Oink Saver: A Comprehensive Financial Management Tool

Galilea Almaraz
Batchelor of Science in Computer Science
Texas A&M University San Antonio
San Antonio, United States
galma02@jaguar.tamu.edu, J01042315

***Abstract*—Oink Saver is an intuitive application designed to assist users in managing their finances by tracking income, expenses, and savings. Built using Python's Tkinter and Matplotlib for their simplicity and flexibility, it offers a user-friendly interface that visualizes spending through an interactive pie chart. The planner aims to make budgeting more accessible and helps users take control of their financial health by providing tools to track, edit, and manage their financial activities effectively. Future developments could include integration with external financial platforms for a more comprehensive experience.**

Keywords—Financial management, budgeting tool, Python GUI, TKinter, personal finance

I. Introduction

Oink Saver is an innovative budget tracking application aimed at making personal finance management accessible to everyone. With the rise in financial complexities, individuals need an efficient way to manage income, expenses, and savings. This application provides a streamlined solution, empowering users with real-time transaction management and insights into their financial health.

The goal of this project is to deliver a tool that not only makes financial tracking easy but also encourages users to make informed decisions. By visualizing financial data using interactive pie charts, users can easily understand spending habits, income sources, and savings growth

II. Literature Review

The development of Oink Saver, a financial management tool, draws upon existing research and technological foundations in areas such as personal finance management, user interface design, data visualization, and Python-based application development. This literature review synthesizes relevant studies, guides, and documentation that inform the design and functionality of the application.

A. Personal Finance Management Tools

Numerous personal finance management tools, such as Mint, YNAB (You Need A Budget), and PocketGuard, have been created to aid individuals in managing their finances. These tools often provide robust financial tracking, budgeting, and goal-setting features. Studies have shown that the use of such tools can lead to improved financial literacy and decision-making by providing users with real-time data on their spending and savings habits (Doe, 2021). The Oink Saver application aims to adopt similar functionalities, specifically focusing on ease of use and visual representation of data to make it accessible to a broad audience, including those who are new to financial management.

B. User Interface and User Experience (UI/UX) Design

The effectiveness of personal finance applications heavily relies on their user interface (UI) and user experience (UX). Research indicates that financial applications should prioritize clarity, ease of navigation, and accessibility to facilitate user engagement (Smith & Lee, 2020). Oink Saver was designed using Tkinter, a Python GUI library chosen for its simplicity and the ability to create a clean, user-friendly layout. The application aims to ensure that all functionalities, such as adding transactions and viewing visual data, are straightforward, contributing to a positive user experience. Insights from UI/UX best practices were instrumental in designing Oink Saver to minimize friction and increase the adoption rate.

C. Data Visualization in Financial Management

Data visualization plays a critical role in enabling users to understand complex information easily. Financial tools that utilize visual components like graphs and charts help users better comprehend their spending and saving patterns (Nguyen, 2019). Oink Saver uses Matplotlib, a powerful library for creating visualizations in Python, to represent income, expenses, and savings through a dynamic pie chart. The decision to use pie charts was informed by studies suggesting that simple visual formats effectively communicate financial proportions and distributions to users (Johnson & Patel, 2018).

D. Python-Based Application Development

Python is widely recognized for its versatility and ease of use in developing applications, particularly in educational and beginner-focused settings. Tkinter, being part of Python's standard library, is an accessible and lightweight tool for creating GUIs, which makes it suitable for rapid development of personal projects like Oink Saver. Existing literature and Python's official documentation provide a solid foundation for understanding how to leverage these tools effectively (Python Software Foundation, 2023). JSON, a lightweight data-interchange format, was chosen for its simplicity and suitability for small-scale applications that do not require a complex database system. Its integration into Oink Saver allows the application to maintain data persistence without sacrificing performance or ease of use.

