



SECD2613: SYSTEM ANALYSIS AND DESIGN

Project: Phase Phase 3 – Analysis and Design

BUDGET TRACKER APPLICATION

PROJECT TITLE: BUDGET BUDDY

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**MALAYSIA-JAPAN INTERNATIONAL INSTITUTE OF
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1.0 OVERVIEW OF THE PROJECT

The Budget Buddy project aims to develop a simple yet comprehensive budget-tracking application to help users manage their finances effectively. This mobile application is designed for individuals, families, and students, providing a user-friendly platform to track expenses, categorize spending, and visualize financial patterns using pie charts. The app will support the management of multiple accounts, including cash, bank cards, and other financial instruments, offering users a holistic view of their financial status. Key features include predefined and customizable expense categories, such as Food, Social Life, Transportation, and Health & Beauty, enabling users to tailor the app to their specific needs. Additionally, the application will feature an account management section where users can access transaction history, manage accounts, and set budget limits, fostering enhanced financial control and accountability. This project underscores our organization's dedication to promoting financial literacy and empowering individuals to make informed financial decisions, ultimately simplifying the complexities of financial management in a fast-paced world.

2.0 PROBLEM STATEMENT

As Malaysia transitions toward a cashless society, managing daily expenditures has become increasingly complex. Research indicates that people tend to spend more when using digital forms of payment as opposed to physical cash, leading to potential financial mismanagement. This situation poses a significant challenge, especially for individuals, families, and students who need to maintain a tight grip on their budgets within a multitude of digital transactions. The lack of tangible cash makes it difficult for many to visualize their spending patterns, leading to overspending and financial instability. Thus, there is a pressing need for a comprehensive solution that enables effective financial management in a digital age. A thorough analysis of the current environment reveals the complex interplay between various stakeholders including consumers, financial institutions, and regulatory bodies :

2.1 Consumers

Consumers are increasingly prioritizing financial management tools that align with their personal financial goals. They also bring along certain difficulties that need to be addressed.

- Consumers are the primary stakeholders.
- Need tools for clear visibility into spending habits.
- Require features for budgeting and expense tracking.
- Desire a user-friendly interface for ease of use.

2.2 Financial Institutions

- Interested in promoting financial literacy among clients.
- Support tools that integrate with existing financial services.
- Aim to encourage responsible spending.

2.3 Regulatory Bodies

- Ensure compliance with local data protection laws.
- Promote the overall financial health of the populace.
- Oversee the security and integrity of digital financial tools.

2.4 Individuals

With the eve of being a cashless society looms over Malaysia it has been increasingly important to manage daily expenditures. A study has shown that especially for individuals, families, and students are more likely to spend when the cash is not in a physical tangible form like cash.

- Increased tendency to overspend with digital payments.
- Difficulty in tracking expenses due to the intangible nature of electronic transactions.
- Diverse spending patterns and economic behaviors in Malaysia.
- Need for comprehensive tools that cater to various demographics and financial literacy levels.

3.0 PROPOSED SOLUTIONS

To address the challenges posed by a cashless society, the proposed solution is the development of a mobile application, "Budget Buddy", designed to help users manage their finances comprehensively. This application will offer a suite of features aimed at providing users with greater control and insight into their spending patterns.

3.1 User-Friendly Interface

Budget Buddy will prioritize an intuitive and engaging user interface to ensure ease of use across various demographics. This includes clear visualizations of spending patterns through pie charts and other graphical elements.

- Intuitive and engaging design for ease of use.
- Visualizations such as pie charts to depict spending patterns.

3.2 Expense Tracking and Categorization

Users will be able to log their expenses manually or automatically through linked bank accounts and categorize them into predefined and customizable categories such as Food, Transportation, and Health & Beauty. This granular tracking will help users identify areas where they can reduce spending.

- Ability to log and categorize expenses automatically or manually.
- Customizable categories to reflect diverse spending habits.

3.3 Multiple Account Management

The app will support the management of multiple financial accounts, including bank cards and e-wallets, providing users with a consolidated view of their financial status.

- Support for managing multiple financial accounts (e.g., bank cards, e-wallets).
- Provide a consolidated view of financial status.

3.4 Budget Setting and Monitoring

Users can set monthly budgets for different categories and receive alerts when they are close to exceeding these limits. This proactive feature aims to promote disciplined spending habits.

- Set and monitor budget limits for different categories.
- Receive alerts when approaching or exceeding budgets.

