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IT-266 SOFTWARE GROUP PROJECT

BLINKIT SALES ANALYSIS AND DEMAND PREDICTION


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AGENDA

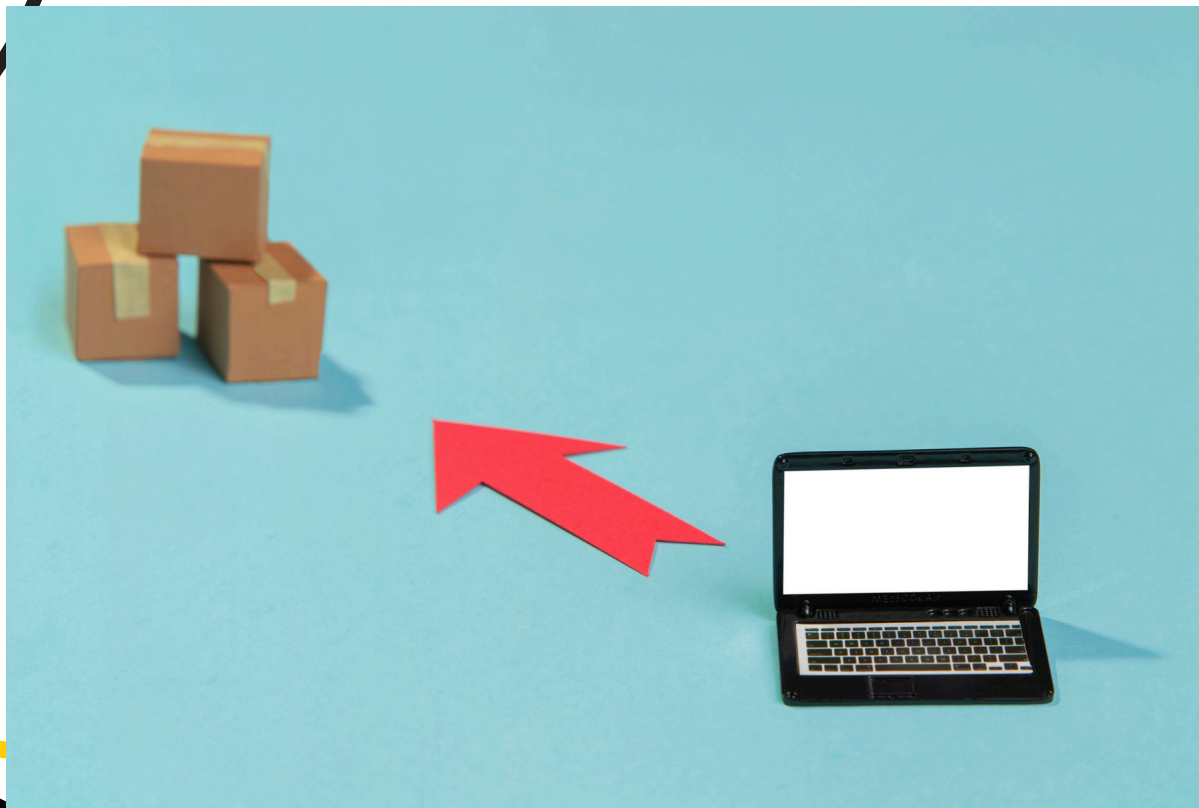
- INTRODUCTION
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INTRODUCTION

- BLINKIT IS A QUICK-COMMERCE PLATFORM THAT DELIVERS GROCERIES IN MINUTES.
- SALES PREDICTION AND DEMAND FORECASTING ARE ESSENTIAL FOR MANAGING STOCK AND MAXIMIZING PROFITS.
- OUR GOAL IS TO ANALYZE BLINKIT'S SALES DATA AND BUILD A DATA-DRIVEN PREDICTIVE MODEL.

PROBLEM STATEMENT



UNPREDICTABLE DEMAND LEADS TO OVERSTOCKING
OR STOCKOUTS.

INCORRECT PRICING AFFECTS SALES AND REVENUE.

LACK OF COMPETITOR PRICING DATA MAKES PRICING DECISIONS DIFFICULT.

