**Question 1 : (30 marks)**

**Sales Analysis:**

**Part 1**: **Sales and Profitability Analysis**

Merge the List of Orders and Order Details datasets on the basis of Order ID.

Calculate the total sales (Amount) for each category across all orders.

print(total\_sales\_by\_category)

Category Amount

1 Electronics 165267.0

0 Clothing 139054.0

2 Furniture 127181.0

For each category, calculate the average profit per order and total profit margin

(profit as a percentage of Amount).

Category Average Profit Per Order Profit Margin (%)

0 Clothing 28.404580 8.027817

1 Electronics 51.441176 6.349725

2 Furniture 12.354839 1.806874

Identify the top-performing and underperforming categories based on these

metrics. Also, suggest reasons for their performance diEerences.

Top-Performing Categories:

Category Average Profit Per Order Profit Margin (%)

1 Electronics 51.441176 6.349725

0 Clothing 28.404580 8.027817

2 Furniture 12.354839 1.806874

Underperforming Categories:

Category Average Profit Per Order Profit Margin (%)

2 Furniture 12.354839 1.806874

0 Clothing 28.404580 8.027817

1 Electronics 51.441176 6.349725

**Performance Analysis:**

***Top-Performing Categories:***

* ***High Average Profit Per Order****:*
  + *These categories have high-value products or premium offerings that yield significant profits per sale.*
* ***High Profit Margin****:*
  + *The categories with high profit margins may focus on products that have lower production or procurement costs relative to their selling price, which results in a higher percentage of the sales amount turning into profit.*

***Underperforming Categories:***

* ***Low Average Profit Per Order****:*
  + *These categories might have lower-priced products or more price-sensitive items, leading to lower profits per sale.*
* ***Low Profit Margin****:*
  + *Categories with low margins could include products with high procurement or manufacturing costs, or they could involve heavy discounting or price competition.*

***Suggested Reasons for Performance Differences:***

1. ***High-Performing Categories****:*
   * ***Premium Products****: Categories with high-value or luxury items generally yield higher profits per order and have higher margins.*
   * ***Niche Markets****: Some specialized categories can charge a premium due to limited competition or high customer demand.*
   * ***Brand Recognition****: Established brands in certain categories can command higher prices with higher profit margins.*
2. ***Underperforming Categories****:*
   * ***Commodities/Low-Cost Products****: Categories that deal with everyday consumer goods or basic products often have lower profit margins because they are priced competitively.*
   * ***Price Wars and Discounting****: Categories that rely heavily on promotions and discounts may see lower profit margins as a result of reducing their selling prices to attract customers.*
   * ***High Production Costs****: Some categories may have high manufacturing, shipping, or procurement costs that eat into their profit margin.*
   * ***Market Saturation****: A saturated market with many competitors can drive down prices, negatively affecting profit margins.*

**Part 2**: **Target Achievement Analysis**

Using the Sales Target dataset, calculate the percentage change in target sales

for the Furniture category month-over-month.

Month of Order Date Target Target Sales Change (%)

0 2018-04-01 10400.0 NaN

1 2018-05-01 10500.0 0.961538

2 2018-06-01 10600.0 0.952381

3 2018-07-01 10800.0 1.886792

4 2018-08-01 10900.0 0.925926

5 2018-09-01 11000.0 0.917431

6 2018-10-01 11100.0 0.909091

7 2018-11-01 11300.0 1.801802

8 2018-12-01 11400.0 0.884956

9 2019-01-01 11500.0 0.877193

10 2019-02-01 11600.0 0.869565

11 2019-03-01 11800.0 1.724138

Analyse the trends to identify months with significant target fluctuations.

Suggest strategies for aligning target expectations with actual performance

trends.

Month of Order Date Target Target Sales Change (%)

3 2018-07-01 10800.0 1.886792

7 2018-11-01 11300.0 1.801802

11 2019-03-01 11800.0 1.724138

**Part 3**: **Regional Performance Insights**

From the List of Orders dataset, identify the top 5 states with the highest order

count. For each of these states, calculate the total sales and average profit.

State Order Count total\_sales avg\_profit

0 Madhya Pradesh 101 105140.0 16.326471

1 Maharashtra 90 95348.0 21.296552

2 Rajasthan 32 21149.0 16.986486

3 Gujarat 27 21058.0 5.344828

4 Punjab 25 16786.0 -10.150000

Highlight any regional disparities in sales or profitability. Suggest regions or cities

that should be prioritized for improvement.