3.5 Data Security and Compliance

Robust security measures will be implemented to protect user data, ensuring compliance with Malaysian data protection regulations. This includes encryption, secure authentication methods, and regular security audits.

- Robust security measures to protect user data.
- Compliance with Malaysian data protection regulations.

3.6 Stakeholder Engagement and Feedback Loop

Continuous engagement with stakeholders, including users and financial institutions, will be crucial. Regular updates and enhancements based on user feedback will be prioritized to keep the app relevant and effective.

- Continuous feedback loop with users and financial institutions.
- Regular updates and enhancements based on feedback.

3.7 Support and Resources

To foster user adoption, Budget Buddy will include extensive support resources such as FAQs, tutorials, and customer service channels. This ensures users can effectively leverage all features of the app.

- Comprehensive support resources, including FAQs, tutorials, and customer service channels.
- Educational materials to enhance financial literacy.

4.0 CURRENT BUSINESS PROCESS/WORKFLOW

Current business process (scenarios, workflow)

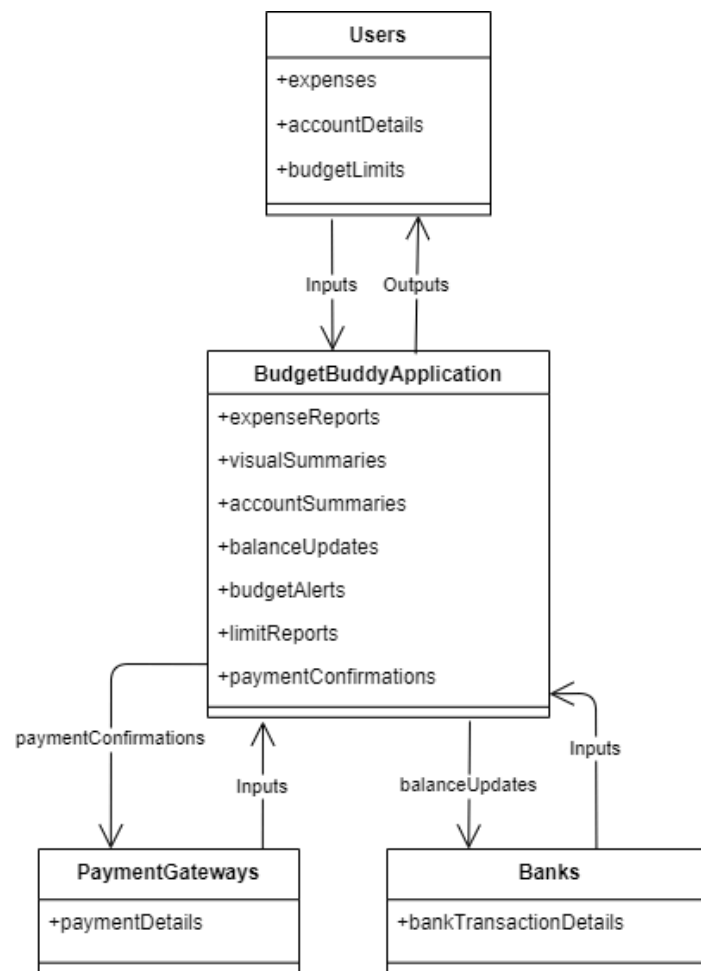
The current process involves manual tracking of expenses using spreadsheets or basic financial apps that lack comprehensive features. Users face challenges in maintaining consistency and gaining insights into their spending patterns.

Scenario	AS-IS Process	Workflow
Expense Tracking	Users manually record expenses in notebooks or spreadsheets. Some use basic financial apps, but these often lack customization and visual tools.	The user identifies an expense. User manually enters expense details (date, amount, category) into their chosen tracking method. The user reviews and categorizes expenses periodically (weekly/monthly).
Expense Categorization	Users create their categories in spreadsheets or use pre-defined categories in basic apps. Customization is limited and often requires manual adjustments.	The user creates categories based on common expenses. The user assigns each recorded expense to a category. User updates categories manually if new types of expenses arise.
Financial Summaries and Visualizations	Users compile data from spreadsheets or basic apps to create summaries. Visualizations, if created, are typically basic charts in spreadsheet software.	The user compiles monthly expense data. The user creates charts (e.g., pie charts) manually to visualize spending patterns. The user interprets the visual data to make financial decisions.

