DE LA SALLE UNIVERSITY - MANILA

SmartSaving

A Term Project

Presented to Mr. Ramon Stephen L. Ruiz

In Partial Fulfillment of the

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by

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I. Introduction

SmartSaving is a program that helps others calculate savings over time and track their daily expenses by simply entering their initial deposit, monthly payment, and interest rate. It then calculates and displays the total savings after the specified number of months. Furthermore, by entering the user's expenses, the program will categorize them and look at their spending habits so that the user can know their daily expenses.

A reason why this program is important is because of the immense inflation we are experiencing in the past year. It is also relevant due to the growing market of online shopping. So helping the user manage their budget and spending habits will be very beneficial in this case. Moreover, Having financial control may lower stress and make you feel safer. Money management enables this and reduces individuals' stress to a certain extent (Managing Money and Budgeting, 2023).

The goal is to help the user manage their money. Since online commerce has been growing for the past decade, more and more people are buying online. However, without knowledge of managing money, it is very easy for one to get carried away and spend more than they need to. Therefore, by guiding the user overtime, they can learn to manage their money properly by showing them the information they need.

II. Methodology

In order to solve the problem, we plan to make a Console program that can help adolescents or individuals who have no understanding of money manage their money properly by knowing their initial deposit, monthly payment, expenses, and interest rate. This program will contain the following features:

1. Calculating the total amount of savings by entering the months, and calculating the monthly payment and interest rates
2. Add the expenses by entering the expenses that would be added and the types.
3. Displaying the graph of the savings growth over time by knowing the initial deposit, interest rates, and many more factors to know the savings of the user each month in a console program.
4. Displaying the monthly expenses report can let the users understand how many expenses they had made within a month by knowing the overall amount of expenses.
5. Let the users set their monthly maximum limit, and the program will keep tracking to know if the spending amount has exceeded the maximum limit that the user has set, If the amount has exceeded or is being exceeded, then it will give a corresponding warning.
6. Making a Piggy bank that can let the user know what their current balance is by displaying a virtual piggy bank using Java console program.

To make this program, the following java pillars might be used:

1. Encapsulations : by declaring the private variables and public methods.
2. Abstraction: by simplifying the complex system or method into an understandable system.

Next, we will state the milestones that this program had:

