

industry 4.0 | jan 2025 term

# project presentation

presented by  
team **night owls**



# The Problem

Analyzing how repeated ad exposures impact CTR, Conversion Rates, and purchase likelihood to find the optimal exposure frequency that maximizes conversions while avoiding ad fatigue.

## Key Questions

- How does ad exposure frequency impact CTR & Conversion Rate?
- What is the optimal exposure count before diminishing returns?
- Which campaign types and channels perform best?
- Does ad spend efficiency vary with exposure levels?
- Do first-time viewers engage better than repeated viewers?



# Objective & Constraints



## Objective

- Identify the relationship between ad exposure and engagement.
- Determine the optimal number of exposures before stagnation.
- Assess the effectiveness of different campaign types & channels.
- Provide data-driven recommendations for budget allocation.

## Constraints

- No direct ad exposure count → Derived from engagement metrics.
- No time frame for exposure duration → Grouped into Short-Term, Medium-Term, Long-Term.
- Limited user-level insights → Segmented as First-Time vs. Repeated Viewers.
- Risk of ad fatigue → Identified stagnation via trend analysis.

# The Data



## ✿ Attributes

- Campaign Type: Awareness, Retention, Conversion, Consideration.
- Ad Spend & Exposure: Budget levels, Channels (PPC, Social Media, Email, SEO, Referral).
- Engagement Metrics: CTR, Conversion Rate, Website Visits, Social Shares.
- User Demographics: Age, Gender, Income.
- User Behavior: Email Opens, Clicks, Previous Purchases, Loyalty Points.

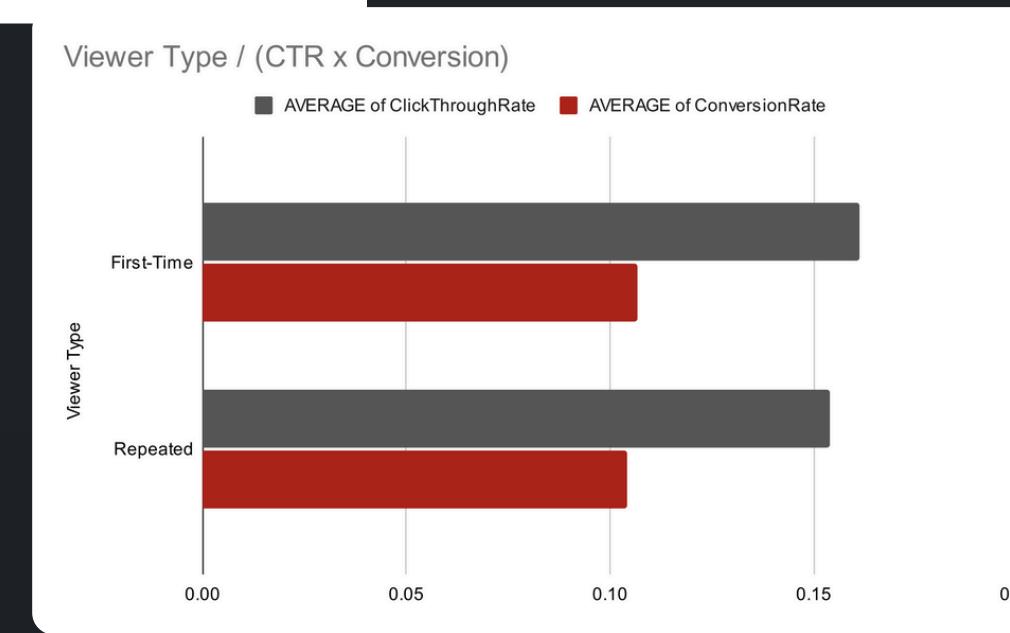
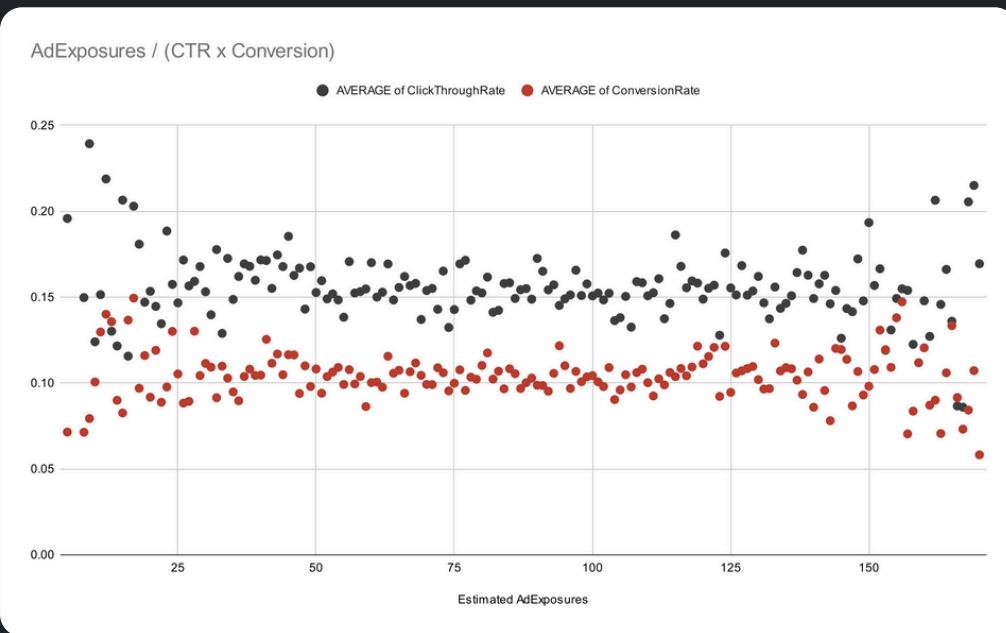
## ✿ Key Derived Variables

- Estimated Ad Exposures = WebsiteVisits + EmailOpens + EmailClicks + SocialShares.
- Viewer Type: First-Time Viewers (Lowest 10%) vs. Repeated Viewers.
- Ad Exposure Duration: Short-Term (1-3 Days), Medium-Term (1-2 Weeks), Long-Term (3+ Weeks).

# Methodology

- **Data Cleaning:** Standardized campaign types, removed missing values.
- **Feature Engineering:** Created ad exposure, viewer type, and duration metrics.
- **Exploratory Analysis:** Used Pivot Tables & Charts to assess trends.
- **Trend Analysis:** Identified optimal ad exposures & ad fatigue.
- **Recommendations:** Provided budget allocation strategies based on findings.

# Results & Implications



## Key Findings

1. Best Ad Exposure Range: 1-20 exposures for highest engagement.
2. Ad Fatigue: 100+ exposures show diminishing returns.
3. Best Performing Campaigns:
  - a. Highest Conversion Rate → Consideration campaigns.
  - b. Highest CTR → Retention campaigns.
4. Best Performing Channels:
  - a. Highest CTR → PPC.
  - b. Highest Conversion Rate → Social Media.
5. Ad Spend Efficiency: \$1K-\$5K range maximizes CTR & Conversion Rate.
6. Viewer Type Analysis:
  - a. First-Time Viewers perform better than Repeated Viewers.
  - b. Retargeting doesn't significantly boost conversions.

## Implications for Advertisers

- Optimize ad exposure to 5-20 times within 1-2 weeks.
- Avoid excessive retargeting; focus on new user acquisition.
- Allocate budget to high-performing campaign types & channels.
- Limit ad exposures beyond 100 per user to prevent fatigue.

# Thank You!

Presentation by Team Night Owls



~ Dev, Satish, Prem, Srishti, Chaitanya

