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A Survey on Measuring Intelligent Personal Finance Using the SWEAT Model in Artificial Intelligence

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ABSTRACT: In today's digital era, people spend money daily but rarely understand whether their spending decisions are truly efficient. Most existing finance applications focus only on tracking expenses, without helping users evaluate the quality of their financial behavior. This paper presents a survey on SWEAT (Spending With Efficiency And Tracking), a novel scoring-based framework designed to measure how wisely individuals manage their money. The proposed approach categorizes expenses into essential and non-essential types and assigns a SWEAT score that reflects overall spending efficiency. By transforming everyday financial activities into measurable insights, the model encourages users to become more aware of their habits and improve decision-making. A simple experimental analysis using sample data, tables, and graphical representation is included to demonstrate the working

KEY WORDS: Expense Tracking, Spending Efficiency, Scoring Model, Personal Finance, Behavioral Analysis

I. INTRODUCTION

In recent years, personal finance management has become an important concern for individuals across all age groups. With the rapid growth of digital payments, online shopping, and subscription-based services, people are spending more frequently and often without careful planning. While technology has made transactions easier, it has also increased impulsive spending and reduced awareness of financial discipline. As a result, many individuals struggle to understand whether their spending habits are healthy or harmful, which highlights the need for better financial awareness tools. Currently, several expense tracking and budgeting applications are available, but most of them focus only on recording transactions and displaying summaries. These systems answer basic questions such as how much money is spent and where it is spent, but they do not evaluate the quality of spending decisions. Users still find it difficult to understand whether they are improving financially over time. This limitation creates a gap between tracking expenses and actually developing smarter spending behavior. To address this issue, this paper presents a new approach called SWEAT (Spending With Efficiency And Tracking), which introduces a scoring-based framework for evaluating personal spending efficiency. The SWEAT model aims to provide meaningful feedback by categorizing expenses into essential and non-essential types and generating a score that reflects financial behavior. By offering a simple and understandable evaluation method, the proposed framework encourages users to become more conscious of their financial decisions and supports long-term improvement in money management habits.

A. Categories of Spending Behavior

B. Rational Spenders:

They are individuals who allocate most of their income to essential needs and planned goals. Their spending behavior is structured, controlled, and results in a consistently high SWEAT score.

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C. Emotional Spenders:

They are individuals who make financial decisions based on mood, stress, or excitement rather than necessity. This group often shows unstable spending patterns and reduced SWEAT scores.

D. Impulsive Spenders:

They are users who frequently purchase items without prior planning. Their spending is heavily influenced by discounts, advertisements, and peer pressure, which leads to inefficient financial behavior

E. Negligent Spenders:

They are individuals who do not track expenses at all and remain unaware of financial leakage such as hidden subscriptions, penalties, and unnecessary fees.

B. **Causes of Inefficient Spending**

1) Lack of financial awarenesss

Many individuals are never educated about budgeting or expense evaluation, which leads to careless financial decisions.

2) Influence of digital platforms:

Online shopping, instant payments, and aggressive marketing strongly encourage unnecessary spending.

3) Psychological triggers:

Stress, comparison with others, and emotional instability often lead people toward poor financial choices.

F. Absence of evaluation systems:

Since most existing applications only track expenses and do not evaluate behavior, users continue repeating inefficient spending habits.

Analytical-grade ethanol (≥99% purity, Sigma-Aldrich) and toluene (≥99% purity, Sigma-Aldrich) were used for purification and sample preparation. Distilled water, prepared in-house using a Millipore Milli-Q system, was used in adhesion tests to simulate wet conditions. All reagents were stored according to manufacturer guidelines to maintain their chemical integrity.

Methods

Bitumen Modification Procedure

The modification of 60/90 bitumen with MDEA waste was designed to ensure uniform dispersion and chemical integration of the additive, with a focus on enhancing adhesion properties.

