

Comprehensive Analysis & Strategic Insights

1. Overview of Dataset

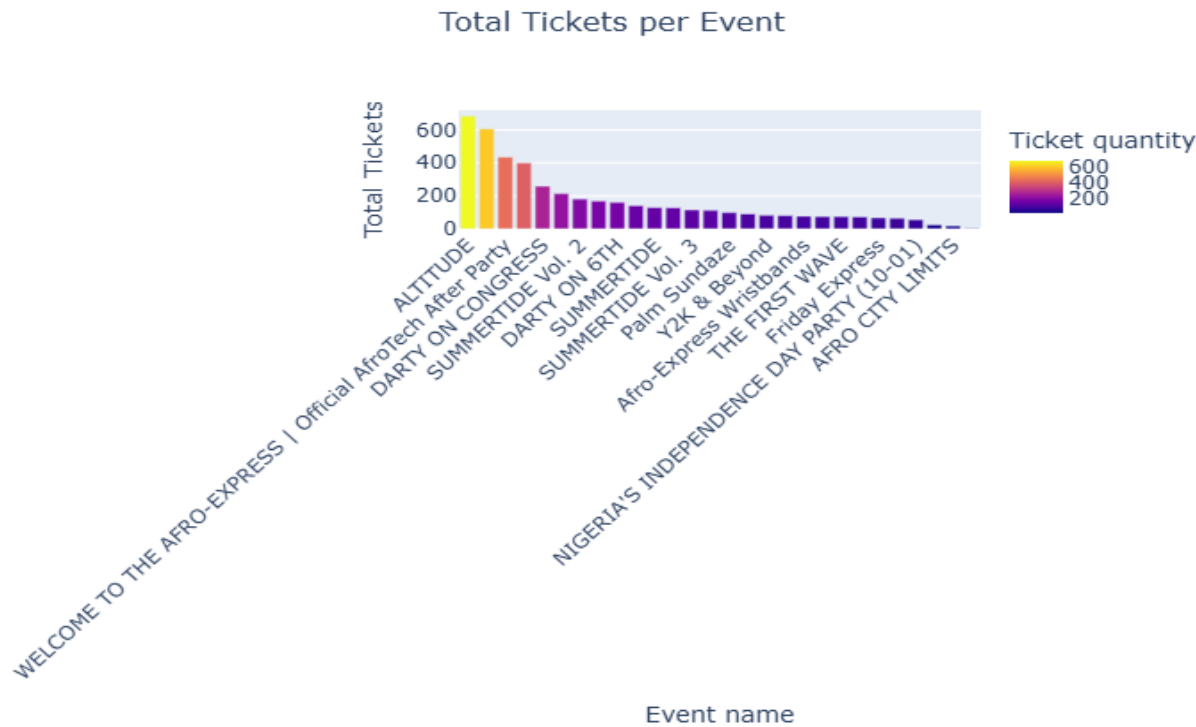
- **Total Orders:** 3,986
- **Total Events:** 36
- **Total Tickets Distributed:** 4,623

This dataset represents ticket sales and purchasing behavior across multiple Afro-centered events, combining both **paid** and **free** categories. The data captures customer locations, timing, and demographic tendencies derived from their names.

2. Event Performance Summary

Top 5 Events by Total Attendance (Paid + Free)

1. ALTITUDE – 683
2. Saturday Express – 606
3. Afro-Express / Official AfroTech After Party – 435
4. Afrobeat Express – 400
5. Darty on Congress – 259



