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Applied Data Management

Project Outline

Topic: A case Study on Data Lifecycle Management Frameworks for Dormant Data

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Contents

Introduction

In the modern digital landscape, managing data efficiently has become crucial, especially for small organizations that rely on platforms such as MailChimp to handle membership and communication systems. MailChimp offers a free service tier that allows organizations to manage up to 500 contacts, making it a popular choice for student clubs and non-profits with limited resources. However, as organizations grow, they often accumulate inactive or dormant members—individuals who no longer engage with communications due to reasons such as graduation, loss of interest, or outdated information.

This project aims to address the challenge of managing inactive or dormant memberships by implementing the **Stale Data Detection and Management (SDDM) Framework**, a data lifecycle management system designed developed in a previous UREAP project to automatically identify and archive dormant members based on engagement patterns. The framework actively monitors which data is being accessed by system and dynamically removes any data that has not been accessed in a specified time. The framework is especially helpful in archiving stale data in instances where it is not possible to use a date column (e.g. Last Accessed) to track activity. By leveraging MailChimp's API and analyzing communication data, this project seeks to optimize membership lists, enabling organizations to save cost by remaining within MailChimp's free contact limit while maintaining an efficient and active membership base. Additionally, this study will compare MailChimp's free tier capabilities with similar platforms, assessing the cost efficiency of this implementation.

Project Objectives

The overarching goal of this research is to develop a scalable solution for managing dormant memberships in MailChimp, applying principles of data lifecycle management through the SDDM Framework. Specifically, the project will focus on integrating MailChimp's API, detecting dormant members based on engagement data, and automating the archiving process. Additionally, the project will factor in MailChimp's pricing with other comparable platforms to assess the cost efficiency of the system. The specific goal of the project will include the following:

1. To design and develop a system that integrates MailChimp's API with the SDDM Framework for the purpose of tracking member activity and engagement patterns.
2. To establish an algorithmic model capable of detecting dormant memberships based on predefined thresholds for inactivity (e.g., no email opens or clicks for 2 months).

3. To automate the process of archiving dormant members and ensuring inactive members are removed from active lists without deleting their data entirely.
4. To design and develop a user interface that allows administrators to monitor activity, view archived members, and adjust archiving criteria as needed.
5. To conduct a comparative analysis between MailChimp and a similar membership management platform to evaluate the cost efficiency of the integration.
6. To evaluate the success of the system in maintaining an optimal membership list within MailChimp's free tier, based on performance metrics such as time saved, cost avoidance, and list management efficiency.

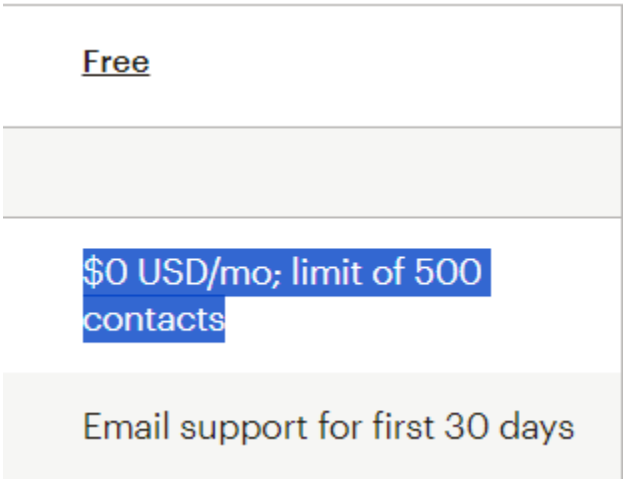
Research Problem

As organizations continue to accumulate data on members and contacts, one of the key challenges they face is effectively managing inactive or dormant members. These members can clutter databases, leading to inefficiencies, especially for organizations using platforms like MailChimp, which have strict limitations on the number of contacts allowed in their free tiers. Over time, these limitations can force organizations to either pay for additional contacts or manually sift through and archive inactive members—a process that is labor-intensive and prone to error.

