Key Metrics & Formulas for Data/Product Analysts

## Retention Rate

Formula: Retention Rate = (Users retained at end of period / Users at start of period) × 100

Use Case: Measures customer stickiness over time.

## Conversion Rate

Formula: Conversion Rate = (Number of conversions / Total visitors) × 100

Use Case: Tracks how many users complete a desired action.

## Customer Lifetime Value (CLTV)

Formula: CLTV = Average Purchase Value × Purchase Frequency × Customer Lifespan

Use Case: Estimates total revenue from a customer over time.

## Churn Rate

Formula: Churn Rate = (Customers lost during period / Total customers at start) × 100

Use Case: Measures how many users stopped using the service.

## Growth Rate

Formula: Growth Rate = ((New users - Lost users) / Total users at start) × 100

Use Case: Measures user base expansion.

## MAU / DAU

Formula: MAU or DAU = Count of distinct users in given timeframe

Use Case: Tracks active engagement over time.

## Repeat Purchase Rate

Formula: Repeat Purchase Rate = (Customers with >1 purchase / Total customers) × 100

Use Case: Used in ecommerce to measure loyalty.

## ARPU

Formula: ARPU = Total Revenue / Total Users

Use Case: Assesses monetization effectiveness per user.

## Net Promoter Score (NPS)

Formula: NPS = % Promoters - % Detractors

Use Case: Measures customer satisfaction and likelihood to recommend.

## Customer Acquisition Cost (CAC)

Formula: CAC = Total Marketing & Sales Cost / New Customers Acquired

Use Case: Evaluates efficiency of customer acquisition.

## Time to Convert

Formula: Time to Convert = Average time from signup to conversion

Use Case: Analyzes funnel speed and friction.

## Click-Through Rate (CTR)

Formula: CTR = (Clicks / Impressions) × 100

Use Case: Measures effectiveness of ads or emails.

# Business Interpretations of Key Metrics

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| Metric | Business Interpretation / Term | Explanation |
| Retention Rate | % of users who stayed or renewed | Measures how many users continue using the product. |
| Churn Rate | % of users who left | Indicates loss of customers over a period. |
| Conversion Rate | % of users who completed an action | Tracks goal completions like signups or purchases. |
| Repeat Purchase Rate | % of users with more than 1 purchase | Indicates loyalty or recurring behavior. |
| Click-Through Rate (CTR) | % of people who clicked after seeing ad/email | Shows marketing effectiveness. |
| MAU / DAU | # of unique users per day/month | Tracks engagement frequency. |
| Customer Acquisition Cost (CAC) | $ per user acquired | Measures cost-efficiency of marketing. |
| Customer Lifetime Value (CLTV) | $ expected per user over lifetime | Estimates long-term revenue per customer. |
| Time to Convert | Avg. days to complete a goal | Measures funnel speed. |
| Growth Rate | % net user growth | Shows expansion of user base. |
| ARPU | $ revenue per user | Evaluates monetization per user. |
| Net Promoter Score (NPS) | % promoters - % detractors | Measures customer sentiment/loyalty. |