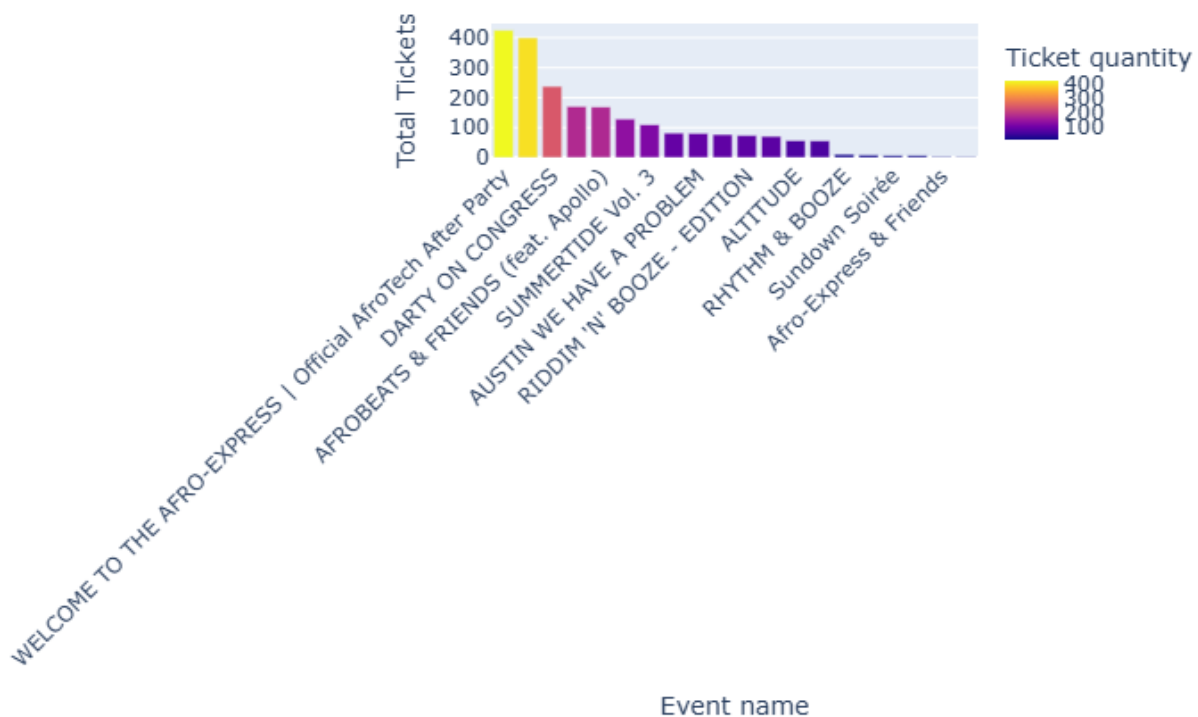
AFRO-EXPRESS EVENTS

The plot above shows events with the number of attendees, ranked from the highest to the lowest. Includes both free and paid tickets

Top 5 Paid Events

1. Afro-Express / Official AfroTech After Party – 425
2. Afrobeat Express – 400
3. Darty on Congress – 238
4. Summertide Vol. 2 – 171
5. Afrobeat & Friends (feat. Apollo)

Total Paid Tickets Sold per Event



The plot above shows events with the number of attendees, ranked from the highest to the lowest. Includes only paid tickets

Top 5 Free Events

1. ALTITUDE – 626
2. Saturday Express – 599
3. Sundown Soiree – 207

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4. Darty on 6th – 161
5. Afro-Express & Friends – 138



The plot above shows events with the number of attendees, ranked from the highest to the lowest. Includes only free tickets

3. Deep-Dive: Paid Event Insights

(A) Afro-Express | Official AfroTech After Party

Total Tickets Sold: 425

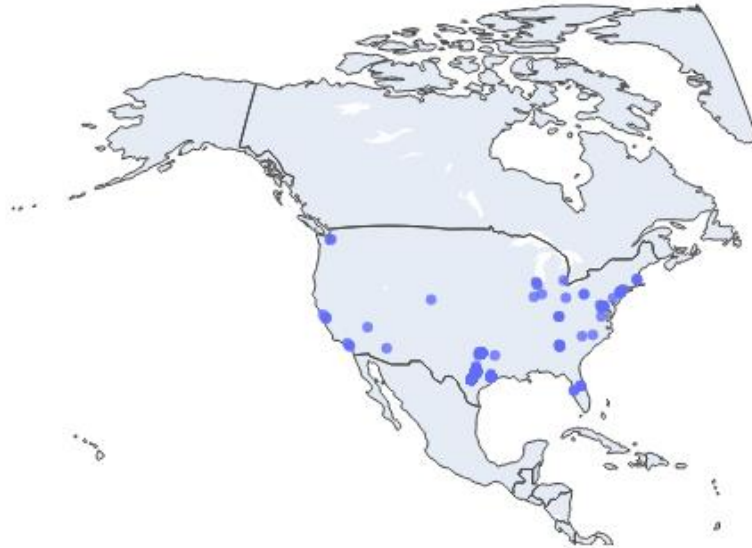
Event Date: November 4, 2023

Top Purchasing States

- Texas (US): 289
- New York (US): 10
- Georgia (US): 9

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All Orders: Purchaser Locations



The above shows ticket purchasers distribution around USA. With Texas having the highest concentration, and others scattered around neighboring states

Top Purchasing Cities (Within Texas)

- Austin: 140
- San Antonio: 60
- Houston: 20
- Dallas: 18

✅ Interpretation:

Since the event was hosted in Texas, the dominance of Texas-based buyers shows that **localized marketing** in the host state was highly effective.

Austin serves as the **core market hub** for this audience.