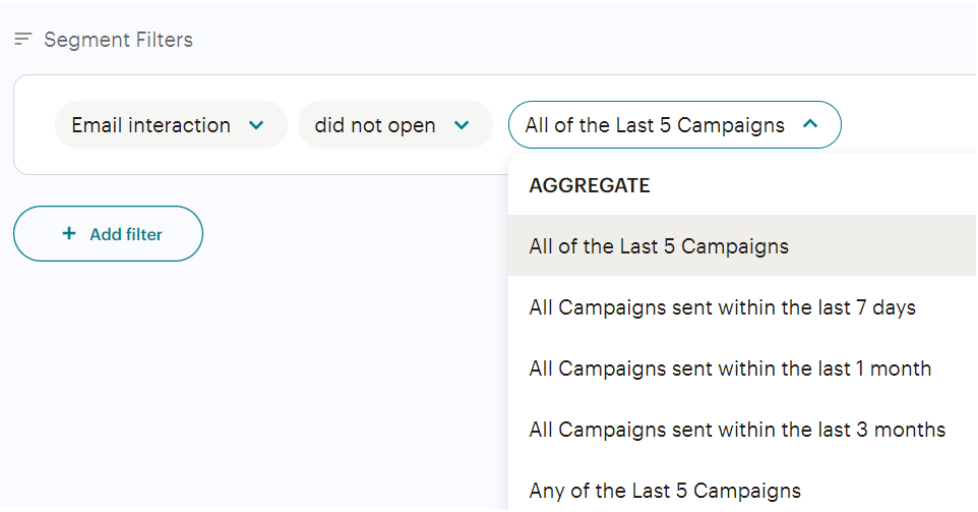
Scholarly works by authors such as Jagadish et al. (2014) have emphasized the importance of archiving redundant data as part of data lifecycle management. Data that is no longer relevant to day-to-day operations can degrade system performance and lead to inefficiencies, especially in data-constrained systems like MailChimp. The growing importance of data lifecycle management in both commercial and academic settings has prompted extensive research into the development of frameworks and automated systems to manage inactive or redundant data.

This project will examine how can the SDDM Framework be integrated with MailChimp to automate the detection and archiving of dormant memberships. The study will demonstrate that SDDM Framework will enable organizations to significantly reduce costs by detecting and archiving dormant members efficiently. Previous research on MailChimp has predominantly focused on its effectiveness as a communication tool, with little exploration of its capacity for long-term membership management. The SDDM Framework offers a novel approach by shifting focus to dormant data detection.

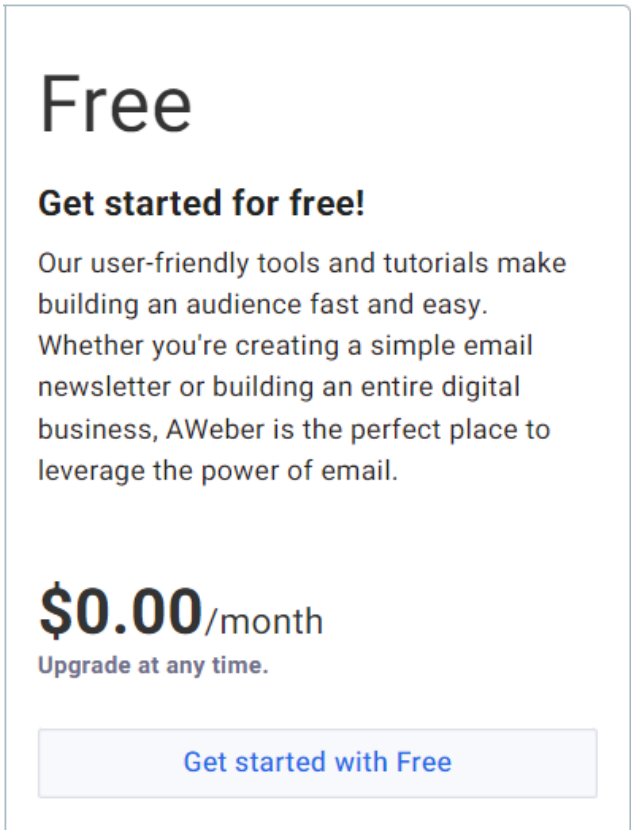
Mailchimp offers users a free plan which comes with a limit of 500 contacts and 1000 emails per month. With such limited resources, every email counts for smaller organizations. An additional feature of MailChimp is that contacts can be archived, which means they will not count towards the 500 contacts limit. The challenge then becomes identify which contacts should be archived.



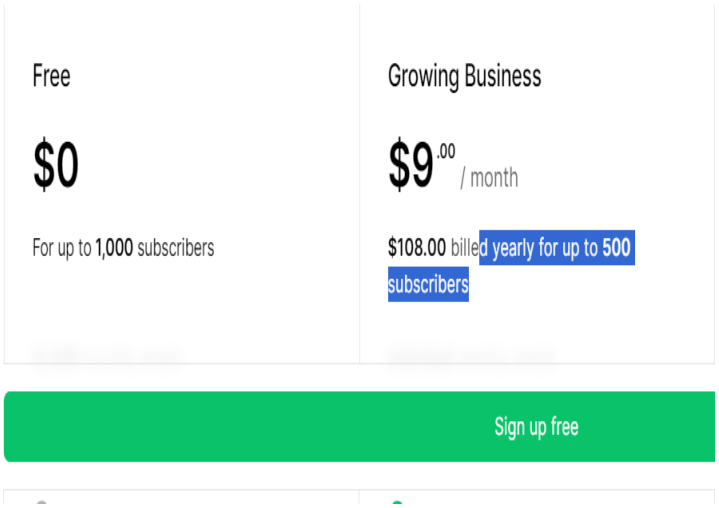
The concept of using engagement metrics, such as email opens and clicks, to assess data dormancy has gained attention in digital marketing and membership management. In fact, Mailchimp uses inactivity thresholds to effectively identify and isolate redundant contacts. Although this option is available in the free version, it is simply inadequate as it the maximum that it considers are only contacts who have not engaged with the last 5 email campaigns or contacts that have not engaged with any campaigns in the last 3 months. In the context of many small organizations such as school clubs who host multiple campaigns and events, 3 months (less than a semester) is not nearly enough to label someone as inactive.