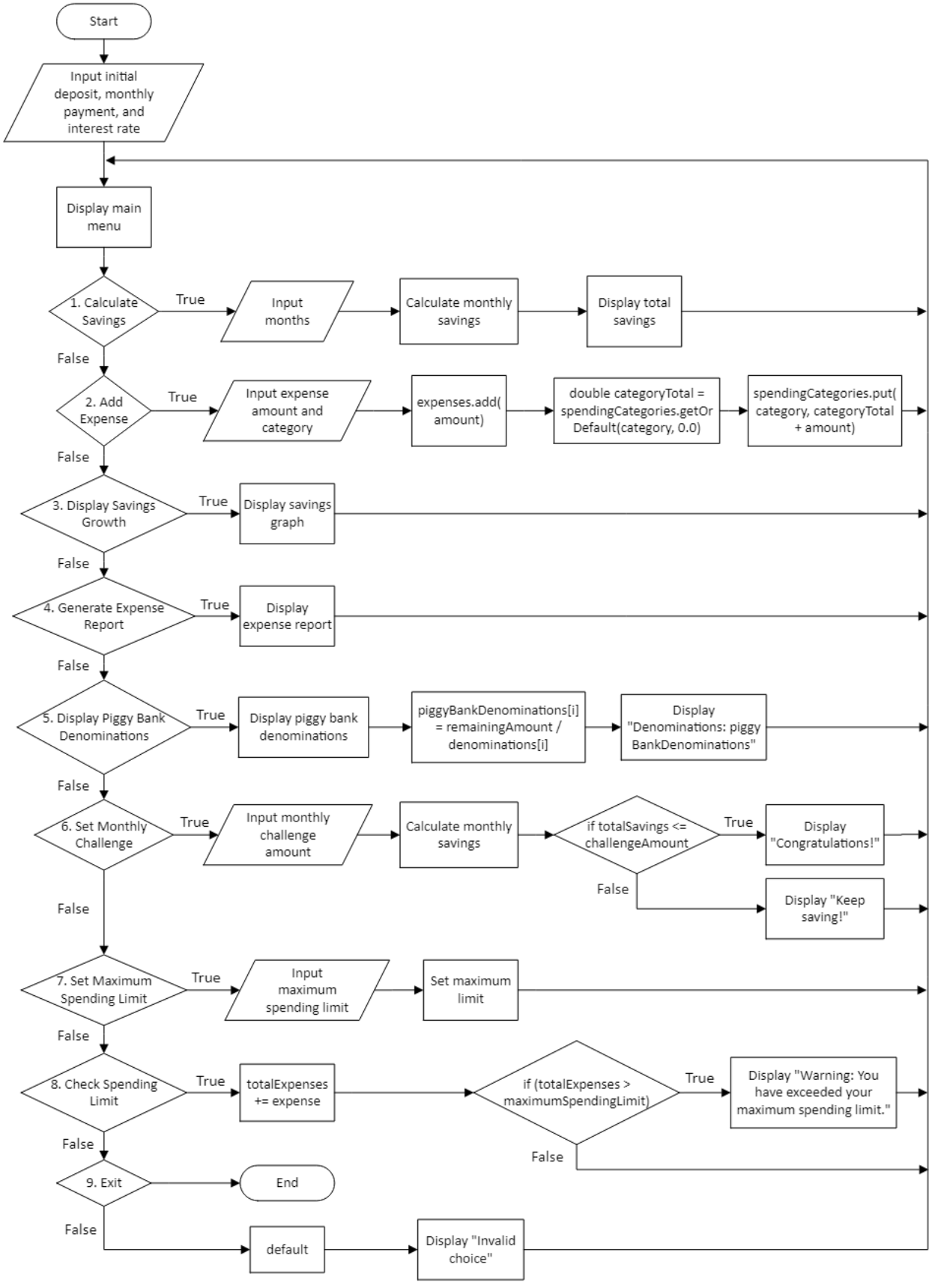
- Using the Scanner method to get the initial deposit, monthly payment, expenses, and interest rate.
- Using math imports for calculating the total savings.
- Showing the users about the features that this program had and letting the users select the features that they liked using the switch cases.
- Keeping track of the expenses that the users had made with the use of the arraylist.
- Importing the " java.util.HashMap" which will be used for adding the expenses that the users will be adding.
- Making virtual piggy bank with the use of the for loop
- Setting the maximum amount of expenses with the use of nested loops.
- Generating a graph about one's savings over a certain period of time by importing the "ava.util.Map"