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```
[275]: Purchaser city
       Austin      140
       San Antonio  60
       Houston     20
       Dallas      18
       Atlanta      7
       Brooklyn     4
       Cedar Park   4
       The Bronx    3
       New York     3
       Boston       3
       Grand Prairie 3
       Leander       3
       Irving       3
       Calgary       3
       Berea         3
       Washington   3
       Pflugerville 3
       Round Rock   3
       Tampa        2
       Orlando      2
       Name: count, dtype: int64
```

Top 20 cities that purchased tickets for Afro-Express | Official AfroTech After Party

Gender Distribution (Predicted via NameGenderPredictor)

- Male: 144
- Female: 138
- Unknown: 177
- Model confidence:
- African names: 75–85%
- Western/English names: 98%

✅ **Interpretation:** Gender representation is balanced, suggesting campaigns can comfortably target both male and female audiences.

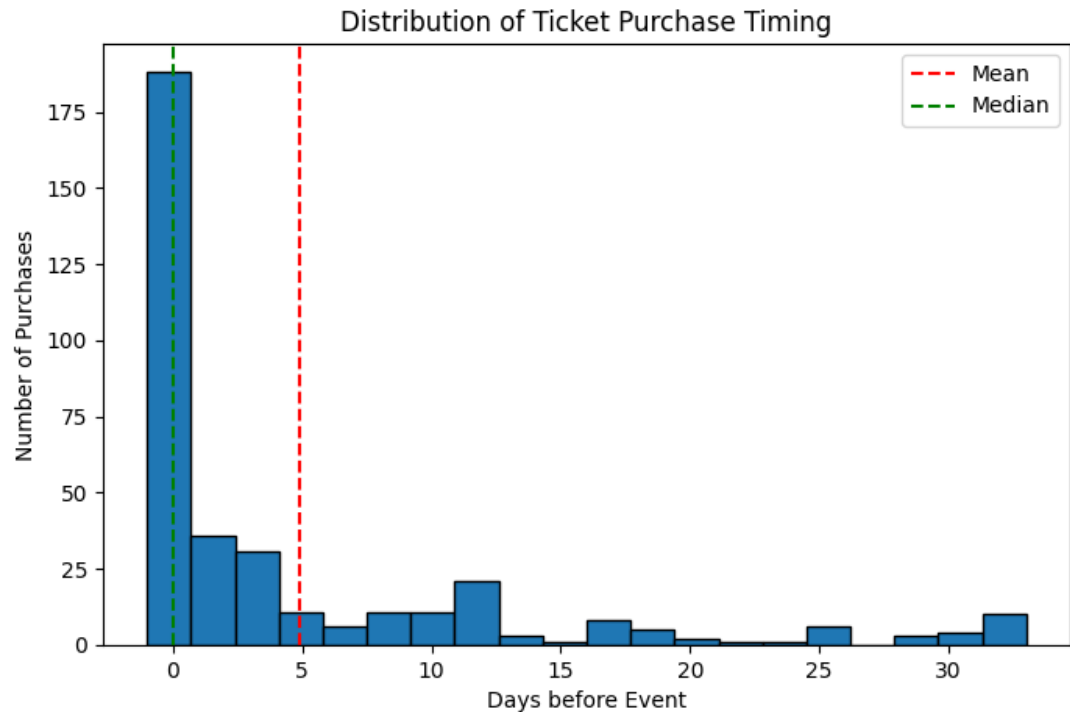
Purchase Behavior (Days Before Event)

- **Earliest Purchase:** 33 days before event
- **Average (Mean):** 5 days before event
- **Most Common Range:** 13–0 days before event
- **Median (50%):** Same-day purchases
- **75th percentile:** 7 days before event

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✓ Insight:

Half of ticket purchases occurred **on or one day before** the event. This implies that **spontaneous and last-minute buyers dominate** the audience.



