**Customer Lifetime Value (CLV):**

**Customer Lifetime Value (CLV)** is the total revenue a business can expect from a customer over the entire duration of their relationship. It helps businesses understand how valuable a customer is beyond just a single purchase.

**Importance:**

* **Optimize Marketing Strategies** – Identify high-value customers and invest in retaining them.
* **Improve Customer Retention** – Focus on customers who will generate the most revenue long-term.
* **Personalize Offers** – Provide tailored discounts or loyalty programs based on CLV.
* **Budget Allocation** – Determine how much to spend on acquiring new customers vs. retaining existing ones.
* **Business Growth & Forecasting** – Estimate future revenues and make data-driven decisions.

**Dataset preparation:**

* Average Order Value (AOV) = Total Revenue / Total Orders
* Purchase Frequency (PF) = Total Orders / Total Customers
* Recency (R) = Days since last purchase

These are calculated fields to build ML model.

Required structure of dataframe

A screenshot of a computer screen

AI-generated content may be incorrect.

CLV = AOV \* frequency

A screenshot of a number table

AI-generated content may be incorrect.

**Building ML model:**

**Preprocessing:**

1. Load data
2. Check datatypes
3. Converting datatype to required datatype if needed
4. Checking nulls, infinite values, duplicates

**Building model:**

1. Devide and assign features and targets

feature = x = 'AOV', 'order\_freq', 'recency'

target = y = clv

1. Dividing testing and training part, testing is 30% and traing is 70% of total data
2. Make predictions by running model
3. Check the accuracy of model:

**RMSE: 54.49** – this depends upon range of CLV.

**R² Score: 0.97** - 97% of the variability in CLV is explained by your features (aov, order\_freq, recency). The model fits the data well