OBJECTIVE

- EXTRACT VALUABLE INSIGHTS FROM BLINKIT'S SALES DATA.
- IDENTIFY KEY SALES PATTERNS AND TRENDS.
- BUILD A MODEL TO PREDICT FUTURE DEMAND.
- OPTIMIZE PRICING STRATEGIES BASED ON DEMAND ELASTICITY.



DATASET OVERVIEW

- 100,000+ SALES RECORDS WITH MULTIPLE FEATURES.
- EXTERNAL FACTORS LIKE WEATHER, HOLIDAYS, AND MARKETING CAMPAIGNS ARE ALSO CONSIDERED.

	order_date	product_name	price	discount_applied	stock_availability	competitor_price
0	2023-11-20	Product_C	460.48	20	In Stock	471.81
1	2024-12-01	Product_B	16.29	0	In Stock	16.36
2	2024-01-28	Product_A	347.36	5	In Stock	347.79
3	2024-08-25	Product_B	200.77	5	In Stock	181.68
4	2024-11-29	Product_D	433.68	15	In Stock	439.71

	day_of_week	weather_condition	category
0	Monday	Cloudy	Snacks
1	Sunday	Sunny	Frozen
2	Sunday	Rainy	Dairy
3	Sunday	Cloudy	Dairy
4	Friday	Rainy	Frozen


DATA PREPROCESSING

- HANDLING MISSING VALUES, DUPLICATES, AND OUTLIERS.
- FEATURE ENGINEERING:

EXTRACT DAY OF THE WEEK, HOLIDAYS, AND COMPETITOR PRICE TRENDS
CREATE NEW FEATURES LIKE PRICE ELASTICITY AND DISCOUNT IMPACT.

- DATA NORMALIZATION AND TRANSFORMATION FOR ML MODELS.

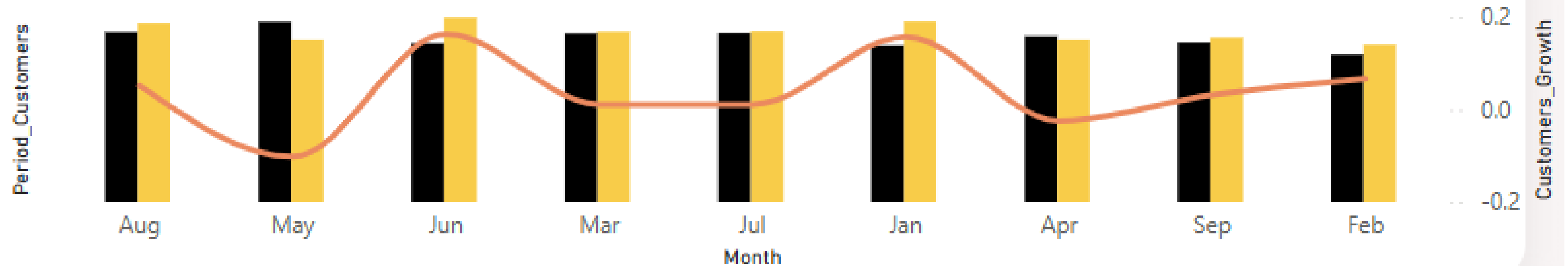
EXPLORATORY DATA ANALYSIS

- TOP-SELLING PRODUCTS AND CATEGORIES.
 - TIME-BASED SALES TRENDS (DAILY, WEEKLY, SEASONAL).
 - IMPACT OF DISCOUNTS AND COMPETITOR PRICING ON SALES.
 - CUSTOMER RATINGS AND REVIEWS ANALYSIS.
- 

Customer Counts by Month

Last 9 Months

● 2023 ● 2024 ● Customers_Growth



blinkit

0.88%
Growth

Value 2023

Value 2024

9M

10M

Last 6 Months

Last 6 Months

Top 5 Products Value

Last 6 Months

asperm...

facere n...

animi er...

est quos

ipsam di...

0M

1M

Default

Top 5

Top 10

Top 20

Top 50

Top 100

Sales Overview



Payment Method

Last 6 Months



Customer Segment

Last 6 Months



Default

Top 5

Top 10

Top 20

Top 50

Top 100

Top 5 Area Value

Last 6 Months

Ghaziab...