Here, the red line is the mean which means ticket purchase activity spiked 5 days to the event. The green line is the median and this implies that 50% of the total ticket was bought on the day of the event.

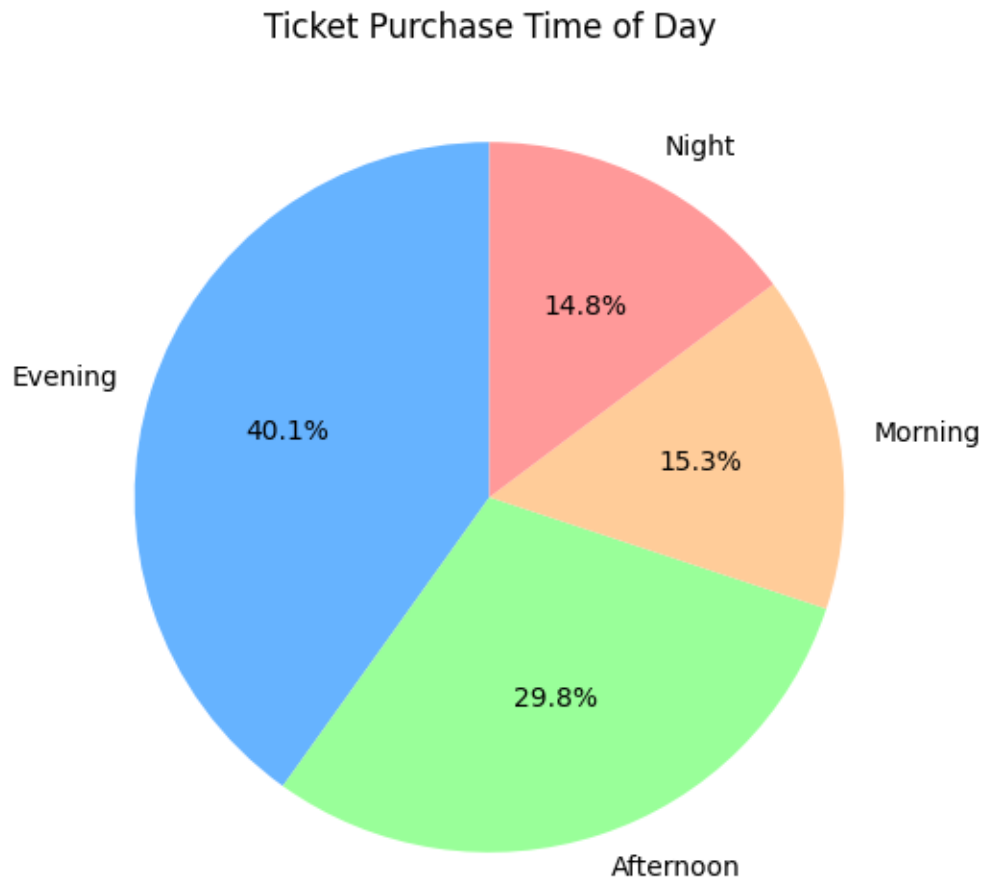
Time of Day Purchases

Time Period	Overall	Within 13 days	Before 13 days
Morning	15.3%	14.9%	18.2%
Afternoon	29.8%	29.2%	34.1%
Evening	40.1%	40.6%	36.4%
Night	14.8%	15.2%	11.4%

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✓ Insight:

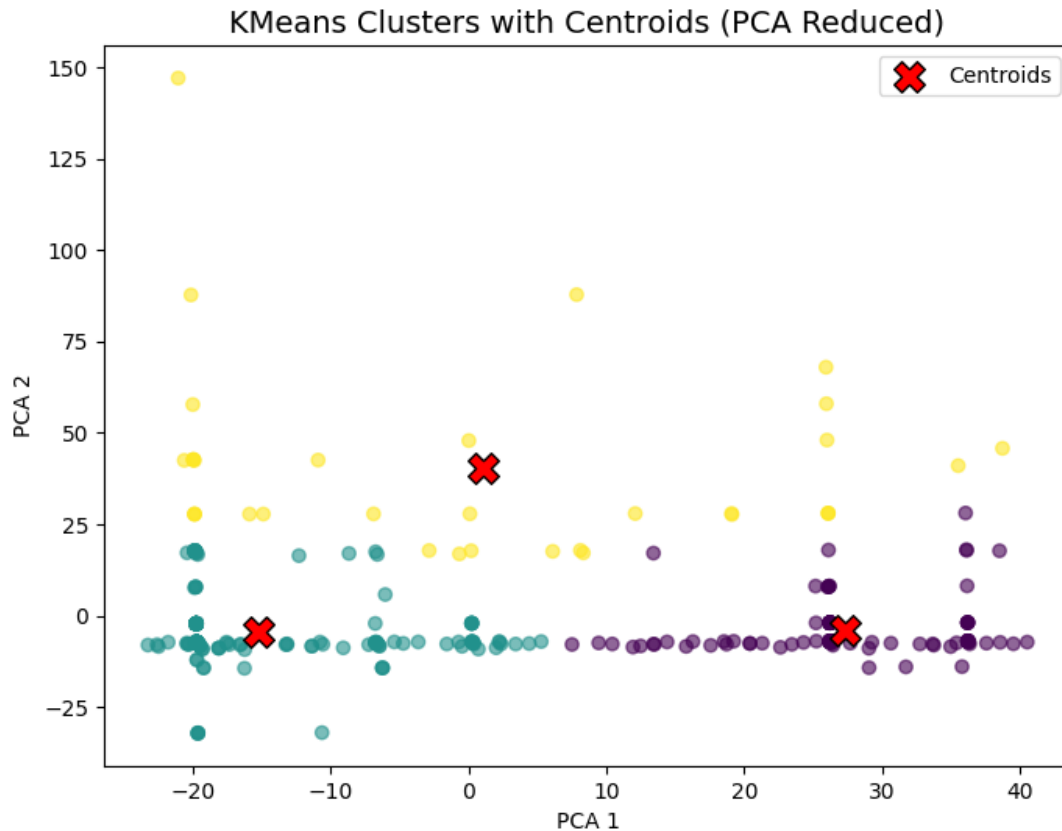
Ticket sales peak in the **evening hours**, followed by the **afternoon**, indicating when audiences are most active online (after work hours).



This plot gives us an idea of our audience, ticket purchase activity occurs mostly in the afternoon and evening, meaning we should be targeting young working class or students

Machine Learning Cluster Analysis (K-Means, k=3)

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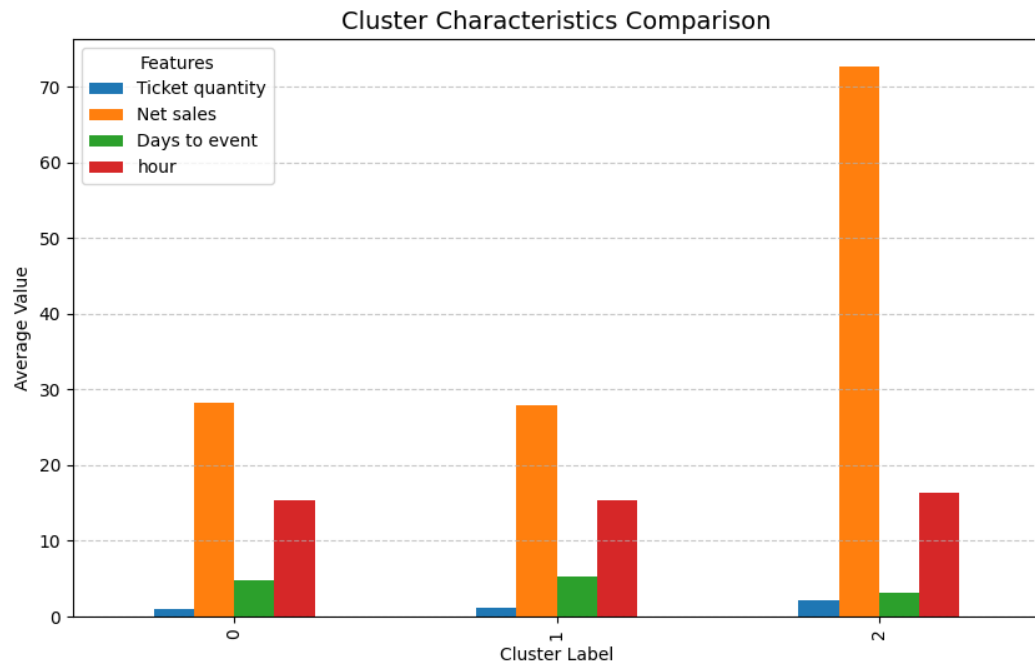
Above shows 3 types of cluster or group or type of attendees we have

Cluster	Traits Summary
Cluster 0	Average one-ticket buyers, mid-afternoon purchases, buy ~5 days before event.
Cluster 1	Similar to Cluster 0 but purchase slightly earlier (proactive buyers).
Cluster 2	Group buyers purchasing close to the event, spend more overall.

✅ Interpretation:

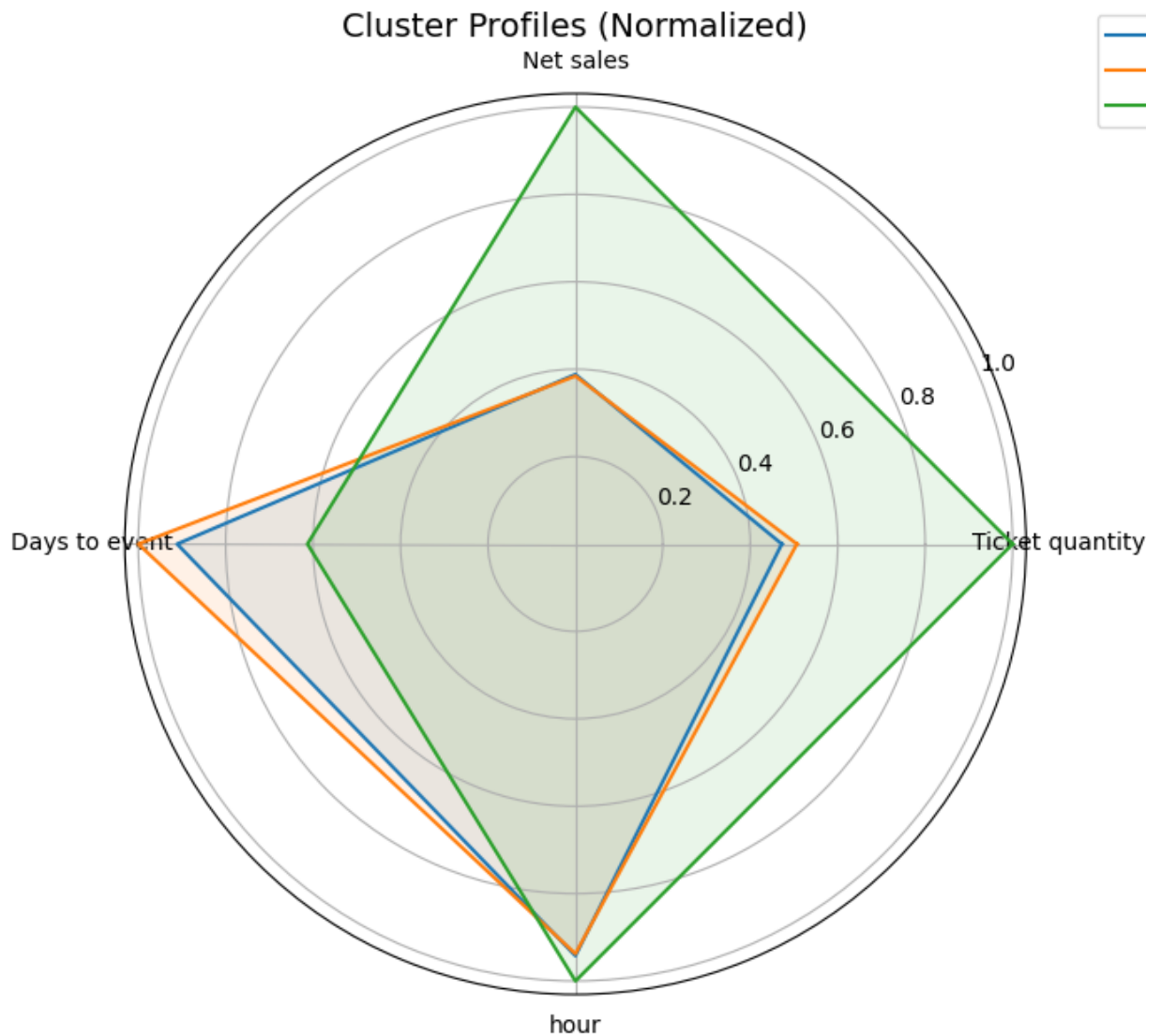
Cluster 2 represents **high-value group buyers** who buy last-minute — an ideal audience for **early-bird-to-group upgrade campaigns**.

