Detailed Project Summary: Supermarket Sales Analysis

This project explores supermarket sales data using Python, Pandas, and Seaborn, focusing on revenue patterns, customer behaviour, and product performance. Below is a structured breakdown:

1. Sales Analysis Across Cities and Branches

- **Branch and City Sales:**
  - A bar plot of total sales across different cities showed minimal variation.
  - Conclusion: All branches generate nearly equal revenue, indicating consistent customer demand.
- **Gender-Based Sales Contribution:**
  - In Yangon and Mandalay, both genders contribute equally to sales.
  - In Naypyitaw, female customers contribute significantly more than males.

2. Customer Analysis

- **Customer Type Distribution (Members vs. Normal Customers):**
  - A count plot showed the proportion of "Member" and "Normal" customers across cities.
  - Insights: The distribution remains balanced, meaning the membership program has equal engagement.

3. Product Line Performance

- **Total Sales by Product Line:**
  - "Food and Beverages" generated the highest revenue.
  - "Health and Beauty" had the lowest revenue.
- **Average Product Ratings by Category:**
  - A bar plot showed no significant variation in product ratings across categories.
- **Total Quantity Sold by Product Line:**
  - "Electronic Accessories" had the highest quantity sold, indicating high demand.

4. Sales Trends

- **Sales by Day of the Week:**
  - A line chart of sales trends across weekdays was plotted.
  - Insight: Sales fluctuate but remain relatively stable throughout the week.
- **Sales by Month:**
  - Extracted monthly sales trends to identify seasonal demand.

Key Insights & Business Recommendations

1. **Branch Performance:** Sales are evenly distributed across cities, so no major location-based intervention is required.
2. **Customer Behaviour**: Membership has balanced adoption; a targeted loyalty program could drive more engagement.
3. **Product Strategy:**
   - "Food & Beverages" is the top-selling category - Optimize stock & promotions.
   - "Health & Beauty" lags behind - Consider discount strategies or marketing campaigns.
   - "Electronic Accessories" has the highest sales volume - Ensure sufficient inventory.
4. **Time-Based Trends:** Weekday and monthly trends should be leveraged for time-sensitive promotions.