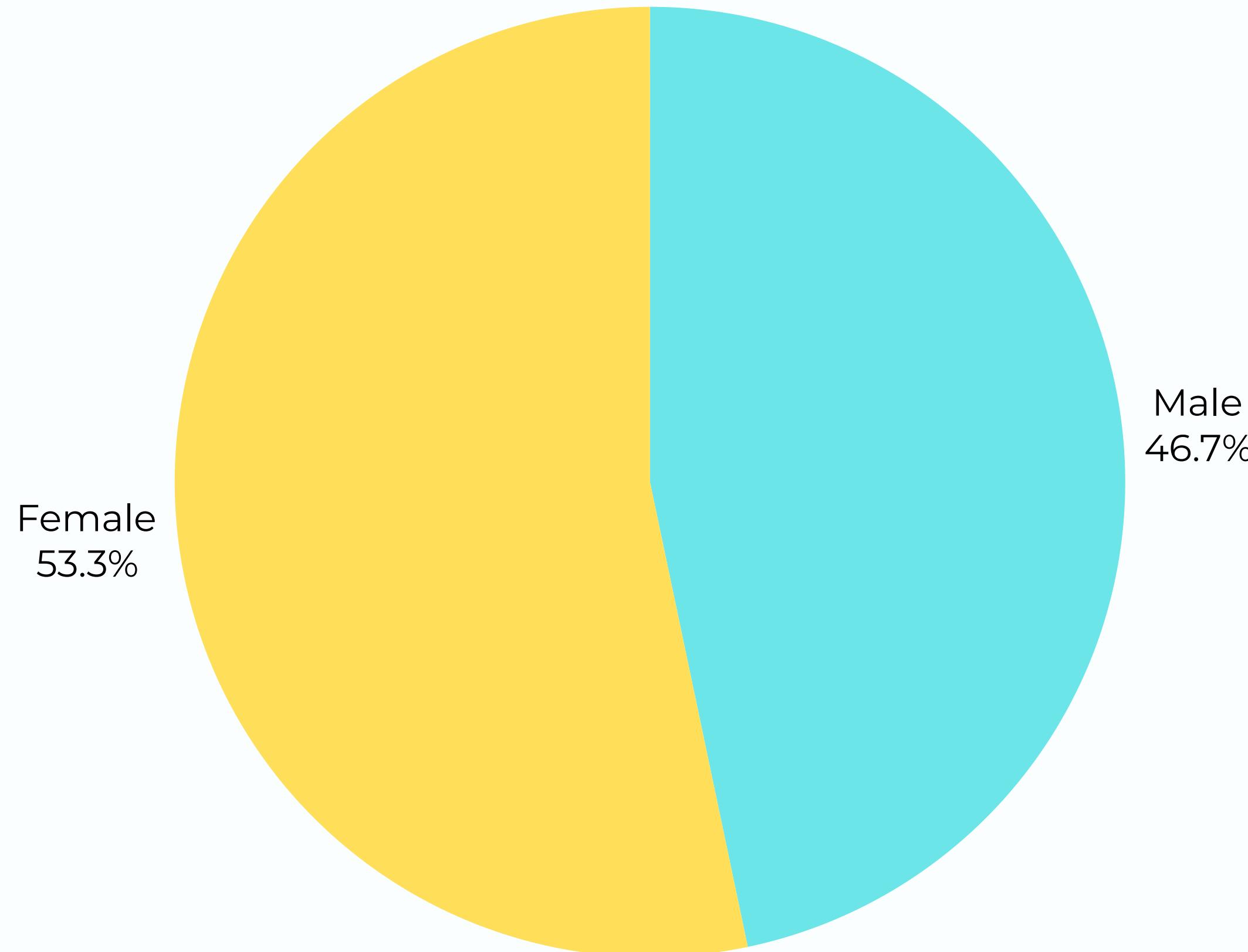
tapOutHour	tapInDay	age	ageGroup	transType
6	Monday	15	Elderly	Busway
6	Monday	26	Young Adult	Busway
6	Monday	31	Adult	Busway
6	Monday	45	Adult	Busway
6	Monday	41	Adult	Busway