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Above shows what makes each clusters unique, the blue bar indicates the ticket quantity sold, the light brown indicates the sales generated from each clusters, the green indicates the average day to event each cluster get their tickets (a higher bar means the tickets are close to or early bird tickets), the brown mean the timing they got their tickets (the higher the bar, the more late in the day it is).

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The blue is cluster 0, brown is cluster 1, green is cluster 2

The above plot explains the activity of this cluster;

For Net sales; The more the cluster is close to the edge, the higher the sales generated from that cluster

For Ticket Quantity; The more the cluster is close to the edge the more ticket sold

For hour; The more the cluster is closer to the edge, the more late in the day tickets in that cluster was bought on an average

For Days to event; The more the cluster is close to the edge, the more earlier ticket purchase is made.

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(B) Afrobeat Express (2022-11-17)

Top Purchasing States

- Texas: 219
- Maryland: 13
- California: 12

Purchaser state

TX	219
MD	13
CA	12
GA	8
IL	8
FL	8
NY	7
WA	6
MA	4
VA	4
DC	3
PA	3
CT	2
UT	2
NC	2
LA	2
NV	2
MO	2
AR	2
ON	2
NJ	2
SC	1
AZ	1
OK	1
L	1
NE	1
MN	1
OH	1
AL	1

Top Purchasing Cities

- Austin: 88
- San Antonio: 34
- Houston: 18

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```
Purchaser city
Austin      88
San Antonio 34
Houston     18
Dallas      9
Pflugerville 8
..
Birmingham 1
Chester      1
Belton       1
Stockton     1
Buda         1
Name: count, Length: 95, dtype: int64
```

