



UTP
UNIVERSITI TEKNOLOGI PETRONAS



FINTECH HACKATHON

**AI-POWERED PERSONAL FINANCE
ASSISTANT: UNLOCKING A SMARTER**

24 JUN 2025 | Cyber University | Mad Unicorn





AGENDA

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OUR TEAM



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PROJECT

BACKGROUND

01

Managing personal finances is increasingly difficult due to complex services and products.

02

Traditional tools (spreadsheets, basic apps) fail to meet modern needs.

Malaysia

In 2024, personal loans remained the primary cause of bankruptcy among young Malaysians, accounting for **15,413** cases or **49.11%** of total bankruptcies

Indonesia

detiknews:
Perompak Taksi Online Minta Tebusan

Rp 70 Juta buat Lunasi Utang Pernikahan

TEMPO:
Gara-gara Utang **Rp 140 Juta**, Warga Tanjung Priok Disekap di Depok hingga Stres Minum Sabun

PROJECT

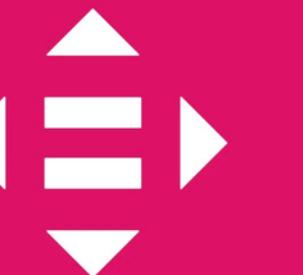
BACKGROUND

1 NO
POVERTY



Addressing financial instability and poverty by improving financial planning and budgeting.

10 REDUCED
INEQUALITIES



Supporting low-income groups and younger generations by providing personalized, accessible financial tools.



PROBLEM STATEMENT & OBJECTIVES



PROBLEM STATEMENT

- ▶ **Limited Personalization in Existing Tools**
Current tools fail to offer real-time personalized insights.
- ▶ **Fragmentation and Inefficiency**
Users must rely on multiple tools for tracking expenses, budgeting, and planning, leading to poor decision-making.



OBJECTIVES

- ▶ **Develop a Personalized Financial System**
Leverage machine learning to analyze and improve spending patterns.
- ▶ **Integrate with an Intelligent Platform**
Simplify spending tracking and budgeting for users.
- ▶ **Evaluate System Performance**
Test for accuracy, usability, and effectiveness in meeting user financial management needs.

LITERATURE REVIEW

AUTHOR AND YEAR	TITLE	APPROACH/METHOD	PROBLEMS SOLVED	LIMITATIONS/GAPS
Talasila et al., 2024	AI-Driven Personal Finance Management: Revolutionizing Budgeting and Financial Planning	<ul style="list-style-type: none">Machine learning with a pilot study (1,000 users, 6 months).	<ul style="list-style-type: none">Real-time analysis, personalized recommendations, and predictive insights.	<ul style="list-style-type: none">Limited to 6 months, needs long-term impact study and global diversity.
Agarwal et al., 2024	An AI-Powered Personal Finance Assistant: Enhancing Financial Literacy and Management	<ul style="list-style-type: none">Machine learning and NLP, with React.js, Flask, MongoDB, Firebase.	<ul style="list-style-type: none">Automates tracking, adaptive budgeting, and personalized investment recommendations.	<ul style="list-style-type: none">Needs broader field studies for ease of use, utility, and effectiveness.

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AUTHOR AND YEAR	TITLE	APPROACH/METHOD	PROBLEMS SOLVED	LIMITATIONS/GAPS
Müller et al., 2022	Adam: An Intelligent Virtual Assistant for Personal Financial Management	<ul style="list-style-type: none"> NLP chatbot for expense tracking and budgeting, using grounded theory and design science research. 	<ul style="list-style-type: none"> Personalized finance management via an AI assistant. 	<ul style="list-style-type: none"> Requires more user trials to validate and improve assistant's capabilities.
Rupali Gupta & Dr. Charu Bisaria, 2024	AI-driven Personal Finance Apps: Assessing the Impact on Financial Decision-Making and Marketing Strategies	<ul style="list-style-type: none"> Personalized financial insights, automate tasks, and influence financial behaviors like budgeting and saving. 	<ul style="list-style-type: none"> Offers personalized financial advice and automates financial management. Addresses data privacy, security, and algorithmic biases. 	<ul style="list-style-type: none"> Need for ongoing user feedback and enhanced security. Calls for integrating financial education within apps for better user understanding.
Sari et al., 2021	Web-Based Financial Applications	<ul style="list-style-type: none"> Developed an online application using PHP and MySQL 	<ul style="list-style-type: none"> Integrated planning, budgeting, auditing, and billing 	<ul style="list-style-type: none"> Limitations in manual bookkeeping, usability assessments, security, and comparisons with existing solutions

