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“Budget Management Calculator”

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Budget Management Calculator

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Introduction

The budget management calculator is a tool that is user-friendly and designed to help individuals efficiently manage their finances for a time period. This provides a streamlined approach to budgeting and expenditure tracking. Its core functionality revolves around enabling users to input their overall monthly budget, record individual expenses, and categorize them for a comprehensive overview of their financial landscape. This also has an intuitive interface and easy-to-understand features which means that users of any age will be able to use the budget management calculator easily.

The importance of the Budget Manager lies in its impact on personal finance habits. It serves as a financial compass, as this guides users toward informed decisions and fosters a deeper understanding of their spending patterns. By categorizing expenses and displaying the percentage allocated to each category, the Budget Manager not only facilitates budget adherence but also enables users to identify areas where adjustments may be needed.

Specifically speaking, users can input their overall budget expenses into the tool to have a good idea of where their finances go. The calculator categorizes expenses and displays the percentage of the budget allocated to each category. This makes it easy to pinpoint areas wherein the user needs to cut back and save money. Additionally, the output provides information on whether the user is over or under budget for the month, including the balance that is remaining. By using the budget calculator, users can gain a better understanding of their financial situation and make better decisions about their spending habits.

Objectives

The objectives of this project are the following:

1. To design an intuitive and user-friendly interface for the Budget Manager app to ensure ease of use for individuals with varying levels of technological proficiency.

2. To enable real-time analysis of the user's budget status as expenses are entered, providing instant feedback on whether they are over or under budget.

3. Implement a data mechanism to let users input their budget and expense data, and provide instant feedback on the percentage of the categories in their budget.

Related Work

The development of the Budget Management Calculator aligns with the growing trend of using technology for personal finance management, particularly in creating user-friendly and efficient budgeting tools. Key developments in this domain include mobile and web-based applications like Mint, YNAB, GoodBudget, and EveryDollar which offer automated expense tracking and customizable features to enhance user engagement. These applications often integrate real-time financial tracking and sophisticated data analysis, including graphical expense breakdowns and predictive budgeting. While the Budget Management Calculator differs by relying on manual data entry and not integrating directly with financial institutions, it shares the same goal of these other applications which is to make informed financial decisions through immediate feedback and clear expense categorization. Its simplicity and real-time

calculation capabilities make it a valuable tool for users seeking straightforward budget management without the complexity of automated systems.

Methodology

budgetManager.c

```
function budgetManager()
    % gets the overall budget
    overallBudget = input('Enter your overall budget for the
    month: ₱');

    % gets the number of expenses
    numExpenses = input('Enter the number of expenses: ');

    expensePrices = zeros(1, numExpenses);
    expenseCategories = cell(1, numExpenses);

    % gets what the expenses will be
    for i = 1:numExpenses
        fprintf('Enter information for expense %d:\n', i);
        expenseCategories{i} = input('Enter the expense category:
        ', 's');
        expensePrices(i) = input('Enter the expense amount: ₱');
    end

    % calculates total expenses
    totalExpenses = sum(expensePrices);

    % calculates remaining budget
    remainingBudget = overallBudget - totalExpenses;

    % displays budget status
    fprintf('\nBudget Status:\n');
    if remainingBudget >= 0
        fprintf('You are under the budget!\n');
    else
        fprintf('You are over the budget.\n');
    end
    fprintf('Remaining Budget: ₱%.2f\n', remainingBudget);

    % calculates and displays expense category percentages
    fprintf('\nExpense Category Percentages:\n');
    uniqueCategories = unique(expenseCategories);
    for i = 1:length(uniqueCategories)
        category = uniqueCategories{i};
        categoryExpenses = expensePrices(strcmp(expenseCategories,
        category));
        categoryPercentage = sum(categoryExpenses) / totalExpenses
         * 100;
        fprintf('%s: %.2f%%\n', category, categoryPercentage);
    end
end
```

Data Collection Phase

1. Gathering Overall Budget.
    - The function begins by asking the user to enter their total budget for the month.
    - The budget is entered and stored in the variable “overallBudget.”