State total\_sales avg\_profit Profit Margin (%)

10 Madhya Pradesh 105140.0 16.326471 0.015528

11 Maharashtra 95348.0 21.296552 0.022336

2 Delhi 22531.0 40.364865 0.179153

17 Uttar Pradesh 22359.0 47.602941 0.212903

14 Rajasthan 21149.0 16.986486 0.080318

4 Gujarat 21058.0 5.344828 0.025381

13 Punjab 16786.0 -10.150000 -0.060467

8 Karnataka 15058.0 11.944444 0.079323

18 West Bengal 14086.0 39.682540 0.281716

9 Kerala 13459.0 41.577778 0.308922

0 Andhra Pradesh 13256.0 -11.809524 -0.089088

1 Bihar 12943.0 -5.177419 -0.040002

12 Nagaland 11903.0 3.288889 0.027631

7 Jammu and Kashmir 10829.0 0.163265 0.001508

5 Haryana 8863.0 50.961538 0.574992

6 Himachal Pradesh 8666.0 22.620690 0.261028

3 Goa 6705.0 8.604651 0.128332

16 Tamil Nadu 6087.0 -88.640000 -1.456218

15 Sikkim 5276.0 16.708333 0.316686

**Question 2 : (10 marks)**

**App Exploration:**

Explore the features and user experience of the Jar app. Highlight five things you found

particularly eEective and user-friendly. Additionally, identify five areas where

improvements could be made, providing your reasoning for each suggestion.

The **Jar app** is a digital platform that enables users to save and invest small amounts of money into digital gold, promoting a habit of daily savings through automated micro-investments.

**Five Effective and User-Friendly Features:**

1. **Automated Micro-Investments:** Jar allows users to set up automatic savings by rounding up online transaction amounts to the nearest ten rupees, investing the spare change into digital gold. This seamless integration with daily spending encourages consistent saving habits.
2. **User-Friendly Interface:** The app offers an intuitive and easy-to-navigate interface, making it accessible even to users with minimal financial literacy. Features like the celebration screen upon successful transactions enhance the overall user experience.
3. **Flexible Investment Options:** Users can choose to invest daily, weekly, or monthly, providing flexibility to align with individual financial goals and preferences.
4. **Low Minimum Investment:** Starting investments as low as ₹10 make it accessible to a wide range of users, including those new to investing or with limited funds.
5. **Educational Resources:** The app provides educational content to help users understand the basics of digital gold investment, fostering informed decision-making.

**Five Areas for Improvement:**

1. **Withdrawal Process Transparency:** Users have reported difficulties and delays when attempting to withdraw funds, with some experiencing discrepancies between buying and selling gold prices. Improving the withdrawal process and providing clear, transparent information about fees and timelines would enhance user trust.
2. **Customer Support Enhancement:** There are concerns about inadequate customer support, particularly during the Know Your Customer (KYC) process and in resolving issues promptly. Strengthening customer service channels and ensuring timely assistance would improve user satisfaction.
3. **Competitive Pricing:** Some users have noted that the buying price of gold on the Jar app is higher compared to other markets, which could affect investment returns. Aligning gold prices more closely with market rates would make the app more competitive.
4. **Account Deletion Option:** Users have expressed frustration over the inability to delete their accounts, which can lead to privacy concerns. Implementing an option for users to delete their accounts would enhance user control and trust.
5. **Enhanced Security Measures:** There have been reports of fraudulent activities and security concerns. Strengthening security protocols and providing users with clear information about data protection would address these issues and build confidence in the platform.
6. **Question 3: (10 marks)**
7. **Product Exploration:**

The Jar app provides users with an innovative way to save and invest in digital gold, starting with as little as ₹10. It automates savings and investments, making financial planning seamless and accessible. As the first Made-in-India app to pioneer such a solution, Jar has successfully created a niche in automated savings and investment. Building on its strong foundation and leveraging its existing user base and trust, what are some new business opportunities Jar could venture into, to expand its oEerings and enhance user engagement? Discuss how the app can utilize its strengths, such as automation, a user-friendly design, and established credibility, to seamlessly integrate these new services, deepen its value proposition, and achieve significant milestones in the financial ecosystem.

*Jar, with its strong foundation as the first Made-in-India app offering automated savings and investment in digital gold, is well-positioned to expand its business offerings. To further grow its user base and enhance user engagement, Jar can explore several new business opportunities by leveraging its existing strengths, such as automation, user-friendly design, and established credibility. Here are some potential new business areas for Jar to venture into:*

*1. Automated Investment in Mutual Funds or ETFs*

* *Opportunity: Jar could extend its automated savings and investment features by allowing users to invest in mutual funds or exchange-traded funds (ETFs). Users can invest in mutual funds in small amounts on a recurring basis, similar to how Jar handles gold investments.*
* *How It Leverages Jar’s Strengths:*
  + *Automation: Jar’s existing system for automatic, recurring investments in digital gold can be easily adapted to work for mutual funds and ETFs, making investing more accessible for users without needing in-depth financial knowledge.*
  + *User-Friendly Design: The app's simple and intuitive interface can be extended to include mutual fund categories and performance tracking, making it easy for users to manage both their gold and mutual fund investments in one place.*
  + *Credibility: With Jar’s established trust and credibility in the digital gold space, users are likely to feel confident in extending their investment portfolios through the app.*

