Meet Campus Bites

Campus food delivery service

You've just been hired as a data analyst.

The CEO walks into your office and says:

"Orders dropped 20%.

Recommend a fix in 2 hours."

(Marketing) Analytics Mindset: Solving Problems with Data

1. **Understand analytics:**
   Turn data into insights that drive decisions
2. **Apply descriptive analytics:**
   Answer "What happened?"
3. **Apply diagnostic analytics:**
   Answer "Why did it happen?"
4. **Tell a story with data:**
   Communicate findings persuasively with insight slides

https://r.isba.co/best-analytics

aesop.com
Find it here - faster.

ValueClick media

123inkjets

GlobalWide Media

- Full-Stack Web Developer
- System/Network Admin
- CTO
- Data Analyst
- Data Engineer
- Data Scientist
- Problem Solver

What is analytics?

https://PollEv.com/lontok

Where do you see analytics?

https://PollEv.com/lontok

You're given a spreadsheet. How do you proceed?

What do you ask?

What is your first step?

Next steps?

Store	Dept	Date	Weekly_Sales	IsHoliday
1	4	5/2/10	24924.5	FALSE
NULL	4	12/2/10	46039.49	TRUE
2	1	19/02/2010	41595.55	FALSE
3	1	26/02/2010	19403.54	FALSE
5	2	5/3/10	21827.9	FALSE
5	2	12/3/10	21043.39	FALSE
5	3	2010-10-18	22136.64	TRUE
2	3	26/03/2010	26229.21	FALSE
3	1	2/4/10	57258.43	FALSE
3	4	9/4/10	42960.91	FALSE

Do you have an analytics process?
What are your steps to solve an analytics problem?

yes

no

We need a standardized process

- ➔ Replicate similar projects - checklist
- ➔ Aid project management
- ➔ Best practices for more predictable results

Too many teams jump to start "doing the work"

But, are still confused about what the stakeholder wants

Too many teams jump to
AI before doing analytics

Too many teams jump to
analytics before preparing the data

Too many teams jump to
preparing the data before defining the business problem

Meet Campus Bites

Campus food delivery service

You've just been hired as a data analyst.

The CEO walks into your office and says:

"Orders dropped 20%. Fix this."

What do you do first?

???

5-Step Analytics Framework

1. **Define** the business problem
2. **Collect** and prepare the data
3. **Analyze** the data and generate insights
4. **Communicate** the insights, recommendations, and predictions
5. **Act** and track the change

DC ACT

5-Step Analytics Framework

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DC ACT

CEO's Problem Statement

"Orders dropped 20%. Fix this."

Is this a good problem definition? What's missing?

From Vague to Specific

Good/ OK	*"Orders dropped 20%. Recommend a fix."*	What + Now What
Better	*"Orders dropped 20% in October. Where did the drop happen? Recommend a fix."*	What + Where + Now What
Best	*"Orders dropped 20% in October vs September. Where did the drop happen and why? Recommend a fix."*	What + Where + Why + Now What

You learned everything you need to know about identifying the problem in kindergarten

Understand the problem with 5W2H

What?
Why?
Who?
When?
Where?
How?
How Much?

"Orders dropped 20% in October vs September. Where did the drop happen and why? Recommend a fix."

Start with:

- What happened (specific metric)
- How much it changed (magnitude)
- When it happened (timeframe)

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DC ACT

Campus Bites Dataset

https://r.isba.co/campus-bites-data

When starting out, you'll inherit an existing dashboard, report, Excel workbook before creating a data product.

5-Step Analytics Framework

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DC ACT

4 STAGES OF DATA ANALYTICS MATURITY

Descriptive Analytics

Diagnostic Analytics

Predictive Analytics

Prescriptive Analytics

What are we trying to answer?