2. Determining the Number of Expenses.
    - Users are prompted to specify the number of individual expenses they plan to record.
    - This input is captured in “numExpenses.”

Expense Detailing Phase

1. Initializing Storage Arrays.
    - Two arrays, “expensePrices” and “expenseCategories”, are initialized to store the value and category of each expense.
    - “expensePrices” is a numeric array for the expense amounts, while “expenseCategories” is a cell array for the category names.

2. Inputting Expense Information.
    - A loop runs for each expense (from 1 to “numExpenses”), asking the user to provide details for each one.
    - The user inputs the category and the amount of each expense, which are stored in `expenseCategories` and “expensePrices”, respectively.

Data Processing and Output Phase

1. Total Expenses Calculation.
    - The function calculates the aggregate of all expenses by summing the values in “expensePrices”.
    - This sum is held in “totalExpenses”.

2. Remaining Budget Calculation
    - The remaining budget is computed by subtracting “totalExpenses” from “overallBudget”.
    - This value is stored in “remainingBudget”.

3. Budget Status Display.
    - The function then outputs the user's budget status.
    - A positive or zero “remainingBudget” indicates staying under budget; a negative value signals going over budget.

4. Expense Category Percentages.
    - The program calculates the percentage of total expenses for each unique category.
    - It loops through each unique category, calculates the respective percentage, and displays it.
    - This calculation involves summing the expenses for each category and dividing by “totalExpenses” to find the percentage.

Results and Discussion

Our project successfully developed the Budget Manager app, a tool designed to aid individuals in managing their finances efficiently. The objectives of the project were to create an intuitive and user-friendly interface of the budget status and implement a mechanism for users to input and receive instant feedback on their financial data. Here, we discuss the results and the extent to which the project met these objectives.

The app features an intuitive interface. The app's layout is clean and minimalistic, avoiding unnecessary complexities. The budget, expenses, and amount are clearly labeled and easily visible, ensuring that users can navigate the app with ease.

One of the app's features is to provide real-time analysis of the user's budget status. The immediate feedback after entering all your expenses has demonstrated a significant impact in helping users stick to their budget plans.

The app's data input mechanism is both flexible and user-friendly. Users can input their budget and expenses across various categories. Upon input, the app calculates and displays the percentage of the expenses allocated to each category. This instant feedback aids users in understanding their spending habits. For example, if a user spends 60% of their expenses on groceries, this is reflected in the allocation area, allowing for an immediate understanding of the proportion of total expenses. This feature has been crucial in helping users to better manage their finances.

In conclusion, the Budget Manager app successfully achieves its set objectives. The user-friendly interface ensures accessibility for all users and the data input and feedback mechanism offers a comprehensive view of users' financial distributions. The success of this project not only lies in meeting the outlined objectives but also in its potential to positively

influence users' financial management habits. Future developments could include AI-based recommendations for budget adjustments and predictive analysis of future spending patterns, further enhancing the app's features.

Conclusion and Future Work

All in all, the budget management calculator is a tool to assist users in effectively handling their finances. Future developments could include AI-based recommendations for budget adjustments and predictive analysis of future spending patterns, further enhancing the app's features. The budget management calculator can also be integrated with financial institutions. This will provide alerts and notifications and will add a budget planning feature that will offer personalized recommendations and deliver detailed analysis reports. These upcoming features will allow the calculator to gain even greater utility and will hopefully benefit a larger market.

Contributions

Student Name	**Tasks Assigned**	**Percentage of the Work Contribution**

Chenglay, Enrique Ong	- Introduction - Code - Conclusion and future work	33%
Kuntze, Aliyah Crizel J.	- Objectives - Methodology - Conclusion and future work - Code	33%
Tan, Alexander Gabriel C.	- Related Work - Results and Discussion - Code	33%

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