5.0 Logical DFD AS-IS (Context Diagram, Diagram 0, Child)

Context Diagram

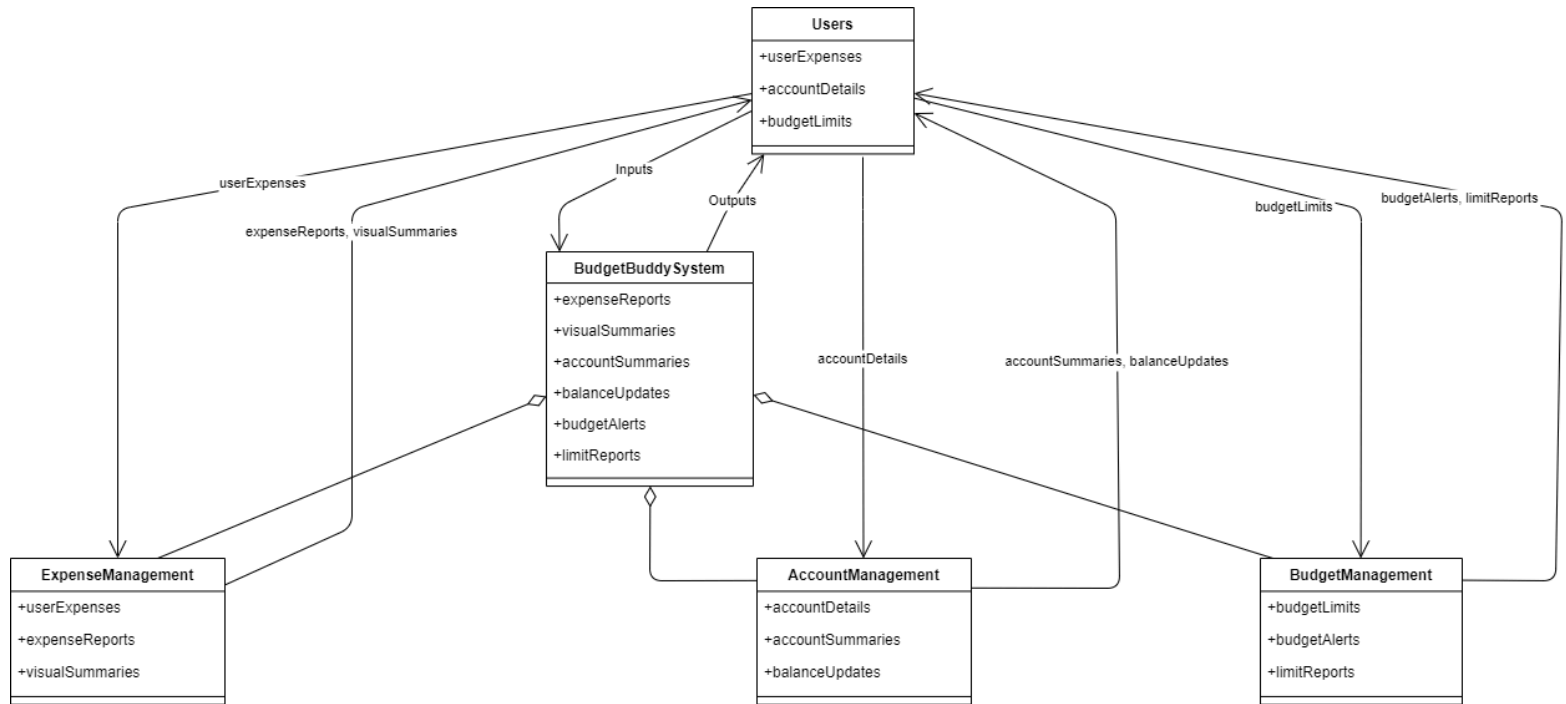
The Context Diagram shows the interaction between external entities (Users, Payment Gateways, Banks) and the Budget Buddy system. It represents the high-level view of how data flows between the system and external entities.



- Users: Provide expenses, account details, and budget limits to the Budget Buddy Application and receive expense reports, visual summaries, account summaries, balance updates, budget alerts, and limit reports.
- Payment Gateways: Provide payment details to the Budget Buddy Application and receive payment confirmations.
- Banks: Provide bank transaction details to the Budget Buddy Application and receive balance updates.
- Budget Buddy Application: The central system that processes inputs from users, payment gateways, and banks, and provides various reports and updates.

