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Week 1
Marketing Campaign Analysis

Overview

You've just joined Podha as a Data Analyst. In your first team meeting, the company's founder explains: "Due to a crunch of funds, we've decided to stick to just one marketing campaign to optimize our budget and increase our runway.

Your mission over the next week is to identify the most effective campaign and determine the best acquisition strategies to maximize customer acquisition and conversion rates. You'll start by understanding our company, analyzing past campaign data, and creating a strategic plan. This project is crucial for driving our growth and ensuring financial stability."

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Weekly Work Plan

Day 1

Objective: Data Extraction and Cleaning
Task: Import and clean data
Deliverable: Clean dataset ready for analysis.

Day 2

Objective: Profitability Calculation
Task: Calculate per-user profitability for each campaign.
Deliverable: Profitability metrics for all campaigns.

Day 3

Objective: Campaign Comparison
Task: Compare profitability metrics and identify the best campaign.
Deliverable: Identification of the most profitable campaign.

Day 4

Objective: Conversion Rate and CAC Analysis
Task: Calculate conversion rates and CAC for each acquisition source.
Deliverable: Metrics for conversion rates and CAC.

Day 5

Objective: Prediction and Visualization
Task: Predict customer acquisition based on budget and create visualizations.
Deliverable: Forecast report and visualizations, including recommendations for budget allocation.

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Day 1: Task: Data Extraction and Cleaning

Detailed Description:

Import and clean data from all past marketing campaigns to prepare it for analysis. Ensure data accuracy and readiness for profitability calculations.

Activities:

Data Extraction:

- Steps: Load data files from all past marketing campaigns into your analysis environment (e.g., Excel, Google Sheets, Python).
- Tools: Excel (Import data), Google Sheets (Import data), SQL (Queries for data extraction), Python (Pandas: read_csv(), read_excel()

Data Cleaning:

- Steps: Identify and remove duplicates, correct errors, and standardize data formats. Check for missing values and outliers.
- Tools: Excel (Remove duplicates, data validation), Google Sheets (Remove duplicates, data cleanup), Python (Pandas: drop_duplicates(), fillna(), replace())
- Tasks: Inspect data for inconsistencies, use built-in tools for data cleaning, and apply functions to standardize formats.

Deliverable:

A clean and organized dataset ready for analysis, free from duplicates and errors.

Submission: Upload your summary document to the program portal by the end of the day.

Day 2: Task: Profitability Calculation

Detailed Description:

Assess the financial performance of each marketing campaign by calculating profitability metrics.

Activities:

Profitability Calculation:

- Steps: Calculate per-user profitability for each campaign. Aggregate total profit and user numbers, then compute the profitability by dividing total profit by the number of users acquired.

- Tools: Excel (Formulas, Pivot Tables), Google Sheets (Formulas), Python (Pandas: groupby(), mean())

Initial Analysis:

- Steps: Summarize the profitability data to identify trends, outliers, and patterns.

- Tools: Python (Pandas for data manipulation), Excel (Charts to visualize initial findings)

Deliverable:

A set of profitability metrics for each campaign, highlighting the financial effectiveness of each marketing initiative.

Submission: Upload your summary document to the program portal by the end of the day.

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Day 3: Task: Campaign Comparison

Detailed Description:

Compare the profitability of different campaigns to determine which one was the most effective.

Activities:

Comparison:

- Steps: Analyze and compare profitability metrics across all campaigns. Look for the highest profit per user and the lowest cost per acquisition.

- Tools: Excel (Pivot Tables, Conditional Formatting), Google Sheets (Conditional Formatting), Python (Pandas: sort_values(), describe())

Visualization:

- Steps: Create visual representations (e.g., bar charts, pie charts) to illustrate the profitability of different campaigns.

- Tools: Excel (Charts), Google Sheets (Charts), Python (Matplotlib, Seaborn)

- Tasks: Design visualizations to highlight the comparative performance of each campaign, making it easy to identify the best performer.

Deliverable:

A comparative analysis report identifying the most profitable campaign, supported by visualizations.

Submission: Upload your summary document to the program portal by the end of the day.

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Day 4: Task: Conversion Rate and CAC Analysis

Detailed Description:

Analyze conversion rates and Customer Acquisition Costs (CAC) for each acquisition source to determine the most efficient source for budget allocation.

Activities:

Data Segmentation:
Steps: Segment the campaign data by acquisition source to prepare for detailed analysis.
Tools: Excel (Filters, Pivot Tables), Google Sheets (Filters), Python (Pandas: groupby())

Conversion Rate Analysis:
Steps: Calculate conversion rates by dividing the number of conversions by the number of users for each acquisition source.
Tools: Excel (Formulas), Google Sheets (Formulas), Python (Pandas)

Customer Acquisition Cost (CAC):
Steps: Compute CAC by dividing total campaign costs by the number of customers acquired for each source.
Tools: Excel (Formulas), Google Sheets (Formulas), Python (Pandas)

Profitability Analysis:
Steps: Assess which acquisition source offers the best balance of low CAC and high conversion rates.
Tools: Excel (Pivot Tables, Conditional Formatting), Google Sheets (Conditional Formatting), Python (Pandas)

Visualization:
Steps: Create charts to compare CAC and conversion rates across different acquisition sources.
Tools: Excel (Charts), Google Sheets (Charts), Python (Matplotlib, Seaborn)

Deliverable:

A comparative analysis report identifying the most profitable campaign, supported by visualizations.

Submission: Upload your summary document to the program portal by the end of the day.

Day 5: Task: Prediction and Visualization

Detailed Description:

Forecast customer acquisition numbers based on budget allocation and create visualizations to communicate predictions.

Activities:

Budget Analysis:
Steps: Analyze the given budget and use CAC data to estimate how many customers can be acquired.
Tools: Excel (Formulas), Google Sheets (Formulas), Python (Pandas)

Prediction:
Steps: Use budget and CAC to predict customer acquisition figures. Apply linear regression if needed for accurate predictions.
Tools: Python (Scikit Learn for Linear Regression), Excel (Forecasting functions)

Visualization:
Steps: Design visualizations to show the relationship between budget allocation and expected customer acquisition.
Tools: Excel (Charts), Google Sheets (Charts), Python (Matplotlib, Seaborn)

Report Preparation:
Steps: Compile analysis results into a comprehensive report that includes predictions and recommendations.
Tools: Word, Google Docs, Excel

Deliverable:

A forecast report with visualizations illustrating expected customer acquisition based on the allocated budget, along with actionable recommendations for budget allocation.

Submission: Upload your summary document to the program portal by the end of the day.