	index	Total Null Values	Percentage
0	tapOutStops	0	0.0
1	corridorName	0	0.0
2	tapOutTime	0	0.0
3	stopEndSeq	0	0.0
4	tapOutStopsLon	0	0.0
5	tapOutStopsLat	0	0.0
6	tapOutStopsName	0	0.0
7	corridorID	0	0.0
8	tapInStops	0	0.0
9	payAmount	0	0.0

Columns: 28
Rows: 36, 471

- Added new columns (age, ageGroup, transType).
- Changed data type, data values and dropped null values that couldn't be filled.

GENDER PROPORTIONS



BUSIEST CORRIDORS BY FEMALE PASSENGERS



AGE DISTRIBUTION

Children Teenager Young Adult Adult Elderly

25000

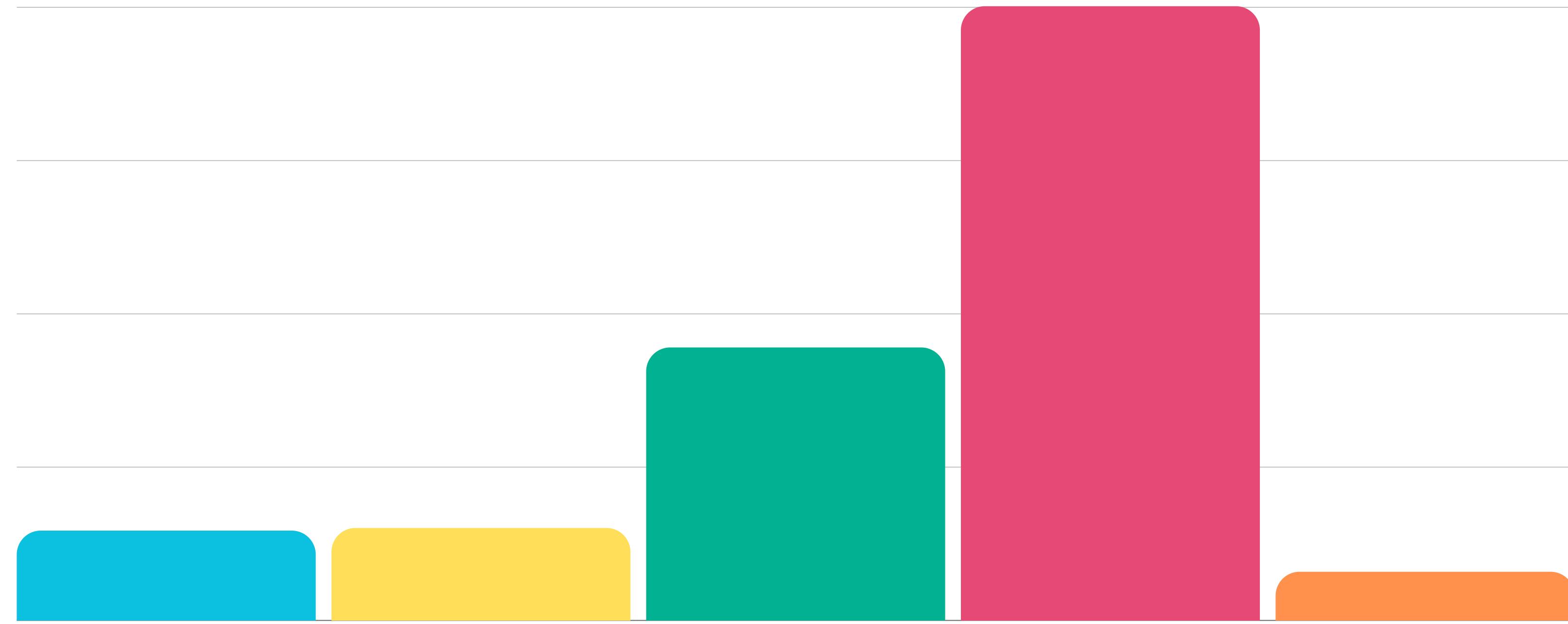
20000

15000

10000

5000

0



CORRIDORS USED BY THE ELDERLY

• • • • BKN - Blok M ■ Ragunan - GBK ■ Poris Piawad - Bundaran Senayan ■ Pulo Gadung - Dukuh Atas