*2. Micro-Loans or Peer-to-Peer Lending*

* *Opportunity: Jar could launch a feature that allows users to lend small amounts of money in a peer-to-peer (P2P) lending environment. This would enable users to generate returns on their savings in addition to traditional investment methods.*
* *How It Leverages Jar’s Strengths:*
  + *Automation: Automating the lending process, including monthly repayments, loan tracking, and interest calculation, could make this feature extremely attractive for users who are already familiar with Jar’s automated systems.*
  + *User-Friendly Design: By maintaining the clean, intuitive design Jar is known for, the micro-lending feature could be seamlessly integrated. Users would have easy access to information about their loans, interest rates, and repayment schedules.*
  + *Credibility: Jar’s established presence in India’s financial ecosystem would reassure users that the platform is safe and trustworthy for participating in P2P lending.*

*3. Personalized Financial Planning and Wealth Management*

* *Opportunity: The app could integrate a personalized financial planning tool or offer automated wealth management services based on user goals (retirement, buying a home, etc.). Jar could partner with financial advisors or employ AI-driven recommendations to offer a highly tailored experience.*
* *How It Leverages Jar’s Strengths:*
  + *Automation: Jar’s ability to automate savings and investments can be extended to personalized financial planning. For instance, users could have automatic transfers based on their financial goals, such as building a retirement corpus.*
  + *User-Friendly Design: The tool can offer a simple walkthrough for users to input their financial goals, with the app then automating the process of achieving these goals over time.*
  + *Credibility: Jar’s track record as a credible financial tool would inspire confidence in users when it comes to managing more complex financial products or seeking wealth management advice.*

*4. Recurring Investment in Cryptocurrencies*

* *Opportunity: Cryptocurrencies are becoming increasingly popular, and Jar could introduce recurring investment options for digital currencies. This service could target tech-savvy users who are interested in diversifying their investment portfolios into crypto assets.*
* *How It Leverages Jar’s Strengths:*
  + *Automation: Just like digital gold, users could automate cryptocurrency investments by setting up recurring transfers to buy Bitcoin, Ethereum, or other digital currencies. This adds convenience to the crypto investing process.*
  + *User-Friendly Design: Jar’s design can simplify cryptocurrency investments by providing educational content about different cryptocurrencies and their potential benefits, making the platform approachable for beginners.*
  + *Credibility: With Jar’s established reputation, users would feel more secure using the app for cryptocurrency investments rather than seeking out potentially unreliable or unverified platforms.*

*5. Financial Literacy and Educational Content*

* *Opportunity: Jar can create a learning hub within the app, offering financial literacy courses, tips, and guidance on budgeting, investing, and personal finance. This could include content like articles, videos, and tools for understanding financial products.*
* *How It Leverages Jar’s Strengths:*
  + *Automation: Jar could automatically suggest personalized learning paths or tips based on the user’s saving and investment activity. For example, if a user begins investing in mutual funds, the app could recommend relevant courses or articles to deepen their understanding of investments.*
  + *User-Friendly Design: By maintaining an intuitive interface for learning, users could easily access bite-sized content directly within the app. Educational content could be personalized to match the user’s financial profile.*
  + *Credibility: As a trusted financial app, Jar could partner with financial experts to provide high-quality content, positioning itself as not only an investment tool but a reliable source of financial education.*

*6. Collaborations with Banks and Credit Institutions for Integrated Financial Services*

* *Opportunity: Jar could collaborate with banks or credit institutions to offer integrated services such as savings accounts, fixed deposits, and credit products, all within the app. This would allow users to manage all their financial products from a single platform.*
* *How It Leverages Jar’s Strengths:*
  + *Automation: The app could automate the transfer of funds from a user’s linked bank account to their Jar savings or investment account. For credit products, Jar could offer automatic payment reminders and repayment tracking.*
  + *User-Friendly Design: With its established simplicity and ease of use, Jar could integrate these services in a way that doesn’t overwhelm users but makes financial management more efficient.*
  + *Credibility: Jar’s established user base and trust in its services would create an ideal environment for users to explore banking and credit products.*

*Conclusion: Achieving Milestones in the Financial Ecosystem*

*To deepen its value proposition and achieve significant milestones, Jar should focus on integrating these new services into its existing ecosystem with a strong emphasis on automation, personalization, and user trust. By continuously simplifying complex financial processes and offering diverse services that cater to varying user needs, Jar can retain and expand its user base, becoming an all-encompassing financial platform. Additionally, strategic partnerships with financial institutions and innovative features that promote financial literacy will help Jar evolve from a digital gold app to a broader financial services provider, ultimately positioning it as a leader in India’s growing fintech space.*