1. Descriptive: *What happened?*
2. Diagnostic: *Why it happened?*
3. Predictive: *What will happen?*
4. Prescriptive: *What should we do?*

Today's Focus

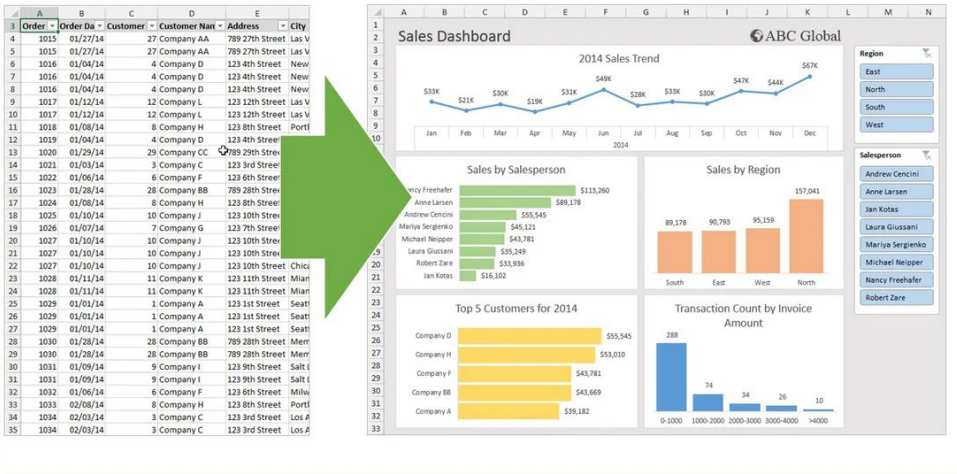
1. Descriptive: *What happened?*
2. Diagnostic: *Why it happened?*
3. Predictive: *What will happen?*
4. Prescriptive: *What should we do?*

Descriptive Analytics: *What happened?*

Focuses on historical data

Aggregations

Visualizations



Easiest to understand and most commonly used

Ask Descriptive Questions

For Campus Bites, what *"what happened"* questions to ask?
https://PollEv.com/lontok

Think of 2 questions that start with:

- **How many…** (counts, frequencies)
- **What was the typical…** (mean, median, mode)
- **What was the total…** (sums, revenue, volume)
- **How did it change over time?** (trends, comparisons)
- **Which group had the most/least…?** (distributions, rankings)

Strategic Dashboard: What the CEO sees

https://r.isba.co/best-strategic

The 3 Most Common Chart Types

Chart Type	Best For	Example
Scorecard/KPI	Single important numbers	Total Revenue: $11,859
Line Chart	Trends over time	Orders by month
Bar Chart	Comparing categories	Orders by segment

Column Chart (Vertical Bars)

vs

Bar Chart (Horizontal Bars)

"Orders dropped 20% in October vs September. Where did the drop happen and why? Recommend a fix."

Start broad then drill down:

What was the total # of orders in Sep and Oct?

Diagnostic Analytics:
Why it happened?

Uncovers the drivers and root causes behind outcomes

Start from Descriptive Analytics

Investigate causes for symptoms

"*Orders dropped 20% in October vs September. Where did the drop happen and why? Recommend a fix.*"

Start broad then drill down.

- What was the total # of orders in Sep and Oct?
- **How many orders per segment?**
- **What are the segments? (dimensions)**

  https://r.isba.co/campus-bites-data

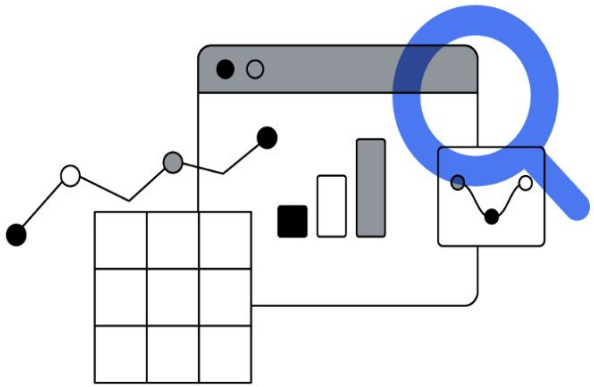
???, ???, ???, ???