■ Tanjung Priok - Piumpang

100

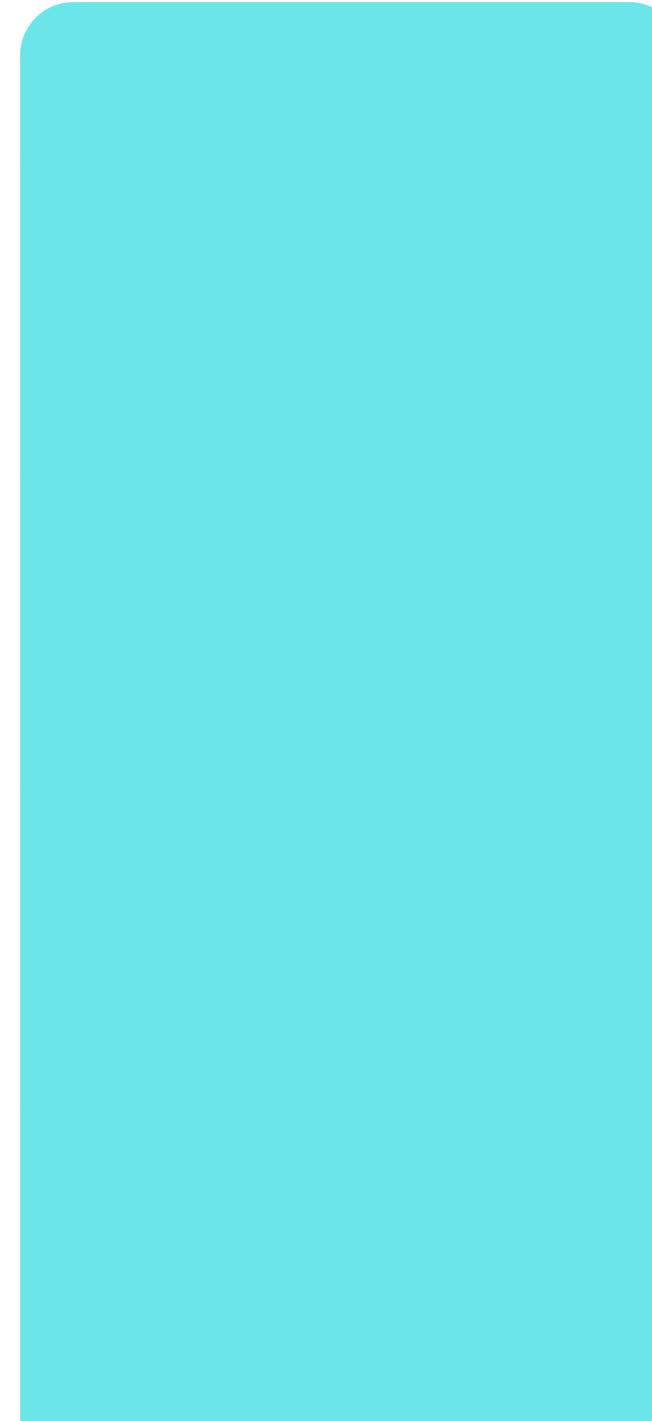
80

60