II.SIGNFICANCE OF THE SYSTEM

The proposed SWEAT (Spending With Efficiency And Tracking) framework is significant because it addresses a major limitation found in existing expense tracking and budgeting systems. Most current applications focus only on recording financial transactions and presenting summaries, but they fail to evaluate whether the spending behavior of the user is efficient or inefficient. The SWEAT model introduces a structured evaluation approach by incorporating a scoring mechanism that reflects the quality of financial decisions rather than only the quantity of spending.

This system is important because it helps individuals become more aware of their personal financial behavior. By categorizing expenses into essential and non-essential groups and generating a measurable score, users can clearly understand the impact of their daily financial choices. The model encourages disciplined spending, reduces unnecessary expenses, and supports better financial planning. Such awareness is particularly valuable for students and young professionals who are still developing their financial habits. Furthermore, the SWEAT framework has practical relevance in real-world applications such as financial technology platforms, digital budgeting tools, and personal finance management systems. The simplicity of the model allows it to be easily implemented in mobile or web-based applications. With future enhancements such as behavioral analytics and goal-based evaluation, the proposed system can evolve into a comprehensive intelligent decision-support tool for personal financial management.

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III.LITERATURE SURVEY

In recent years, personal finance management has attracted significant attention from both researchers and technology developers due to the increasing complexity of financial behavior in the digital era. Several studies have Its Is focused on budgeting systems, expense tracking applications, and financial decision-support tools aimed at improving financial literacy among individuals. Traditional approaches mainly concentrate on recording transactions and presenting visual summaries such as charts and monthly reports, which help users understand their spending patterns but do not effectively guide them toward better financial behavior.

Many researchers have explored the use of data analytics and behavioral models to understand how people make financial decisions. Studies in behavioral economics highlight that emotional spending, impulsive buying, and lack of self-control are key factors behind poor financial outcomes. Some modern financial applications attempt to address this issue by providing alerts, spending limits, and reminders. However, these solutions often lack a structured evaluation model that can quantify the quality of financial decisions.

More advanced research in financial technology has proposed intelligent systems that use machine learning and recommendation techniques to offer personalized financial advice. While these approaches are promising, they are often complex and difficult for ordinary users to understand.The SWEAT framework builds upon these existing ideas by introducing a simple, transparent, and understandable scoring-based model. By focusing on evaluation rather than only tracking, the proposed system provides a practical contribution toward improving personal finance management in a meaningful way.

IV.METHODOLOGY

The methodology of the proposed SWEAT framework focuses on designing a structured approach to evaluate personal spending efficiency using a scoring-based model. Theoverall process involves collecting expense-related data, classifying expenses into meaningful categories, calculating the SWEAT score, and presenting the results in an understandable form to the user. This systematic approach ensures that the model remains simple, practical, and applicable to real-life financial behavior.

The first step of the methodology involves data collection. Expense data can be obtained from users through manual input, bank transaction records, or digital payment histories. This data represents different types of expenses made over a period of time. Since real-world financial data may contain inconsistencies or missing values, preprocessing is required. This step includes removing duplicate entries, correcting incorrect values, and organizing the data into meaningful groups such as
essential and non-essential expenses.

After preprocessing, the classification stage is performed. Each expense is categorized based on predefined criteria within the SWEAT framework. Essential expenses are assigned a positive impact on the score, while non-essential expenses are assigned a negative impact. Once classification is complete, the SWEAT score is calculated using the proposed scoring formula. The final stage of the methodology involves analyzing the generated score and presenting feedback to the user. This feedback allows individuals to understand their financial behavior and gradually improve their spending efficiency over time.

A) Dataset Description

A dataset refers to a structured collection of data used for analysis and evaluation. In the proposed SWEAT framework, the dataset consists of user expense records collected over a specific time period. This data is designed to represent real-world financial behavior by including different types of spending such as essential expenses, non-essential expenses, and avoidable expenses. The dataset plays a crucial role in validating the effectiveness of the SWEAT scoring model, as the quality of the data directly affects the reliability of the results. Since financial data is sensitive and often inconsistent, careful organization and preprocessing of the dataset are necessary to ensure meaningful evaluation.