Analytical Dashboard: Where you investigate the drivers behind the metrics

https://r.isba.co/best-analytical

How to generate insights

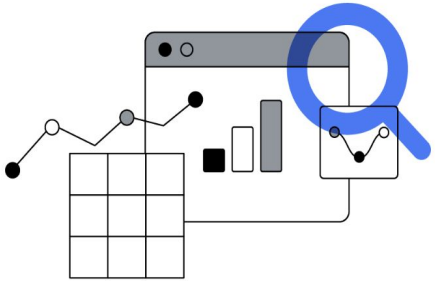
- ➔ Highest/lowest values?
- ➔ Anomalies/outliers?
- ➔ Unexpected/surprising results?
- ➔ Trends or patterns?
- ➔ Correlations/relationships?



- ➔ In a group
- ➔ Compared to other groups

ACTIONABLE?

Insight Patterns



- Trends (over time) - What's changing?
- Ranking - What's best/worst?
- Contribution (%) - Who/what drives the total?
- Comparisons - How do groups stack up?
  Period-over-Period: current vs prior period
- Outliers - What stands out?
- Relationships - What moves together?

"Orders dropped 20% in October vs September. Where did the drop happen and why? Recommend a fix."

https://r.isba.co/best-analytical

Create a takeaway slide title

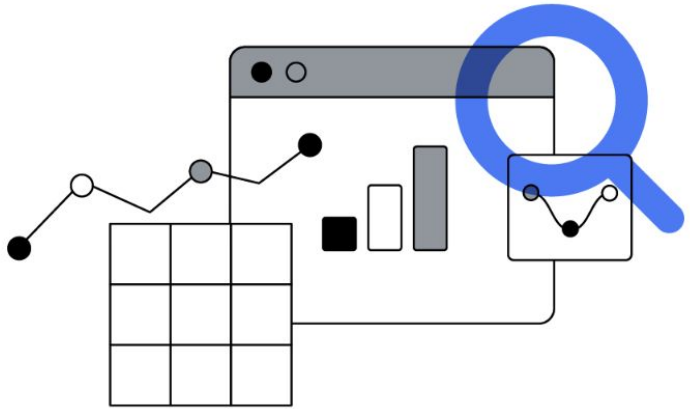
The.Most.Important.Part.Of.The.Slide

What is the main insight?

Key message?

The main takeaway.

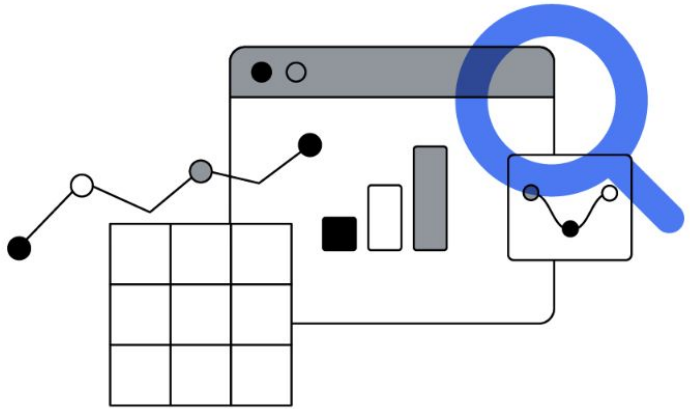
The "So What"