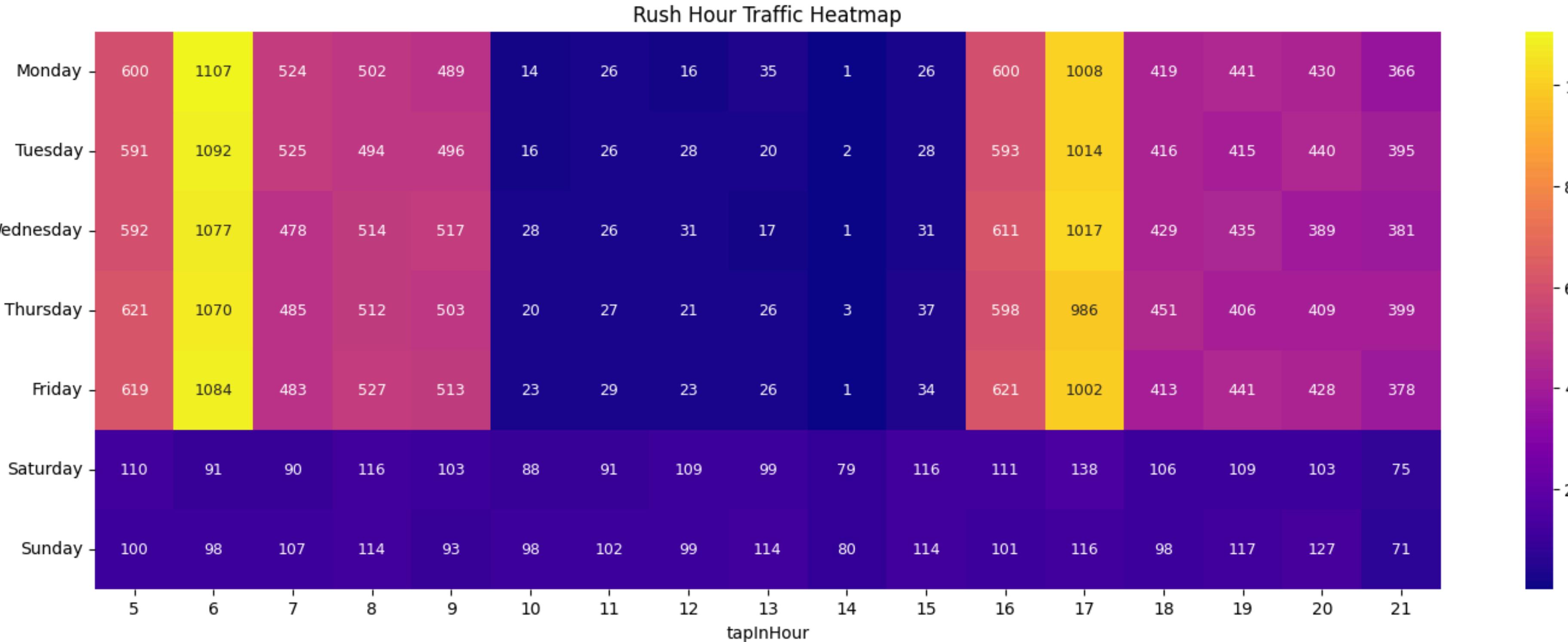
40

20

0



PEAK HOURS BY DAY



PEAK HOUR DISTRIBUTION BY WEEKDAY

