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New Year Sales Analysis

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InLighn Tech – Portfolio Project

Objective:

To analyse the New Year Sales data in order to identify patterns, trends, and insights that can help in understanding customer behaviour. The analysis is performed using Python programming, incorporating various packages such as NumPy, pandas, matplotlib.pyplot, and seaborn.

Data-Preparation:

* The dataset is checked for null values.
* Columns containing null values are removed as they do not contribute to the analysis.
* The “Amount” column contains 12 null values out of a total of 11,251 rows. Since these represent less than 1% of the dataset, the corresponding rows are deleted.
* The dataset is examined for unique values to identify potential typos or invalid data.

Analysis Report:

* The minimum age of customers purchasing products is 12, while the maximum is 92.
* The maximum number of goods purchased in a single order is 4.
* The average amount spent by a customer is ₹9,400, with purchases ranging from a minimum of ₹188 to a maximum of ₹23,952.
* Sales made by female customers account for 69.6%, which is nearly double the sales made by male customers.

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* Unmarried customers tend to spend more on New Year shopping compared to married customers.

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* In terms of state-wise sales, Uttar Pradesh contributes the highest share with 17.2%, while Telangana accounts for the lowest at 1.1% of total sales.   
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* Among zones, the Central Zone contributes the highest share of sales at 38.1%, followed by the Southern Zone at 23.9%. The Eastern Zone records the lowest contribution at 7.2%.   
    
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* Customers working in the IT and Healthcare sectors contribute the most to overall sales, whereas those in the Textile and Agriculture sectors contribute the least.

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* The age groups 26–35, 36–45, and 18–25 generate the highest sales compared to customers aged 46 and above or 17 and below.

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* The highest sales are recorded in the categories of food, clothing & apparel, electronics & gadgets, and footwear.
* Product categories such as veterinary, hand & power tools, and pet care record the lowest sales.

A graph of products and items

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Insights

* More products targeted toward male customers should be added to the product list in order to increase sales from this segment.
* Family-oriented products and a wider range of items in the kids’ category should be introduced to attract more purchases from married customers.
* Sales targets should be revised in states such as Telangana, Punjab, and Rajasthan to improve performance in these regions.
* Since customers from the agriculture and textile industries (assumed to have lower digital literacy) contribute less to online sales, customized offers should be designed to engage this customer base.
* Customers above 46 years and below 17 years of age appear underserved; products catering to their specific needs should be introduced to enhance sales within these age groups.
* Seasonal offers and promotions should be launched for underperforming product categories to boost their contribution to overall sales.