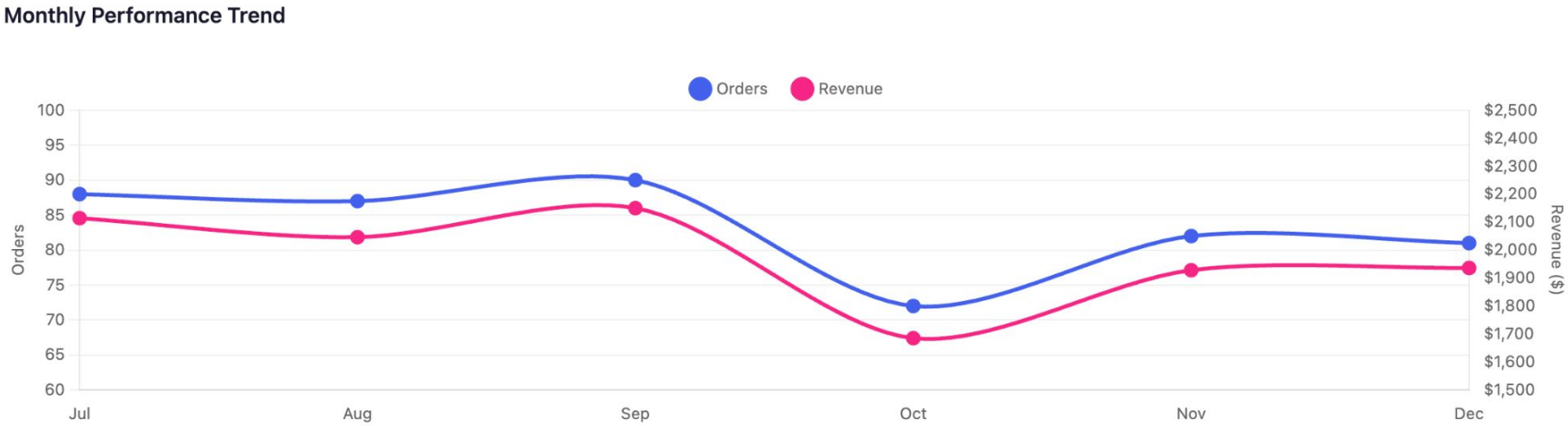
Takeaway slide title formula

Contains these elements (order is up to you):

- Metric
- Dimension (Segment)
- Direction
- Magnitude



Oct orders dropped 20% vs Sept



Metric? Dimension? Direction? Magnitude?

Storytelling with Data:
Create an insight slide title

1. Form 6 groups of 5-6
2. Fill in the slide below associated to your group #

3. You can use AI

Flex your prompt engineering skills

10 MINUTES

Use the Analytical Dashboard

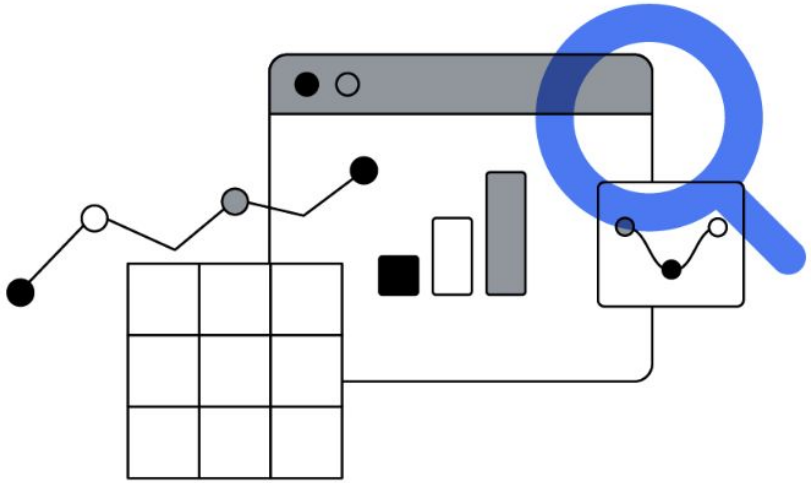
https://r.isba.co/best-analytical

Calculate percentage change as needed:

