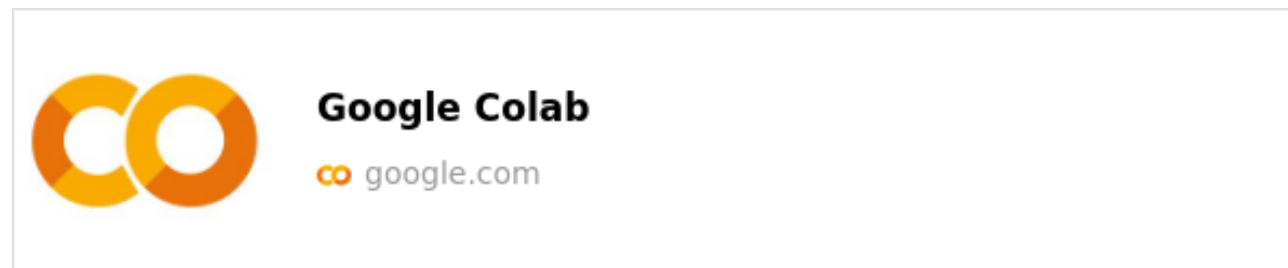


# **Shopping Trends and Customer Insights: Analysis of Istanbul's Shopping Malls (2021-2023).**

The dataset provides shopping transaction details from 10 shopping malls in Istanbul between 2021 and 2023, covering various customer demographics such as age and gender, along with key attributes like product categories, payment methods, and transaction dates. The goal of this analysis is to extract actionable insights into shopping behavior, including identifying frequently purchased product combinations through Market Basket Analysis, uncovering upselling and cross-selling opportunities, and predicting customer preferences to personalize product recommendations. Additionally, the analysis aims to identify marketing strategies to boost sales in underperforming malls by understanding patterns and customer engagement gaps. By leveraging these insights, businesses can make data-driven decisions to optimize customer satisfaction, enhance revenue, and improve operational efficiency across malls.

project google colab link



# Conclusion and Insights from the Analysis

## 1. Perform Market Basket Analysis: Identifying Categories Frequently Purchased Together

- Frequent Itemsets: The analysis identified that certain product categories, such as Clothing and Shoes, are frequently purchased together.
- Customer Preferences: Customers tend to combine purchases in complementary categories, suggesting a pattern in shopping behavior.
- Opportunities for Bundling:
  - Retailers can create bundle offers for frequently purchased categories, such as discounts on shoes when buying clothing.
  - Offer promotions like "Buy Clothing, Get Discounts on Accessories" to encourage multi-category purchases.

## 2. Upselling and Cross-Selling Opportunities

- Upselling:
  - For high-revenue categories like Clothing and Shoes, promote premium versions of these products.
  - Highlight higher-priced items with added benefits, such as premium-quality fabrics or branded footwear.
- Cross-Selling:
  - Leverage complementary items to increase the average transaction value. For example:
    - Cross-sell Cosmetics with Clothing purchases.
    - Pair Books with lifestyle products like Toys or Food & Beverages.
  - Utilize strategic product placement in stores or online to encourage such purchases.

### 3. Predicting Likely Categories for Customers

- Customer Demographics:
  - Younger customers (ages 20–30) are more likely to purchase categories like Clothing and Shoes.
  - Older customers (ages 50+) show a preference for categories like Books and Toys.
  - Gender-specific preferences indicate that Clothing and Cosmetics are popular among females, while males prefer Shoes and Books.
- Recommendation Systems:
  - Implement personalized recommendations using customer purchasing history, demographics, and shopping trends.
  - For example:
    - Recommend Shoes or Accessories to a customer who has recently purchased Clothing.
    - Suggest Food & Beverages for customers frequently buying Toys, to target family-oriented shoppers.

## 4. Marketing Strategies for Low-Performing Malls

- Low-Performing Malls Identified:
  - Forum Istanbul, Emaar Square Mall, Viaport Outlet, Cevahir AVM, and Zorlu Center are underperforming in revenue.
- **Strategies to Improve Performance:**
  - a. Customer Engagement:
    - Organize events like seasonal sales, live performances, or exclusive product launches to attract foot traffic.
  - b. Promotions and Discounts:
    - Provide mall-specific promotions, such as "Spend ₹X and Get ₹Y Off" to incentivize spending.
  - c. Local Demographics:
    - Tailor product offerings based on local preferences. For example, analyze customer profiles to determine the most demanded categories in each area.
  - d. Improve Amenities:
    - Enhance the customer experience by upgrading facilities, such as better parking, free Wi-Fi, or child-friendly zones.
  - e. Digital Marketing:
    - Use targeted social media campaigns focusing on the local community to drive awareness and engagement.