III. Project Description

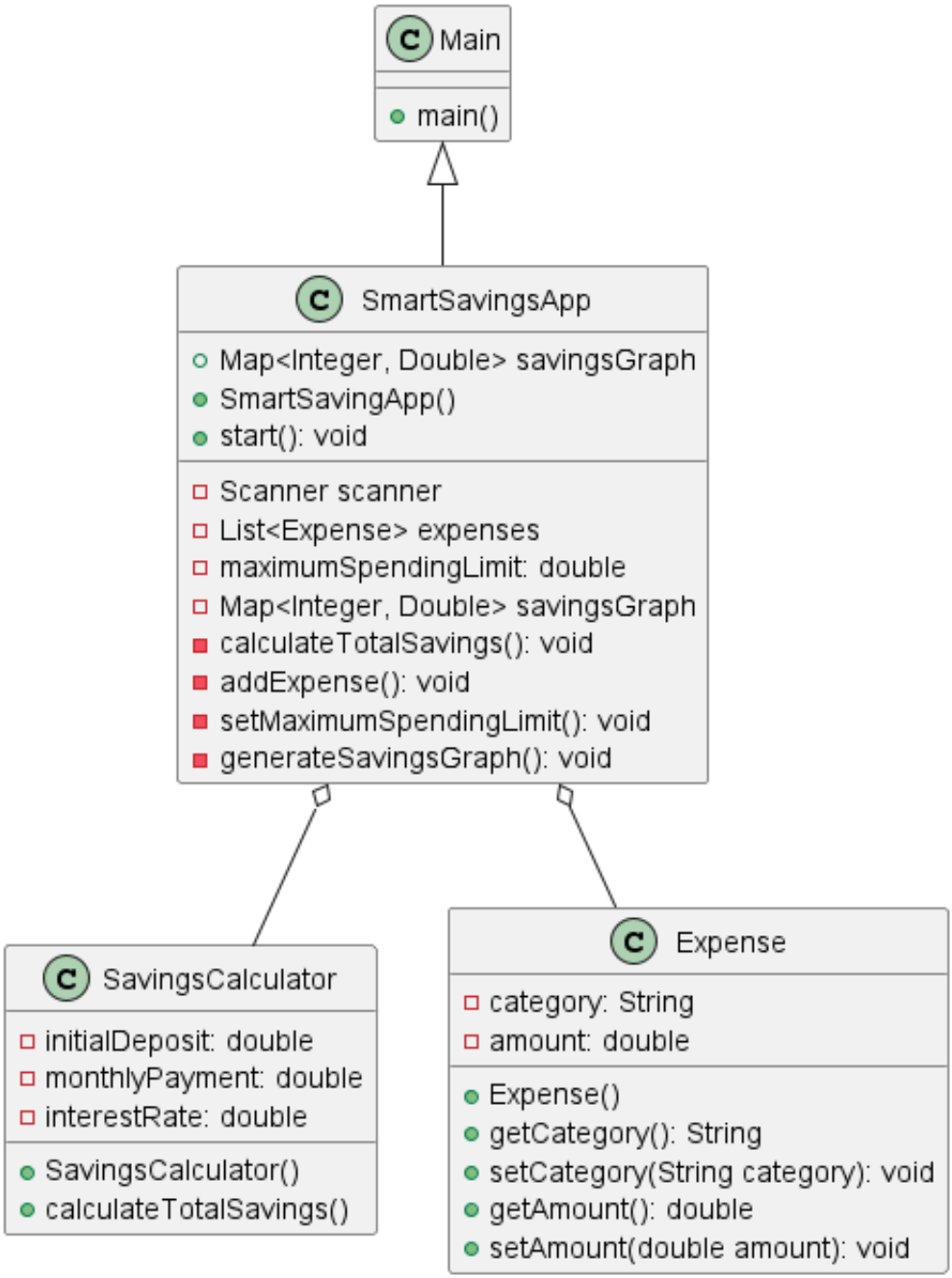
IPO TABLE:

Input	**Processes**	**Output**
initialDeposit monthlyPayment interestRate Months Expenses spendingCategories piggyBank maximumSpendingLimit	CalculateSavings() addExpense() displaySavingGraphs() generateExpenseReport() displayPiggyBankDenominations() setMaximumSpendingLimit() checkSpendingLimit()	totalSavings categoryTotal remainingAmount currentSavings

Flowchart:


Start
Input initial deposit, monthly payment, and interest rate
Display main menu
1. Calculate Savings
True
Input months
Calculate monthly savings
Display total savings
False
2. Add Expense
True
Input expense amount and category
expenses.add(amount)
double categoryTotal = spendingCategories.getOr Default(category, 0.0)
spendingCategories.put(category, categoryTotal + amount)
False
3. Display Savings Growth
True
Display savings graph
False
4. Generate Expense Report
True
Display expense report
False
5. Display Piggy Bank Denominations
True
Display piggy bank denominations
piggyBankDenominations[i] = remainingAmount / denominations[i]
Display "Denominations: piggy BankDenominations"
False
6. Set Monthly Challenge
True
Input monthly challenge amount
Calculate monthly savings
if totalSavings <= challengeAmount
True
Display "Congratulations!"
False
Display "Keep saving!"
False
7. Set Maximum Spending Limit
True
Input maximum spending limit
Set maximum limit
False
8. Check Spending Limit
True
totalExpenses += expense
if (totalExpenses > maximumSpendingLimit)
True
Display "Warning: You have exceeded your maximum spending limit."
False
False
9. Exit
End
False
default
Display "Invalid choice"