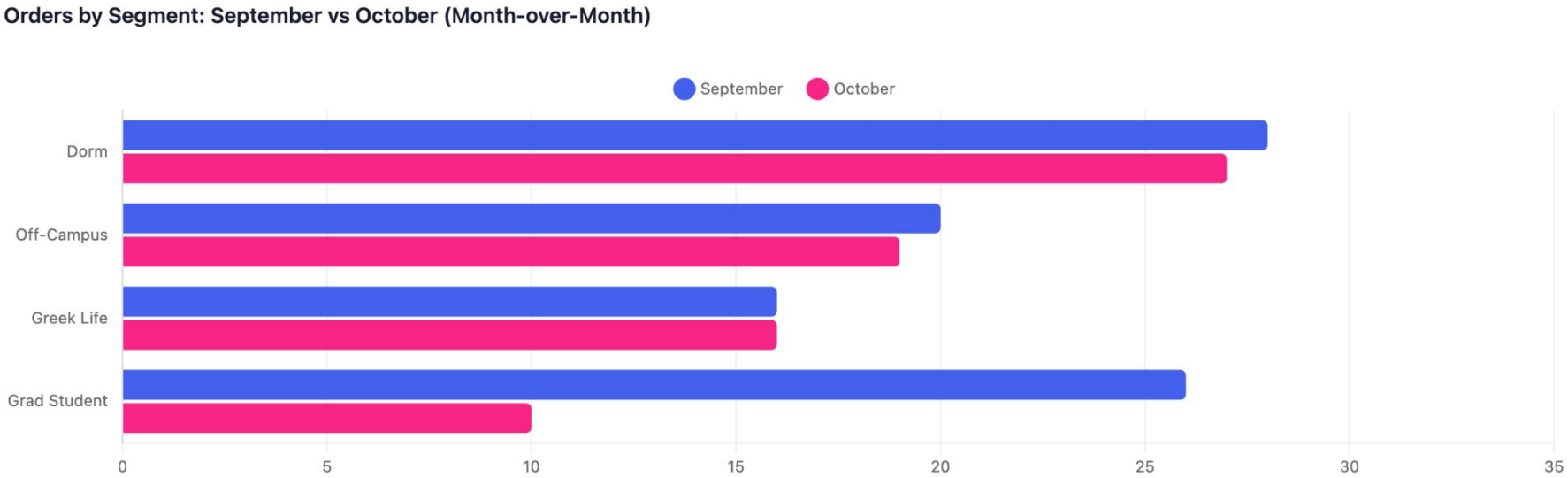
`(New Value − Old Value) ÷ Old Value × 100`

Looking for inspiration?