Gender (Predicted)

- Male: 135
- Female: 120
- Unknown: 78

✅ Observation:

Consistent male-female balance and dominance of Texas-based buyers again highlight a **stable, geographically concentrated core audience**.

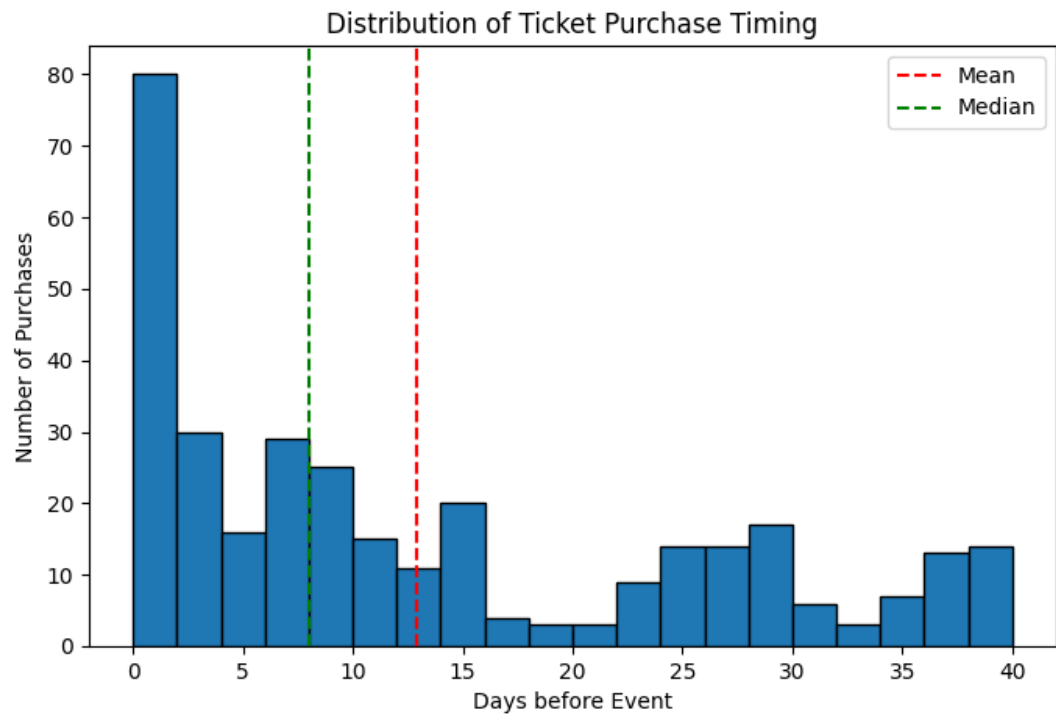
Purchase Timing (Days Before Event)

- **Mean:** 13 days before event
- **Min:** Same-day purchases
- **Max:** 40 days before
- **Median:** 8 days before
- **75%:** 25 days before

✅ Interpretation:

This event attracted **more early planners** compared to Afro-Express, suggesting stronger anticipation and earlier campaign awareness.

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The red line in the above plot is the mean and it says that there was spike in ticket purchase activity starting from 13 days to the event, The green line tells us that 50% of the ticket sales was made from the count down of 8 days to the event

Unlike Afro-Express Ticket purchased has an all time engagement, no too much bias.

Time of Day Analysis

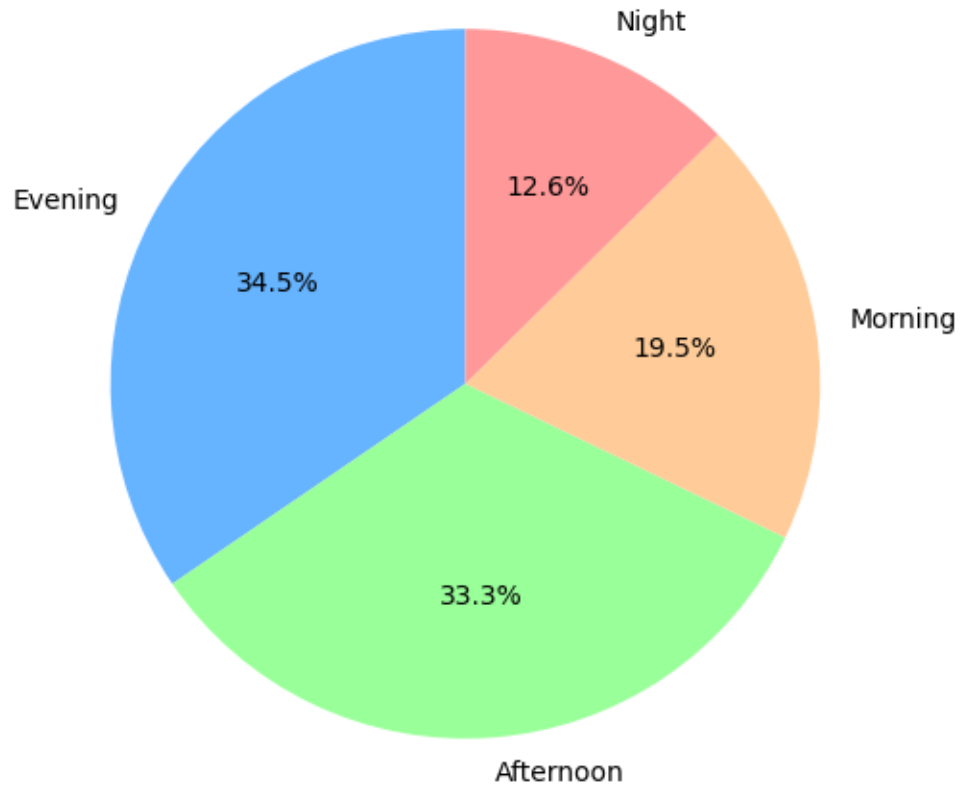
Time	Overall	Within 25 Days	Before 25 Days
Morning	19.5%	20.1%	17.6%
Afternoon	33.3%	32.4%	36.5%
Evening	34.5%	34.4%	35.1%
Night	12.6%	10.8%	10.8%