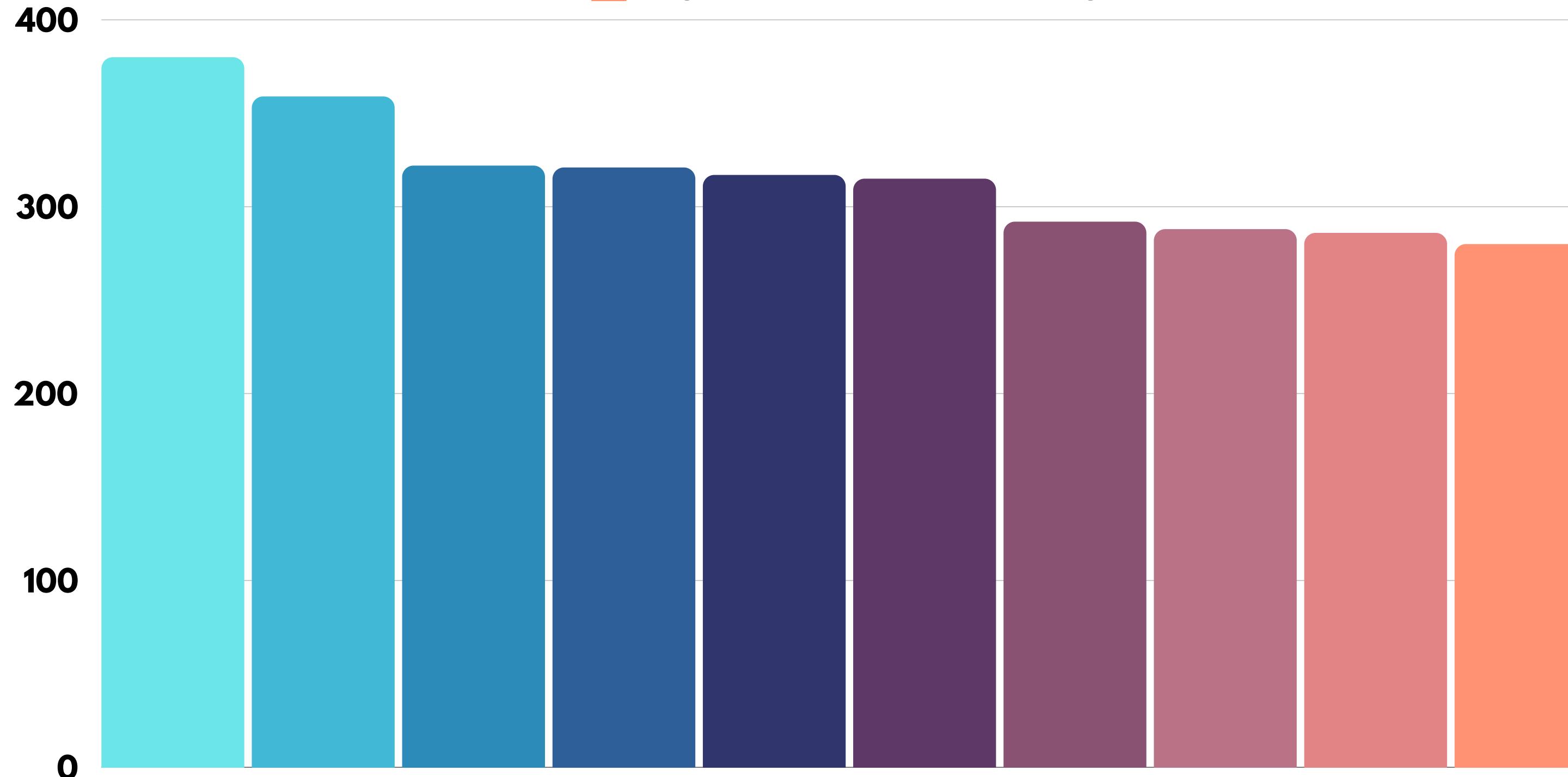
Cibubur - Balai Kota Ciputat - CSW Kampung Rambutan - Pondok Gede