Chartr Newsletters

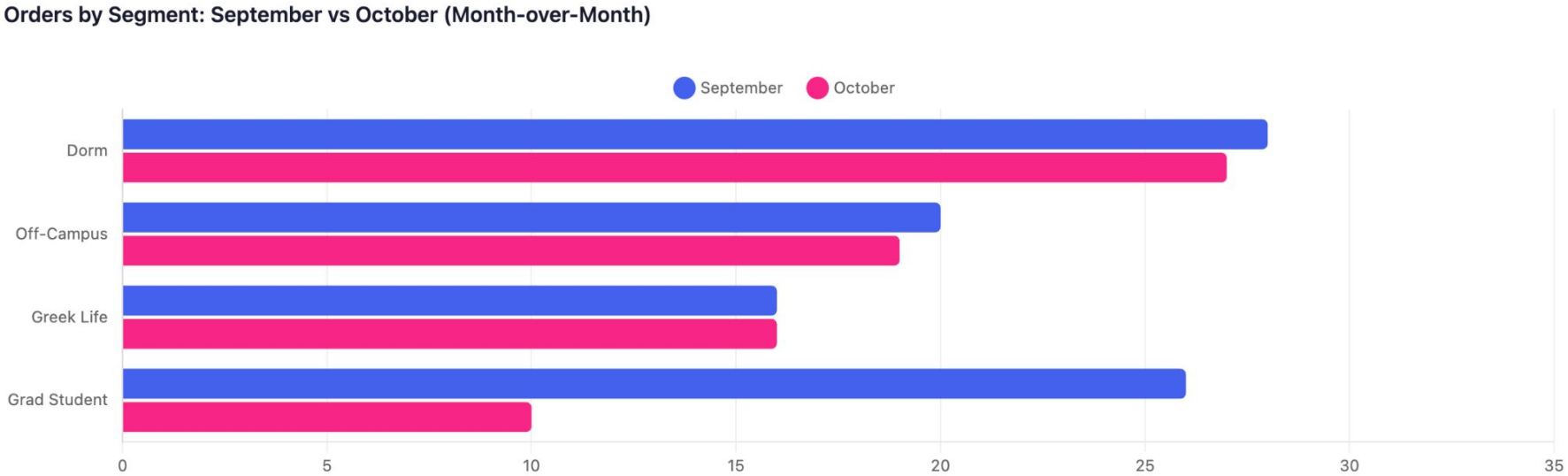


October Orders Fall 20% Overall with Grad Students Driving the Drop; Grad Orders “FALL” by 61.5%



