Initial Proposal
Data Science for Business
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Proposal for Enhanced Advertising Decision-Making Using Predictive Modeling

Background

Meetsocial, a leading Chinese enterprise, specializes in providing overseas marketing services for Chinese businesses. However, the decision-making process for online advertising is complex and often relies heavily on the personal experience of optimizers, with limited use of historical data. The company's clientele is categorized into key accounts (KA) and small-to-medium enterprises (SMEs). While KA clients are serviced by dedicated optimization teams, SMEs, which constitute over 80% of the client base, cannot afford such luxuries. These SMEs are well-versed in their products but lack familiarity with overseas markets and marketing strategies. They are uncertain about the target demographics and appropriate advertising strategies in foreign countries. Moreover, they seek to leverage the company's extensive historical data for strategic guidance. Given their sensitivity to cost and effectiveness, these clients demand immediate results and may discontinue their campaigns if initial outcomes are suboptimal. Thus, a reliable predictive model that can forecast the advertising outcomes based on specific budgets and timelines is crucial for this client segment.

Dataset

- **Source:** Meetsocial's proprietary digital marketing campaign data (January-April 2022) targeting apps on Meta and Google platforms.
- **Composition:** Two tables - app_fb_gg_platform (23.2MB) and ad_info (3.7MB).
- **Enhancement:** Additional app-related data to be obtained through web scraping from Google Play and the App Store.

Business Question of Interest

- How can we develop a predictive model to accurately forecast advertising outcomes for SMEs (particularly focused on app promotion), ensuring they optimize their campaigns and achieve their goals?
- More specifically, how can the model aid in determining the best advertising settings and budget allocation to maximize impressions, clicks, and installs?

Type of DS Problem

- **Primary:** Regression (predicting numerical values of impressions, clicks, and installs).
- **Potential Secondary:** Classification (if extending the model to predict the likelihood of conversion or in-app purchase).

Features and Target Variables

- **Features:**
    - App category
    - Campaign objective
    - Advertising channel (Meta, Google, etc.)

    - OS type (Android, iOS)
    - Network type (WiFi, Cellular)
    - Device (binary)
    - Target age
    - Target gender
    - Campaign duration (in days)
    - Advertising spend
- **Target Variables:**
    - Impressions
    - Clicks
    - Installs

What do you expect to learn from the analysis and model

- **Key Drivers:** Identify the features that have the strongest impact on advertising success (impressions, clicks, installs).
- **Optimization Strategies:** Determine optimal combinations of settings (target audience, budget, duration, etc.) to achieve the desired outcomes for SMEs within their budget constraints.
- **Best-fit Models:** Understand which data science models perform the most accurately for this specific advertising prediction task.

What actions might be taken with a firm by the results

- **Meetsocial Actions:**
    - Data-driven resource allocation across campaigns.
    - Development of dynamic, ROI-focused pricing for SME clients.
    - Proactive client consultations with recommendations backed by model insights.
    - Design of A/B tests guided by model predictions.
    - Training for optimizers to enhance data-informed decision-making.
- **SME Client Actions:**
    - Confident budget allocation based on predicted outcomes.
    - Reduced-risk experimentation with new ad strategies.
    - Use of model predictions to calculate expected ROAS.
    - Development of tailored marketing plans using Meetsocial's recommendations.