UML Diagram:



IV. Deliverables

Deliverables	**Descriptions**	**Date Performed**	**Members**
Initial Proposal	Planning what kind of theme and making	June 19,2023	Hazel Chua

	the corresponding solutions through it		
Project Proposal	Indicating the introduction, methodology, and project descriptions of the problem that we will like to address with	June 26, 2023	Introduction - True Ebora Methodology - Hazel Chua Project Description - True Ebora , Hazel Chua Deliverables (User Manual)- Hazel Chua Evaluation - True Ebora, Hazel Chua Conclusion - True Ebora
Program Structures	Starting to code the program with the Java source codes and the UML Diagram	July 4, 2023	Code - True Ebora, UML - Hazel Chua
Documentations	Finalizing the documentation, including the introduction, methodology, Project Description, and conclusion. Moreover, adding the source codes, User Manuals, and results	July 12, 2023	Introduction - True Ebora Methodology - Hazel Chua Project Description - True Ebora , Hazel Chua Deliverables (User Manual)- Hazel Chua Evaluation - True Ebora, Hazel Chua Conclusion - True Ebora
Submission of the Final Paper	Submitting the final documents	July 20, 2023	Hazel Chua
Demonstration	Making a demo of the Project	July 25, 2023	True Ebora
Video Recording	Recording a 10 min video which briefly discusses the project, including the demo then submitting it	July 30, 2023	Hazel Chua and True Ebora

User manual:
When the user enters the program, it will ask the user to enter the initial deposit, monthly payment, and interest rate.After the user enters the corresponding value,
Next, after entering them, the program will prompt menus to let the user choose what features they like.
The menus are as follows:
If the user enters 1, then the program will ask the user to input the number of months, and the system will use the initial deposit, monthly payment, and interest rate that the user has inputted to calculate the total amount of savings.
If the user enters 2, the program will ask the user to enter the expense amount, which is the category of the expense, and then the program will record it.
If the user enters 3, then the program will display a graph of the savings growth over time based on the information that the user inputted on the initial deposit, monthly payment, and interest rate.
If the user enters 4, then the program will generate the expense report based on the expense and the additional expense.
If the user enters 5, then the program would be asking the user to input the monthly limits that they expense, and then the program would be detecting if the amount is greater than the targeted monthly limits; if yes, then the program would be giving a warning to the user.
Lastly, for the last function, if the user inputs 6, then the program would be displaying a virtual piggy bank, which contains information about the user's current balance.

The program would repeat the menu until the user entered 7, which means that they would like to exit the program.

V. Evaluation

Criteria	Description
Program Structure	Evaluating if the codes are understandable and usable. Moreover, evaluating the structures and methods used in the UML Diagram
Effectiveness	Evaluating the effectiveness of the project in solving the specific problems.

Output	Evaluating if the program is working as it should.
User Experience	Evaluating the quality of the interface and if the user understands it.

VI. Conclusion

SmartSaving will help individuals learn how to be more responsible with their money by giving them the necessary information they need regarding the money in their account. This will address the growing market of online commerce, especially during a massive inflation in the 2020s. By guiding the users through SmartSaving, they will gradually learn to spend responsibly before making any drastic financial decisions.

VII. References

Managing money and budgeting. (2023, March 16). Raising Children Network. https://raisingchildren.net.au/grown-ups/family-life/managing-money/managing-money

Chan, N. (2023). Filipino Online Shopping Behavior: Statistics & Trends You Need to Know. Spiralytics. https://www.spiralytics.com/blog/filipino-online-shopping-behavior-statistics-trends/