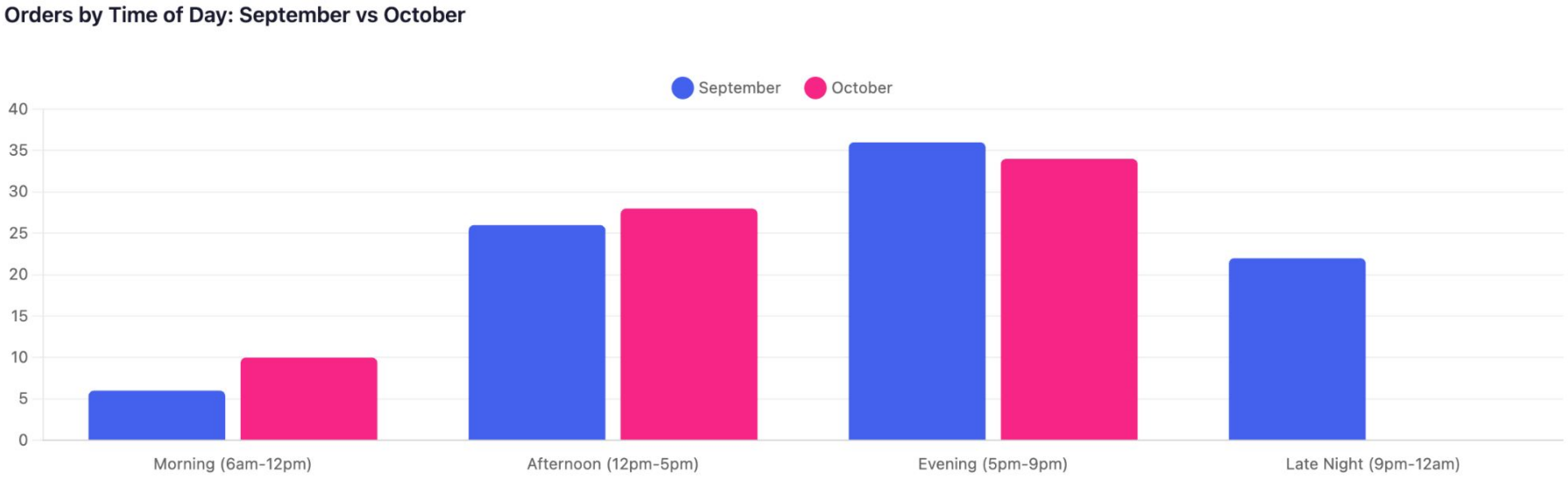
Group 01

Haunted by Midterms: Grad Student Orders Collapse by 61%



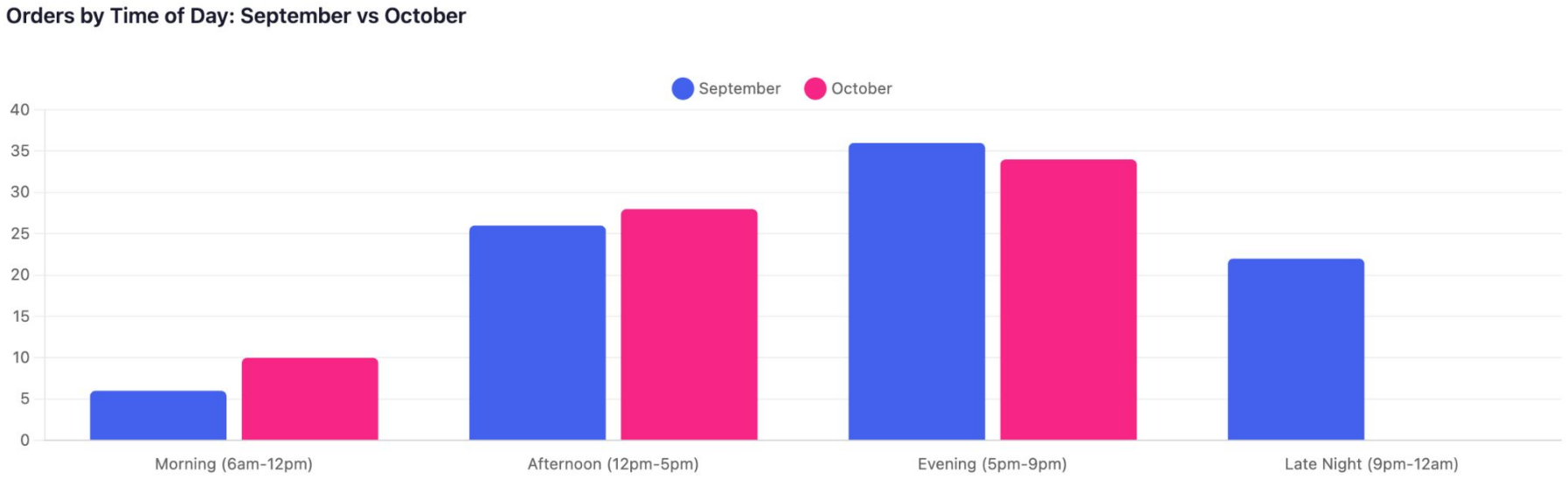
Group 02

Late Night Orders Drop to Zero in October



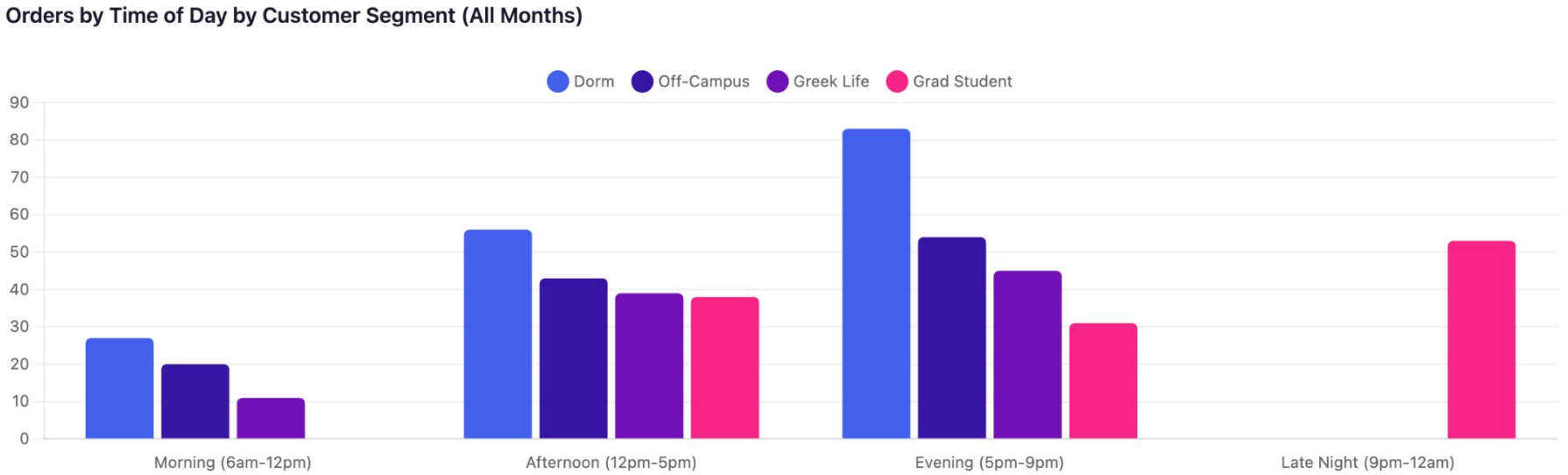
Group 03

Morning and Afternoon Orders Rise by 18% as Late Night Demand Disappears



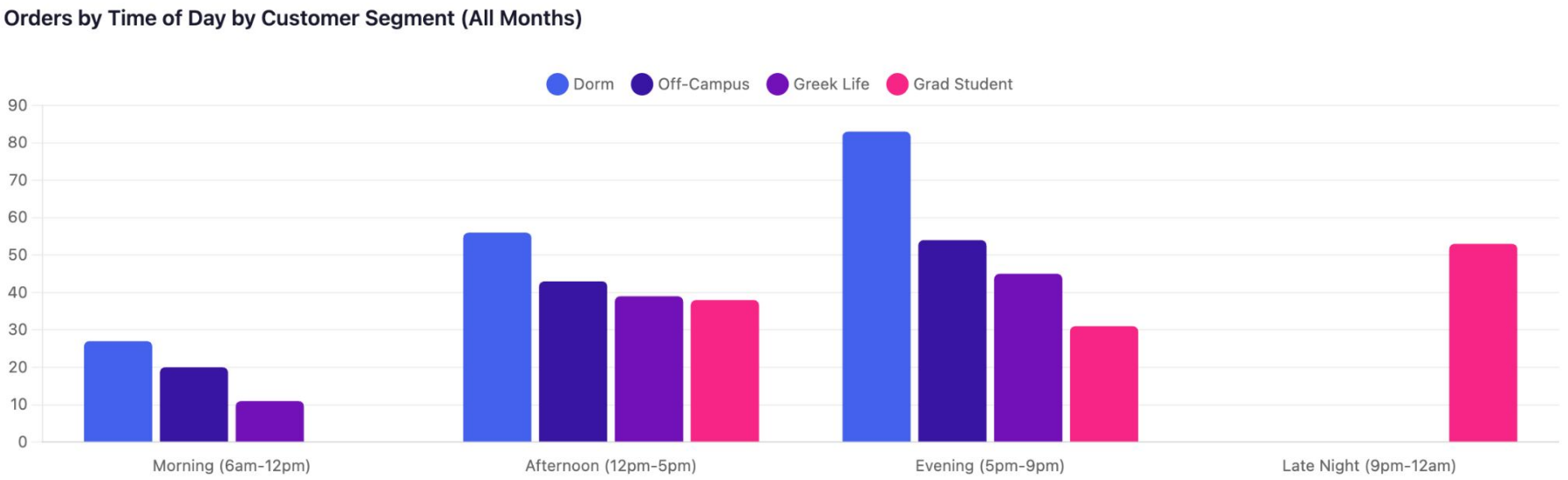
Group 04

Grad students’ order volume & time trends polar to Undergraduates



Group 05

Late night orders reach a *deficit of* *0%* within Undergrad Students



Group 06

Based on these insights, what is the recommendation?

Recommendation: ???

Prediction (Value): ???

Analytics solves problems when it drives actions

What you practiced today:

- Defined a clear, specific problem
- Used descriptive analytics to ask "what happened?"
- Used diagnostic analytics to drill down into the data to spot patterns to answer "why it happened?"
- Framed insight slide titles that tell the story
- Recommended actions based on evidence