MailerLite (2024) and AWeber (2024) were identified as alternative platforms to MailChimp. They were examined for their free and paid tier structures. Like MailChimp, these platforms offer free versions with subscriber limits, though with slight variations. AWeber provides a free plan that supports up to 500 contacts, while MailerLite allows up to 1,000 subscribers. According to MailerLite, when a user's subscriber count exceeds these free limits, it automatically upgrades the account to the next pricing tier. For MailerLite, the next tier costs $9.00 per month, while AWeber charges $12.50 monthly for up to 500 subscribers. These costs add up very quickly and highlights the importance of efficient subscriber management, as organizations using these platforms must regularly monitor and manage inactive or dormant members to avoid unexpected costs.



AWebber



MailerLite

By building on these aforementioned concepts, this project aims to address gaps in the current literature by applying lifecycle management principles to real-world membership platforms like MailChimp and assessing the impact of automated archiving systems on system performance and cost efficiency.

Methodology

This project will follow a structured methodology designed to address the objectives outlined above. The methodology includes five key components: system design, data collection and analysis, algorithm development, interface development, and a comparative analysis of platforms.

1. **System Design and API Integration:**
   The first step of the project will involve designing the architecture for integrating MailChimp's API with the SDDM Framework. The API will be used to retrieve email engagement data for each member, such as open rates, click-through rates, and bounce rates. The system will store and analyze this data to determine engagement patterns to classify members as either "active" or "dormant."
2. **Data Collection and Analysis:**
   The system will collect data on member activity from 2-3 student clubs over a 2–3-month period, focusing on engagement metrics available through MailChimp's API. Dormancy thresholds will be defined based on inactivity (e.g., no email interaction for 2-3 months). The collected data will be analyzed to understand how engagement fluctuates over time to refine the algorithm for dormant membership detection.
3. **Algorithm Development:**
   The core of the SDDM Framework will be a custom algorithm that detects inactive members. The algorithm will be based on predefined thresholds and engagement patterns. It will flag members as dormant if they have not engaged with any email communications within a set period and initiate an automated archiving process.
4. **Automated Archiving:**
   Dormant members will be automatically archived in MailChimp to free up space within the 500-contact limit. Instead of deleting these members, their data will be stored in an archived state, allowing club administrators to retrieve it if necessary. This process will be entirely automated, reducing the need for manual intervention.
5. **User Interface Development:**
   A user interface will be developed to provide club administrators with insights into member activity. The interface will include features for viewing member engagement metrics, reviewing archived members, and adjusting the dormancy thresholds that trigger automatic archiving.
6. **Comparative Analysis:**
   The study will also involve a comparative analysis between MailChimp and a similar membership management platform. This analysis will assess how effectively the algorithm handles dormant membership detection and archiving, focusing on factors such as ease of use, efficiency, scalability, and cost savings. This analysis will look at the predictive financial value of implementing the system.

Expected Results

The expected outcome of this project is the successful integration of the SDDM Framework with MailChimp, resulting in an automated system for detecting and archiving dormant members. The system is expected to help organizations maintain an efficient and active membership list, staying within MailChimp's free contact limit and reducing unnecessary costs.

Key Metrics:

- Reduction in inactive contacts within the MailChimp database.
- Increased system efficiency as measured by reduced manual intervention in list management.
- Cost savings resulting from staying within MailChimp's free tier.
- Insights from the comparative analysis to measure financial effectiveness.

Significance of the Study

This study will provide valuable insights into the application of data lifecycle management in membership systems, specifically focusing on automating the detection and archiving of dormant members. It offers practical solutions for student clubs and small organizations that face challenges in managing membership data within constrained systems like MailChimp.

In addition to its practical implications, the project contributes to academic literature by expanding on existing research in data lifecycle management and email engagement analysis, offering a scalable, real-world application of these concepts.

Project Plan & Timeline:

Week	Task
Week 1	Research and system design, reviewing relevant literature.
Week 2-3	MailChimp API integration and initial data collection.
Week 4	Development of algorithms for dormant member detection.
Week 5	Implementation of automated archiving process.
Week 6	Development of user interface for administrators.
Week 7	Comparative analysis with alternative platform.
Week 8	Testing, performance analysis, and optimization.
Week 9	Writing final report and preparing for project presentation.

Conclusion

This proposal outlines a comprehensive research project aimed at addressing the challenge of managing dormant memberships in MailChimp through the application of the SDDM Framework. The project will result in the development of a scalable system for automating the detection and archiving of inactive members, contributing both practical and academic insights into data lifecycle management. Through a comparative analysis, the study will also evaluate the effectiveness of MailChimp relative to other membership management platforms, offering valuable lessons for organizations seeking to optimize their membership systems.

References

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