Harmoni - Jakarta International Stadium

Rusun Pondok Bambu - Walikota Jakarta Timur Kebayoran Lama - Tanah Abang

Rusun Rawa Bebek - Kodamar BKN - Blok M Pasar Minggu - Tanah Abang

Ragunan - Blok M via Kemang



PEAK HOUR DISTRIBUTION BY WEEKEND

Pinang Ranti - Kampung Rambutan

Pinang Ranti - Bundaran Senayan

JIS - Terminal Muara Angke

Harapan Indah - ASMI

Cilincing - Rorotan

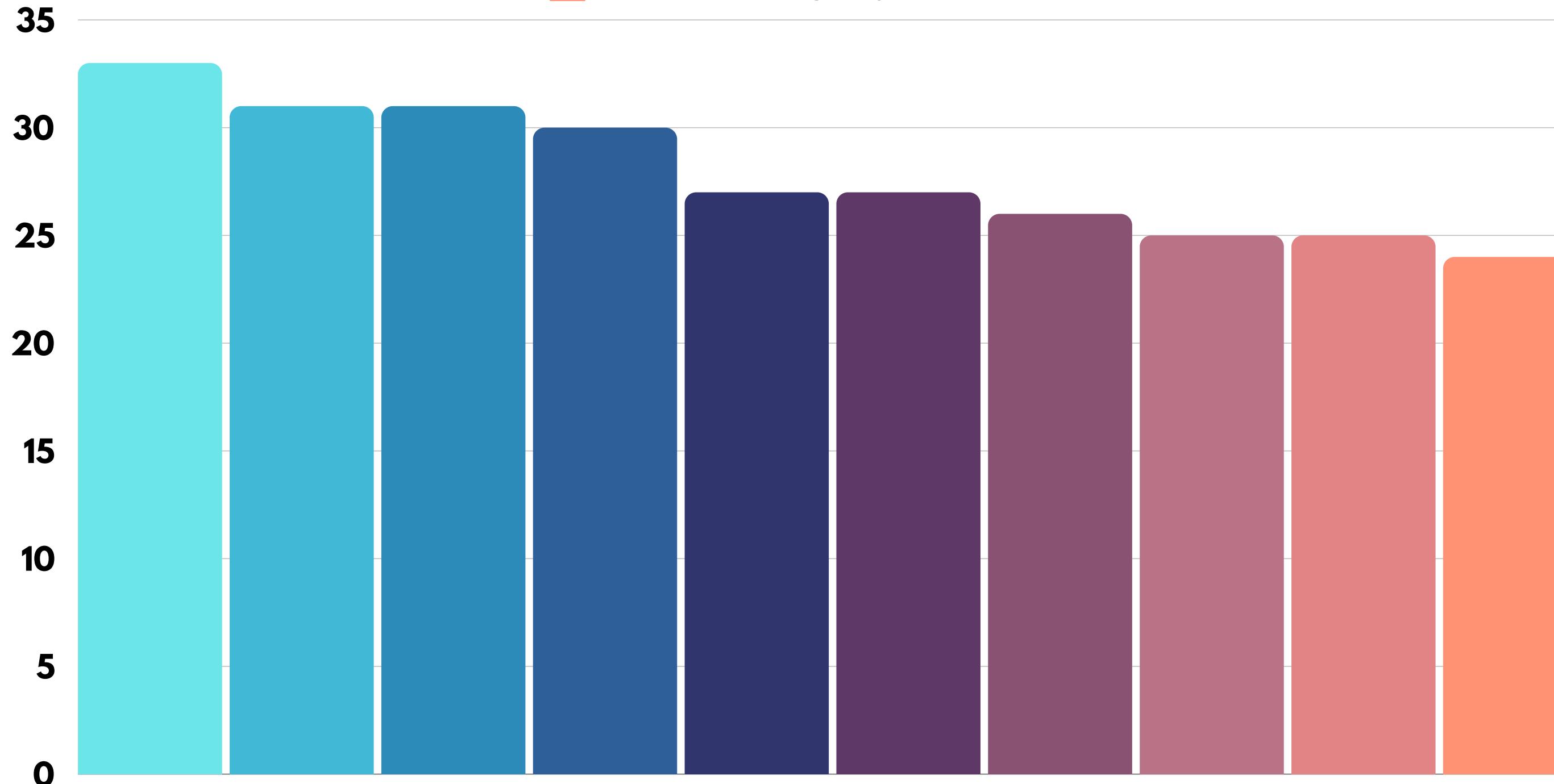
Rusun Cipinang Muara - Jatinegara

Cililitan - Condet via Kayu Manis

Kampung Rambutan - Juanda via Pasar Baru

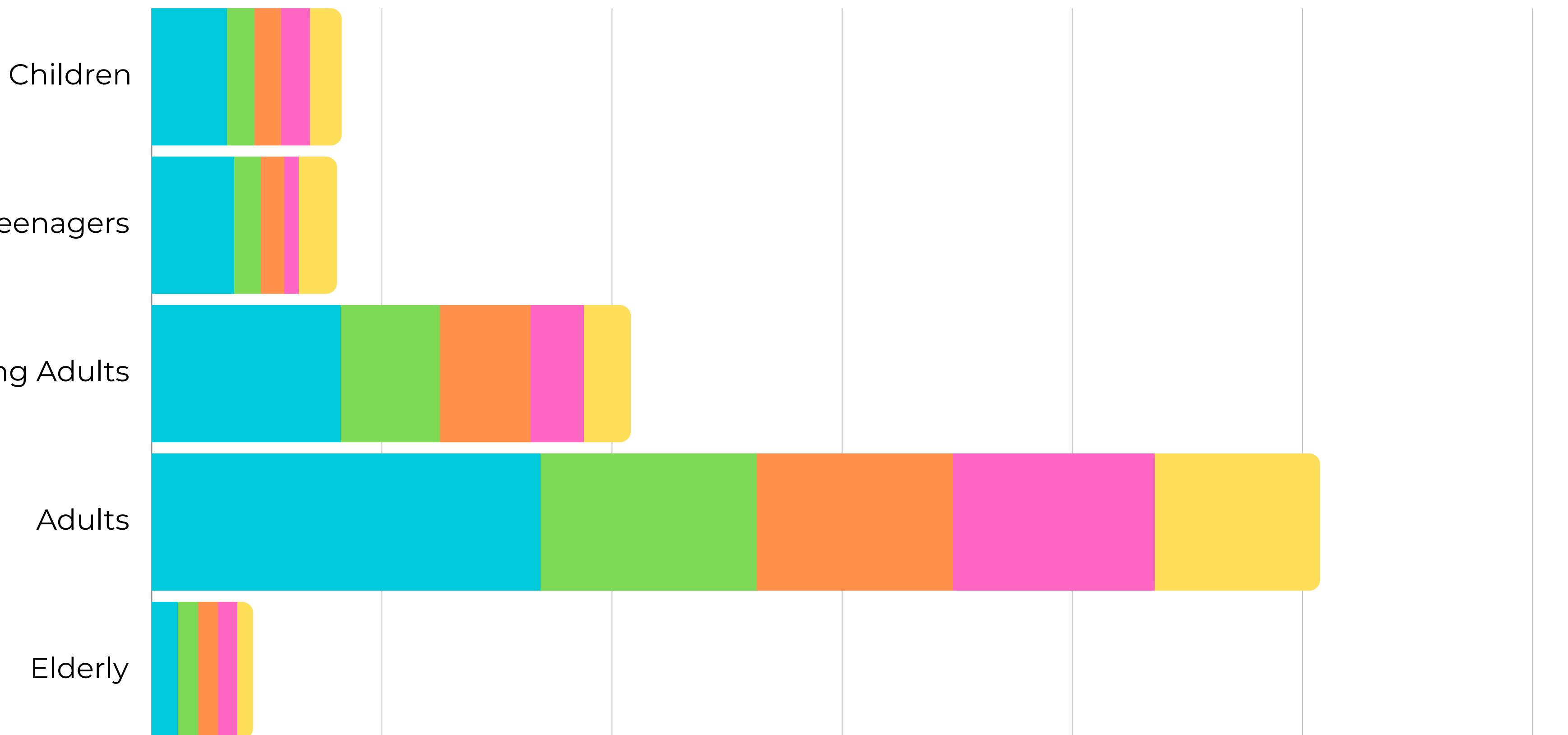
Pasar Minggu - Tanah Abang

Rusun Sindang Koja - Kp. Sawah

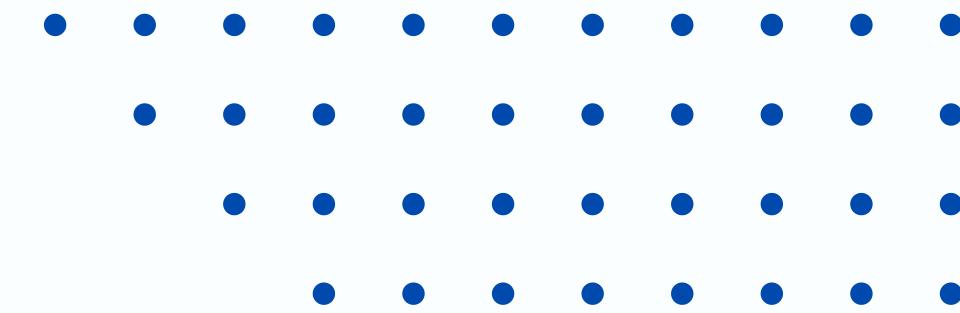


PAY CARD AMOUNT BY AGE GROUP

E-Money Brizzi Flazz Online BNI



CONCLUSION



1. Passenger Profile:

- Female passengers and adults between 20 to 59 years old make up the majority of TransJakarta users. While special services for women exist, further assessment is required to determine the need for additional female-specific services.
