



## **PROJECT PROPOSAL**

### **Final Year Project Proposal Form**

**Programme:** Bachelor of Information Technology (Honours) Data Science **Year:** 2025

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**Semester:** 06

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**Title:** Web-Based Competitive Analysis of Direct Mail Marketing in US Financial Institutions.

#### **Problem Statement:**

1. Financial institutions like Bank of America, Citibank, and American Express heavily rely on direct mail for customer acquisition and retention.
2. There is limited comparative analysis on how much these banks spend on direct mail marketing and their estimated mail volume month by month.
3. Competitor banks need a data-driven platform to track and compare marketing trends over time. Understanding direct mail trends can help financial institutions optimize their marketing budgets and improve campaign effectiveness.
4. A web-based solution is required for financial institutions to input a date range and instantly visualize trends.

#### **Aim:**

This project aims to assist financial institutions by providing a data-driven platform for analyzing and comparing direct mail marketing trends. As an analyst at Mintel Data Specialist, an agency delivering marketing insights to financial clients, my role is to ensure that institutions can efficiently track their direct mail spending, compare trends among competitors, and make data-backed decisions. This project will develop an interactive web-based analytics platform that



enables US financial institutions to input a date range, visualize monthly direct mail spending and volume trends, and download comparative reports for further analysis.

### Objectives:

1. To collect and structure **direct mail marketing data** from major US banks like Bank of America, Citibank, American Express and so on.
2. To analyze trends in **marketing expenditure** and **mail volume** using **MySQL Workbench** and **Python**.
3. To develop an **interactive web-based dashboard using Streamlit** that enables financial institutions to **input a date range** and **compare trends**.
4. To ensure the platform provides **real-time insights**, allowing users to track competitor strategies conveniently.
5. To enable financial institutions to download trend reports for further analysis.

### Methodology:

#### 1. Data Collection & Database Design

- 1.1. Use **MySQL Workbench** to store marketing expenditure and estimated mail volume per institution.
- 1.2. Organize data by bank, month, year, and estimated spending for structured retrieval.
- 1.3. Store data in a MySQL Workbench database with structured tables for efficient querying.

#### 2. Data Processing & Trend Analysis

- 2.1. Use Python like Pandas, NumPy, Matplotlib to clean, process, and visualize marketing trends.
- 2.2. Identify patterns in **monthly spending and mail volume** across different banks.
- 2.3. Compute comparative statistics like highest spender, volume trends, year-over-year growth.



### **3. Web-Based Dashboard Development**

- 3.1. Build a Streamlit-based web app where users can enter a date range and compare trends where they can ensure secure access control so that financial institutions can only view relevant data.
- 3.2. Display interactive visualizations (line charts, bar graphs) comparing direct mail spending among competitors.
- 3.3. Provide options to download trend reports in CSV format for further analysis.

### **4. User Experience Optimization**

- 4.1. Design the platform for easy use by financial institutions and decision-makers.
- 4.2. Ensure real-time updates so clients can track trends at their preferred time.

**Supervisor Name:** Sir Haji Zainul Akramin Bin Mohd Drus

**Student Signature:**

**Date:** 23 March 2025