✔ **Insight:**

Afternoon and evening remain the dominant ticket-buying periods.

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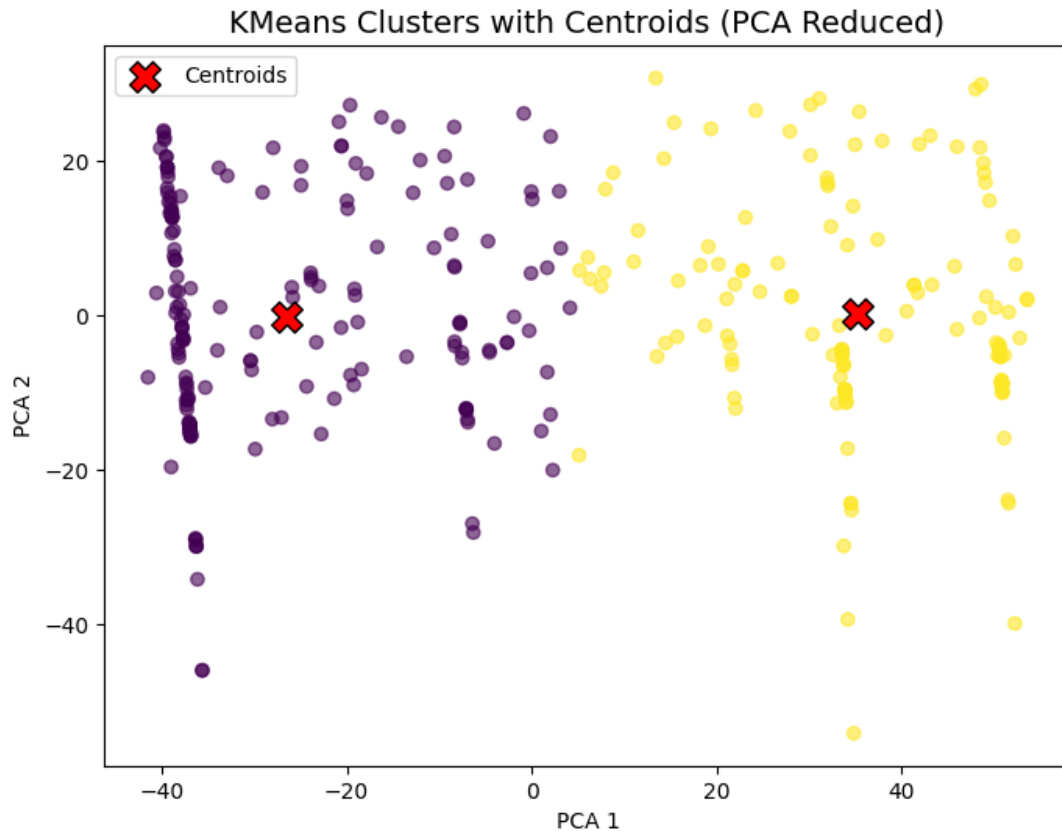
Ticket Purchase Time of Day



This further proves our type of attendees, same as Afro-Express.

Cluster Analysis (k=2)

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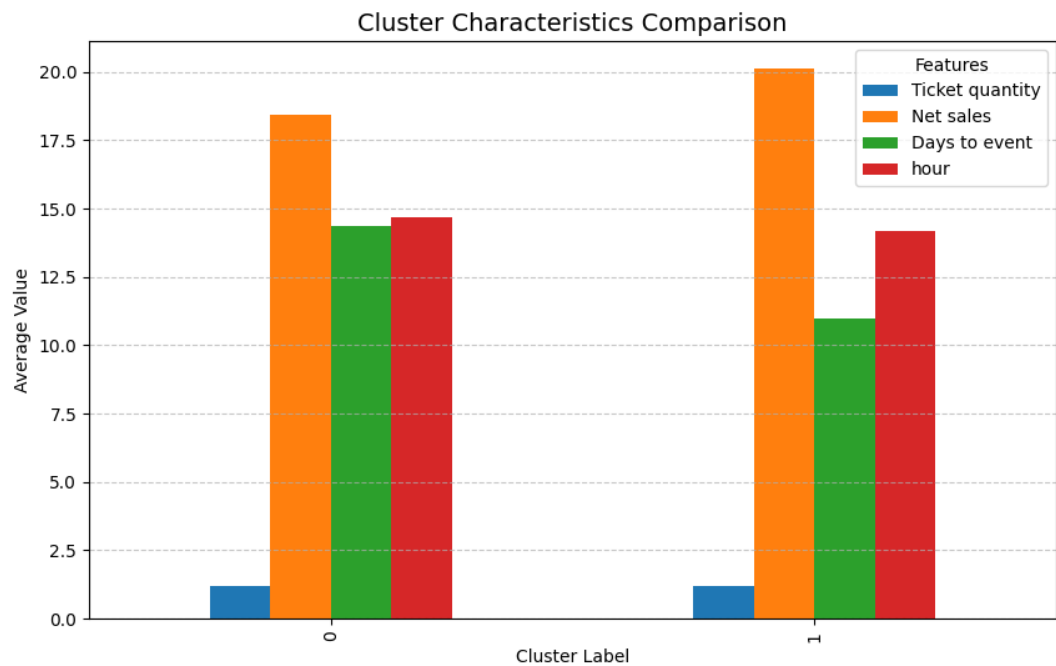
The above simply says we have 2 types of attendees