- Additionally, attention should be directed towards accommodating elderly passengers to ensure inclusive and comfortable transportation services.

2. Peak Hour Times:

- Weekday peak hours occur primarily in the mornings (5am-9am) and evenings (4pm-7pm). On weekends, passenger flow remains consistent throughout the day, albeit less intense than weekdays.

3. Busiest Corridors:

- Weekday traffic peaks on corridors are predominantly used for commuting to office hubs.
- On weekends, corridors see high usage that are catered to social activities.

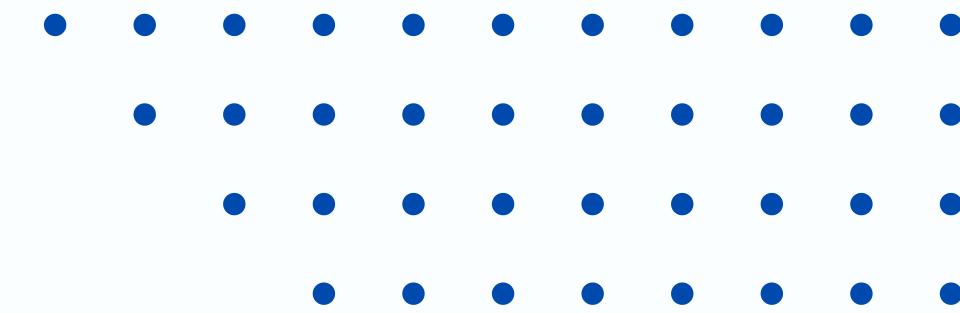
4. Card Payment Usage:

- Bank DKI dominates card payments due to its collaboration with TransJakarta. However, emoney, brizzi, and flazz emerge as top alternatives for non-partnered card transactions.



TRANSJAKARTA

RECOMMENDATION



1. Improving Facilities for Women:

- Expanding women-only bus services on corridors frequently used by female passengers.

2. Improving Facilities for the Elderly:

- Provide more elderly-friendly facilities at bus stops and buses, such as priority seating and readable information.
- Conduct more campaigns to improve awareness in prioritizing the elderly.
- Modify fleets with more priority seating on routes commonly used by seniors.

3. Optimization of Fleet and Facilities on Busy Corridors:

- Increasing fleet capacity on congested corridors and relocate buses from less crowded corridors to busy ones.
- Ensure availability for fleets that matches the passenger numbers during peak times.

4. Card Payment Usage:

- Market card usage catered to the age range demographic of passengers in order to optimize profit and make use of the available payment options.





TRANSJAKARTA

THANK YOU!