Auranga...

Kharagp...

Begusarai

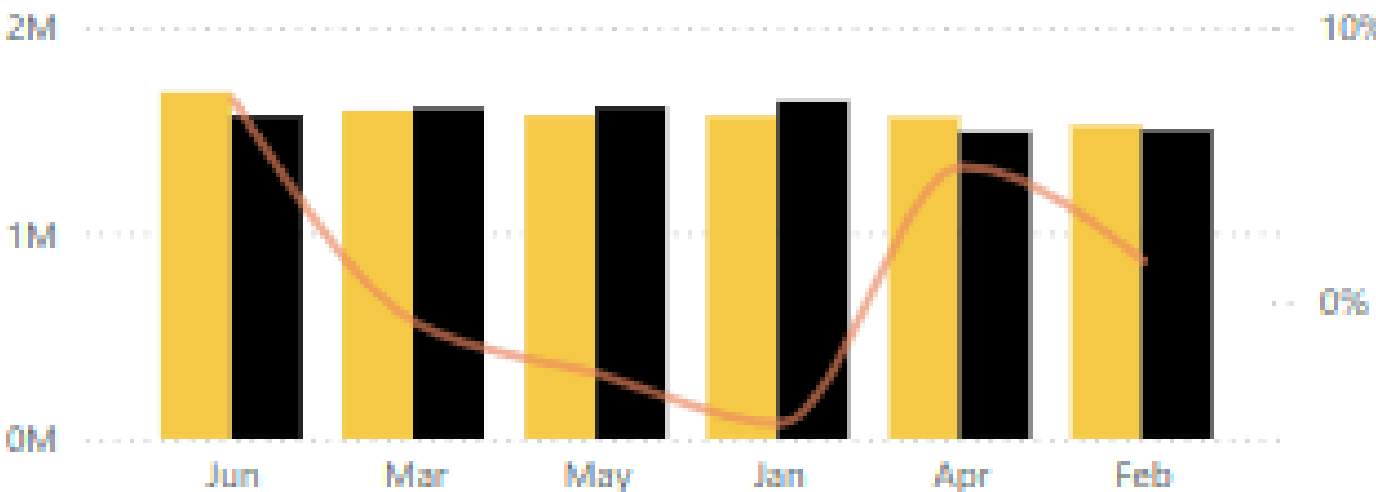
Deoghar

0.0M

0.2M

Current Year, Prev Year and Growth by Month

Current Year Prev Year Growth



PREDICTIVE MODELING APPROACH

MODELS USED:

TIME SERIES MODELS (ARIMA, PROPHET).

MACHINE LEARNING MODELS (RANDOM FOREST, XGBOOST).

PERFORMANCE METRICS: RMSE, MAPE.