Diagram 0

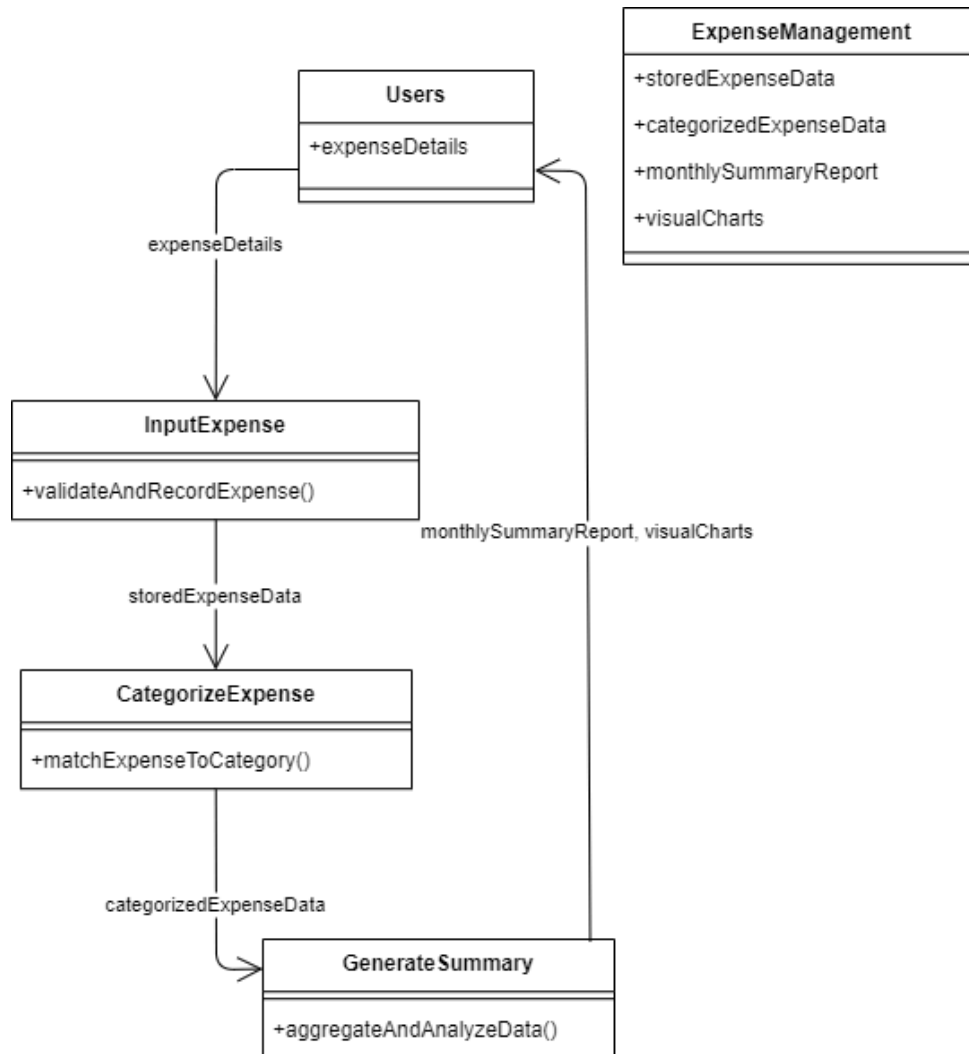
Diagram 0 provides a high-level overview of the major processes within the Budget Buddy system. It breaks down the system into its primary components and illustrates how data flows between them.



- **Users:** Interact with the Expense Management, Account Management, and Budget Management processes.
- **Expense Management:** Handles user expenses and generates expense reports and visual summaries.
- **Account Management:** Manages account details, provides account summaries, and updates balances.
- **Budget Management:** Manages budget limits, monitors spending, and provides budget alerts and limit reports.
- **Budget Buddy System:** Integrates the processes and facilitates the interaction between users and the system components.