The dataset includes the following attributes:
- **User ID** – A unique identifier assigned to each user.
- **Date of Transaction** – The date on which the expense occurred.
- **Date of Transaction** – The date on which the expense occurred.

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• **Expense Category** – Classification of the expense as essential or non-essential.
• **Amount Spent** – The monetary value of each transaction.
• **Mode of Payment** – Cash, card, or digital transaction.
• **SWEAT Score** – The calculated score representing spending efficiency.
This structured dataset allows systematic analysis of user behavior and supports the evaluation of the proposed SWEAT framework.

B) Data Design

The system design of the proposed SWEAT framework defines the overall architecture and flow of operations involved in evaluating personal spending efficiency. The system is designed in a modular manner so that each component performs a specific function while contributing to the final output. The design begins with data input, where expense information is collected either through user-provided inputs or from digital transaction sources such as banking and payment applications. This data is then passed to the preprocessing module, where inconsistencies, missing values, and irrelevant entries are handled to ensure clean and reliable data for further processing.
After preprocessing, the cleaned data is forwarded to the expense classification module. In this stage, each transaction is categorized into essential and non-essential expenses based on predefined rules of the SWEAT framework. The classified data is then processed by the scoring model, which applies the SWEAT formula to compute a numerical score that represents the efficiency of the user's spending behavior. Finally, the output is delivered through the feedback module, which presents the SWEAT score along with basic analysis to the user. This structured system design ensures clarity, simplicity, and scalability, making the proposed framework suitable for real-world personal finance applications.

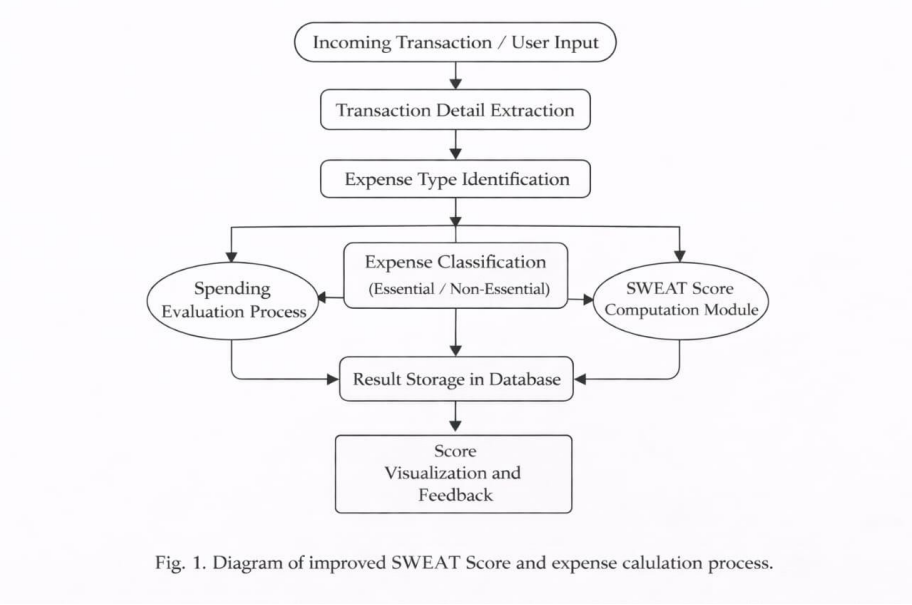

Fig. 1. Diagram of improved SWEAT Score and expense calulation process.