Cluster	Traits Summary
Cluster 0	Early-bird buyers (purchase ~14 days before event).
Cluster 1	Late buyers purchasing closer to event day, spend slightly more.

✅ **Interpretation:**

Cluster 0 = **planners**, Cluster 1 = **last-minute spenders**.

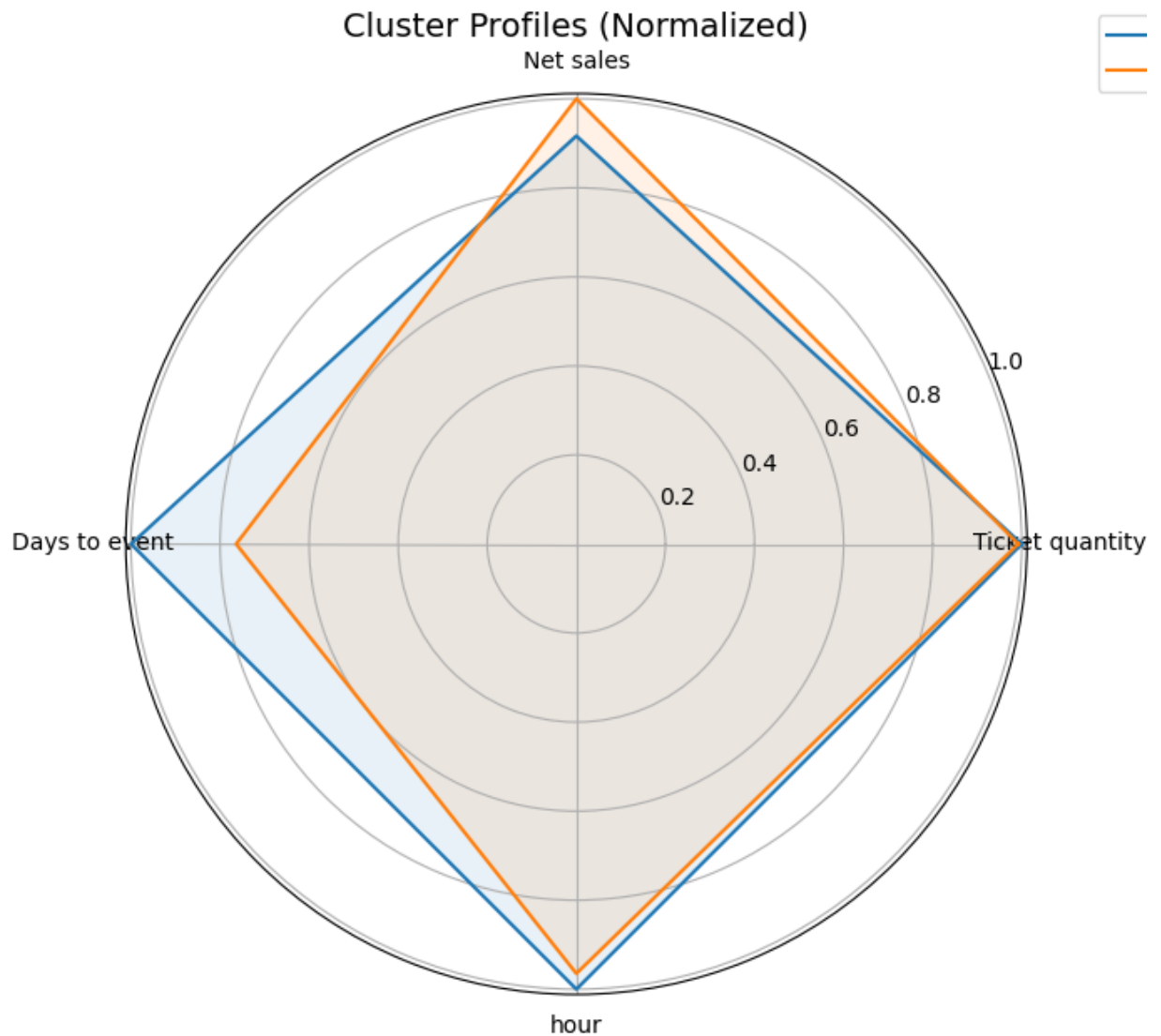
AFRO-EXPRESS EVENTS



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Here, there was increase in net sales but no significant increase in quantity because there was late ticket increase fee for the event

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The blue is cluster 0, brown is cluster 1

The above plot explains the activity of this cluster;

For Net sales; The more the cluster is close to the edge, the higher the sales generated from that cluster

For Ticket Quantity; The more the cluster is close to the edge the more ticket sold

For hour; The more the cluster is closer to the edge, the more late in the day tickets in that cluster was bought on an average

For Days to event; The more the cluster is close to the edge, the more earlier ticket purchase is made.

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