Child Diagram (Expense Management)

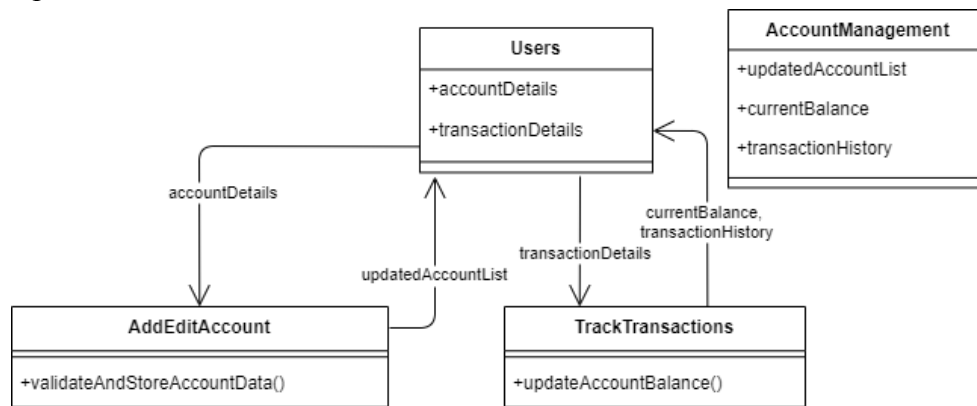
The Expense Management Child Diagram breaks down the Expense Management process into smaller sub-processes: Input Expense, Categorize Expense, and Generate Summary.



- **Users**: Provide expense details to the system.
- **Input Expense**: Validates and records the user-provided expense details.
- **Categorize Expense**: Matches recorded expenses to the appropriate categories.
- **Generate Summary**: Aggregates and analyzes categorized expense data to produce monthly summary reports and visual charts.
- **Expense Management**: Integrates these sub-processes to manage expenses effectively

Child Diagram (Account Management)

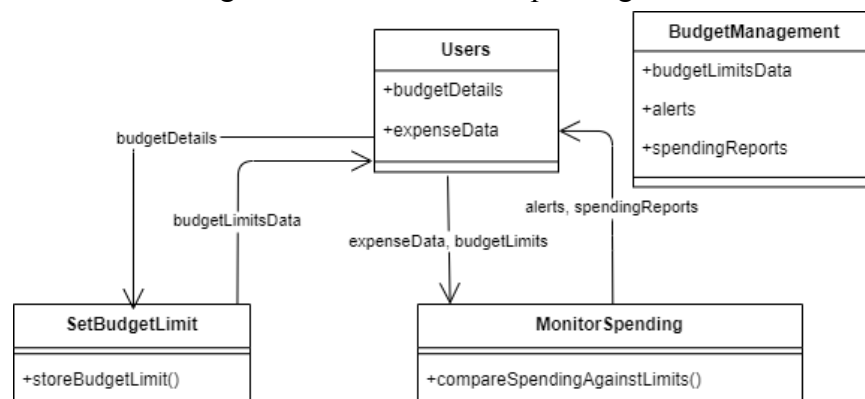
The Account Management Child Diagram breaks down the Account Management process into smaller sub-processes: Add/Edit Account and Track Transactions.



- **Users:** Provide account details and transaction details to the system.
- **Add/Edit Account:** Validates and stores the user-provided account details, updating the account list.
- **Track Transactions:** Updates account balances based on transaction details and maintains the transaction history.
- **Account Management:** Integrates these sub-processes to manage user accounts effectively.

Child Diagram (Budget Management)

The Budget Management Child Diagram breaks down the Budget Management process into smaller sub-processes: Set Budget Limit and Monitor Spending.



- **Users:** Provide budget details and expense data to the system.
- **Set Budget Limit:** Stores the user-provided budget limits.
- **Monitor Spending:** Compares user spending against the stored budget limits and generates alerts and spending reports.
- **Budget Management:** Integrates these sub-processes to manage user budgets effectively.

6.0 SYSTEM ANALYSIS AND SPECIFICATION

6.1 Logical DFD TO-BE System

Context Diagram

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Diagram 0

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Child Diagram

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6.2 Process Specification

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7.0 PHYSICAL SYSTEM DESIGN

7.1 Physical DFD TO-BE system

Diagram 0

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Child Diagram

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Partitioning

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CRUD Matrix

Process	Data Entity	Create	Read	Update	Delete
Expense Management	Expense Records	X	X	X	X
Account Management	Account Details	X	X	X	
Budget Management	Budget Limits	X	X	X	

Event Response Table

Event	Trigger	System Response
New Expense Added	User Enters Expense	Validate And Save Expense, Update Summaries
Account Updated	User Updates Account	Validate And Update Account Details
Budget Limit Set	User Set Budget Limit	Store Limit And Start Monitoring Expenses

Structure Chart

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System Architecture

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8.0 SYSTEM WIREFRAME

9.0 SUMMARY OF THE PROPOSED SYSTEM

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