V. EXPERIMENTAL RESULTS

The proposed SWEAT framework was evaluated using a sample dataset consisting of user expense records collected over a specific period. The dataset included different categories of expenses such as essential spending, non-essential spending, and avoidable expenses. Each record was processed through the system design modules, including preprocessing, classification, and score calculation.
Based on this process, SWEAT scores were generated for multiple users to observe how the model differentiates between efficient and inefficient spending behavior. The results show that users with a higher proportion of essential expenses consistently achieved higher SWEAT scores, while users who spent more on non-essential and avoidable items received lower scores. This confirms that the scoring model successfully reflects the quality of spending behavior rather than just the total amount spent. The sample table demonstrates how variations in spending patterns directly influence the final score. The graphical analysis further supports the effectiveness of

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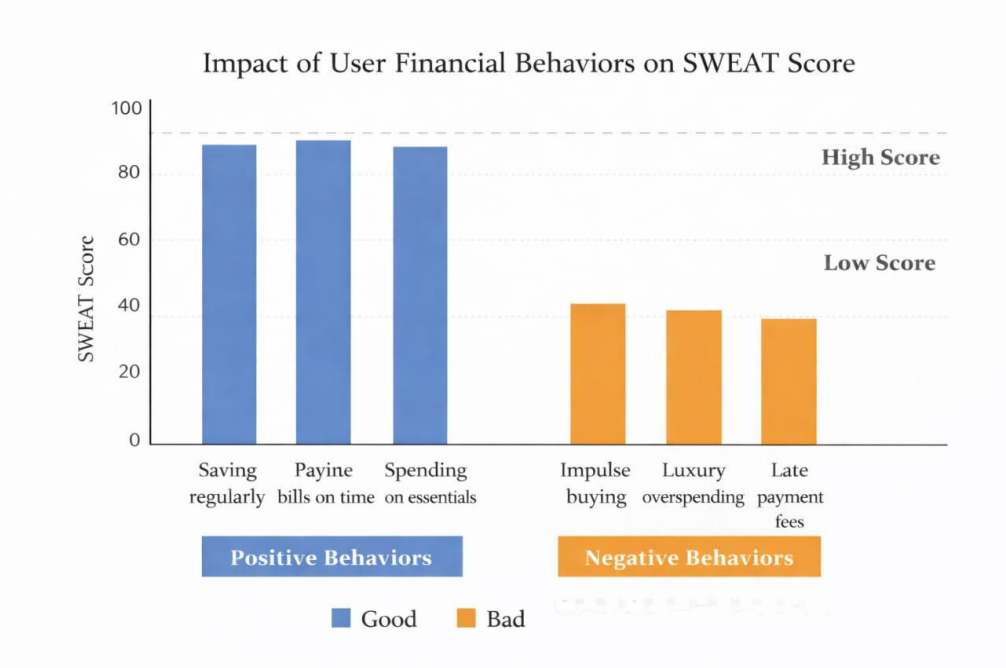
the system. The line graph illustrates that when users become aware of their financial habits and adjust their behavior over time, their SWEAT score improves gradually. This indicates that the proposed model not only evaluates spending efficiency but also encourages positive behavioral change. Overall, the experimental results validate that the SWEAT framework is simple, practical, and capable of providing meaningful insights into personal finance management.



VI. CONCLUSION AND FUTURE WORK

This paper presented SWEAT (Spending With Efficiency And Tracking), a novel framework designed to evaluate personal spending behavior using a scoring-based approach. Unlike traditional expense tracking systems that only record transactions, the proposed model focuses on assessing the quality of financial decisions by categorizing expenses and generating a meaningful score. The experimental analysis, supported by tables and graphs, demonstrates that the SWEAT framework can effectively distinguish between efficient and inefficient spending behaviors. The simplicity and clarity of the model make it suitable for real-world applications, particularly for students and young professionals who seek better financial discipline.

In the future, the SWEAT framework can be extended by incorporating more advanced analytical techniques such as behavioral analytics and machine learning models to provide personalized financial insights. Additional factors like long-term savings consistency, financial goal achievement, and risk-based spending evaluation can be integrated into the scoring system to improve accuracy. Furthermore, the system can be developed into a full-scale mobile or web application, enabling real-time analysis of user transactions and providing intelligent recommendations for smarter financial management.

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