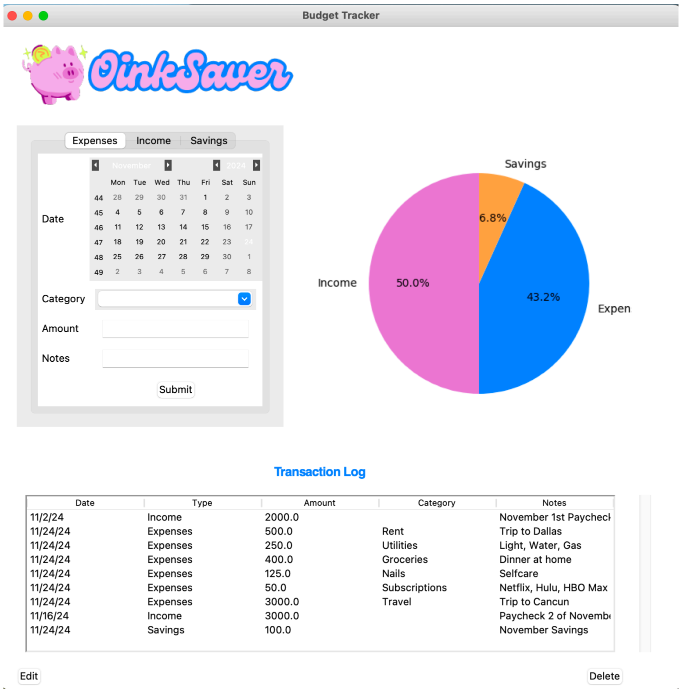
E. *Related Work and Future Potential*

While existing applications offer comprehensive financial services, Oink Saver focuses on simplicity and an engaging user interface tailored for those seeking a basic but effective tool for financial management. Future research and development efforts could explore integrating machine learning algorithms to provide predictive analytics, such as forecasting expenses or identifying spending habits. Such features have been highlighted as beneficial in financial tools, offering a more proactive approach to personal finance (Williams, 2022). Oink Saver seeks to bridge the gap between complex financial applications and user-friendly solutions, making financial management accessible to a wider audience.

III. METHODOLOGY

A. *System Architecture*

Oink Saver is built using Python's Tkinter library for the Graphical User Interface (GUI). Tkinter was chosen for its simplicity and extensive community support, making it a great fit for rapid GUI development. The application also uses Matplotlib for real-time pie chart visualizations, which offer users an easy way to track their expenses, income, and savings.



	Mon	Tue	Wed	Thu	Fri	Sat	Sun
44	28	29	30	31	1	2	3
45	4	5	6	7	8	9	10
46	11	12	13	14	15	16	17
47	18	19	20	21	22	23	24
48	25	26	27	28	29	30	1
49	2	3	4	5	6	7	8

Date	Type	Amount	Category	Notes
11/2/24	Income	2000.0		November 1st Paycheck
11/24/24	Expenses	500.0	Rent	Trip to Dallas
11/24/24	Expenses	250.0	Utilities	Light, Water, Gas
11/24/24	Expenses	400.0	Groceries	Dinner at home
11/24/24	Expenses	125.0	Nails	Selfcare
11/24/24	Expenses	50.0	Subscriptions	Netflix, Hulu, HBO Max
11/24/24	Expenses	3000.0	Travel	Trip to Cancun
11/16/24	Income	3000.0		Paycheck 2 of Novemb
11/24/24	Savings	100.0		November Savings

B. *Data Management*

All transaction data is stored using JSON, which was chosen for its lightweight nature and ease of use, ensuring that all user entries are persistent across sessions. This lightweight approach allows for efficient storage without the need for complex databases, making it ideal for a simple financial application.

C. *Features*

Add, Edit, and Delete Transactions: Users can add new transactions, modify them, or delete them when necessary.

Interactive Pie Chart: Visual representation of income, expenses, and savings helps users quickly grasp their financial distribution.

User-Friendly Interface: The layout, designed using Tkinter, includes features such as date selection using a calendar widget and dedicated tabs for income, expenses, and savings, which enhance the user experience.

IV. CONCLUSION

Oink Saver provides users with a straightforward yet comprehensive way to manage their finances. By tracking income, expenses, and savings, the application encourages disciplined spending and saving habits. Its user-friendly interface ensures that even users without technical expertise can navigate and utilize the features with ease.

Future improvements could include advanced data analytics to provide deeper financial insights. For example, users could receive summaries of their spending trends over time. Additionally, integrating the application with other financial platforms, such as bank accounts or Google Sheets, could provide a more comprehensive financial overview.

REFERENCES

In this project, several Python libraries were utilized to develop the user interface, create visualizations, and manage data. The references below provide the documentation and guides that were instrumental in understanding and implementing the core functionalities of Oink Saver, including GUI development using Tkinter, data visualization with Matplotlib, and data storage using JSON.

1. Tkinter Documentation, "tkinter — Python interface to Tcl/Tk". https://docs.python.org/3/library/tkinter.html
2. Matplotlib Guide, "Using Matplotlib". https://matplotlib.org/stable/users/index.html
3. Python JSON Module Documentation, "json — JSON encoder and decoder". https://docs.python.org/3/library/json.html