MODEL EVALUATION & RESULTS

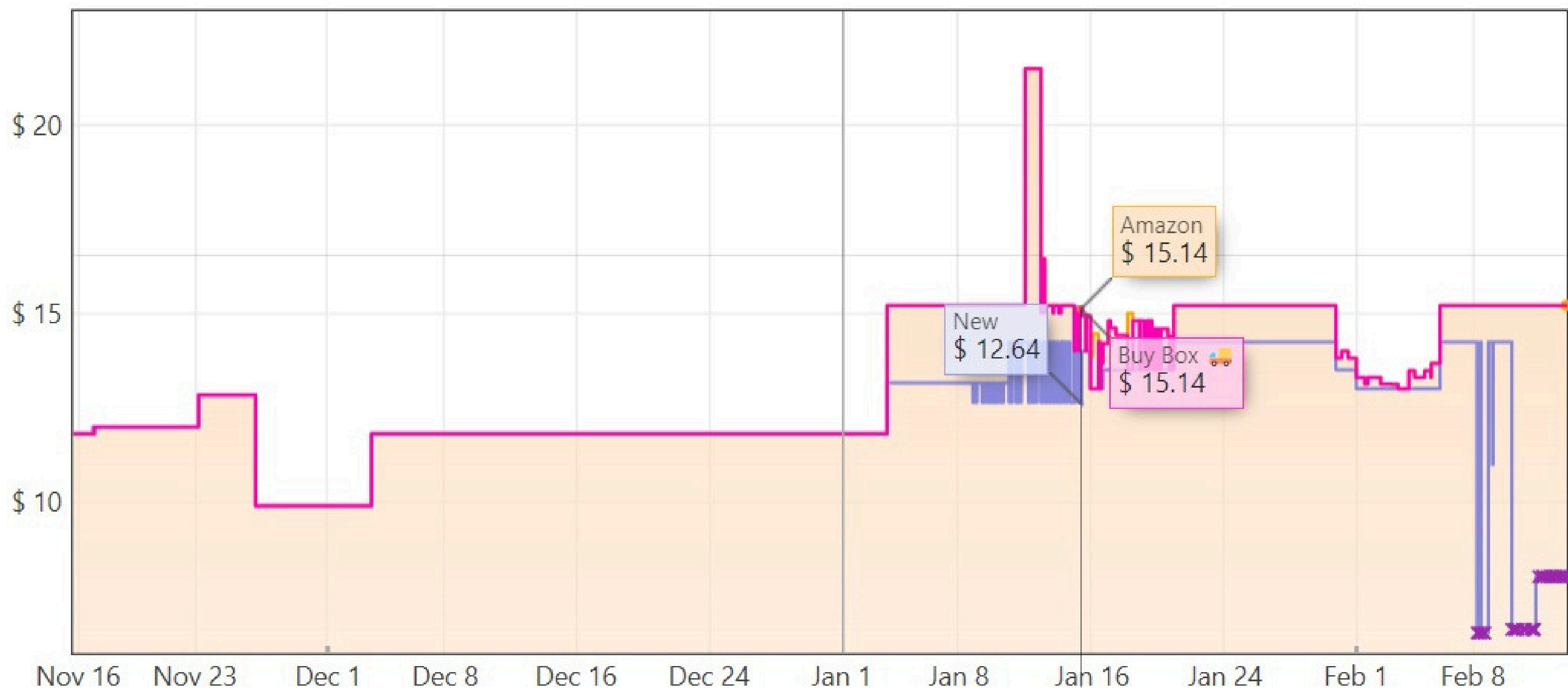
- INSIGHTS FROM FORECASTING RESULTS.
- GRAPHS SHOWING PREDICTED VS. ACTUAL SALES.
- COMPARISON OF DIFFERENT MODELS BASED ON ACCURACY.



BUSINESS INSIGHTS & RECOMMENDATIONS



- ADJUST PRICING BASED ON DEMAND ELASTICITY.
- OPTIMIZE INVENTORY LEVELS TO AVOID STOCKOUTS.
- PLAN MARKETING CAMPAIGNS BASED ON PEAK SALES TRENDS.



CHALLENGES & LIMITATIONS

- INCOMPLETE EXTERNAL DATA (E.G., REAL-TIME COMPETITOR PRICING).
- SEASONAL DEMAND FLUCTUATIONS REQUIRE CONTINUOUS MODEL UPDATES.
- FURTHER IMPROVEMENTS POSSIBLE WITH DEEP LEARNING TECHNIQUES.

CONCLUSION & FUTURE SCOPE

OUR PROJECT SUCCESSFULLY ANALYZES SALES TRENDS AND PREDICTS DEMAND.

FUTURE ENHANCEMENTS:

REAL-TIME WEB SCRAPING FOR COMPETITOR PRICING.

DYNAMIC DISCOUNTING MODELS.





REFERENCES & ACKNOWLEDGMENTS

- LIBRARIES USED: PANDAS, NUMPY, SCIKIT- LEARN, TENSORFLOW, PROPHET.
- DATA SOURCES: BLINKIT SALES DATA.
- ACKNOWLEDGMENT: THANKS TO SACHIN SIR FOR THEIR GUIDANCE.

The background is white with abstract yellow and black shapes. In the top-left corner, there is a large yellow shape with a black outline. In the top-right corner, there is a black shape with a yellow outline. In the bottom-left corner, there is a yellow shape with a black outline. In the bottom-right corner, there is a large yellow shape. Scattered throughout the white space are numerous small yellow dots of varying sizes.

THANK YOU