LITERATURE REVIEW

Personalized Expense Tracking (Müller et al., 2022):

- AI-powered assistant for real-time expense tracking and budgeting.
- Customizes the user experience based on spending patterns and financial goals.

Real-Time Financial Analysis & Recommendations (Talasia et al., 2024):

- Provides personalized recommendations and predictive insights.
- Enhances the project with proactive financial advice based on user behavior.

Adaptive Budgeting with Machine Learning (Agarwal et al., 2024):

- Integrates machine learning and NLP to automate budgeting and financial adjustments.
- Adapts dynamically to users' financial behavior and goals.

AI Chatbot for Interactive Financial Management (Müller et al., 2022):

- Engages users through NLP-powered chatbots for seamless tracking and advice.

Integrated Web-Based Financial Application (Sari et al., 2021):

- Develops a unified platform combining budgeting, planning, and auditing tools.
- Offers a comprehensive financial management solution in one web-based application.

User Trials and Validation

Real-World Testing

Personalized Solutions

METHODOLOGY

AGILE METHODOLOGY



Requirements Phase

- **Research Paper Review:** All of us do research to identify the research gap in AI-powered personal finance assistants.
- **Requirement Gathering:** Collect system requirements to address the identified gaps in current solutions, such as real-time financial analysis and personalized recommendations.

Design Phase

- **System Architecture:** Plan the high-level architecture of the system (frontend, backend, database, AI models).
- **UI/UX Design:** Design a user-friendly interface to ensure ease of use and accessibility for diverse users.

Development Phase

- **Frontend Development:** Haiqal designed overall system flow including flowchart and mind map.
- **UI/UX Design:** Azhan and Talitha crafted user-friendly and inclusive interfaces for all user types.

Testing Phase

- **Unit and Integration Testing:** Talitha will test individual system components to ensure functionality and integration.
- **Usability Testing:** All of us gather user feedback on interface and performance to refine the user experience.

Deployment Phase

- **Deployment to Cloud:** Azhan will deployed the system using Google Cloud for real-time access.
- **Post-Launch Support:** All of us will monitor performance and gather feedback for continuous system optimization and updates.

DATASETS



Kaggle.com

About Dataset

dataset contains detailed financial and demographic data for 20,000 individuals, focusing on income, expenses, and potential savings across various categories. The data aims to provide insights into personal financial management and spending patterns.

- **Income & Demographics:**
 - Income : Monthly income in currency units.
 - Age : Age of the individual.
 - Dependents : Number of dependents supported by the individual.
 - Occupation : Type of employment or job role.
 - City_Tier : A categorical variable representing the living area tier (e.g., Tier 1, Tier 2).
- **Monthly Expenses:**
 - Categories like Rent, Loan_Repayment, Insurance, Groceries, Transport, Eating_Out, Entertainment, Utilities, Healthcare, Education, and Miscellaneous record various monthly expenses.
- **Financial Goals & Savings:**
 - Desired_Savings_Percentage and Desired_Savings : Targets for monthly savings.
 - Disposable_Income : Income remaining after all expenses are accounted for.
- **Potential Savings:**
 - Includes estimates of potential savings across different spending areas such as Groceries, Transport, Eating_Out, Entertainment, Utilities, Healthcare, Education, and Miscellaneous .

SurveyMonkey.com

The image shows the SurveyMonkey.com homepage. At the top, there is a navigation bar with links for Home, Plans & Pricing, and Multi-survey Analysis. Below the navigation bar, the text "What do you want to do?" is displayed. Three options are presented in boxes: "Start from scratch" (with an icon of a person writing), "Use a quick template" (with an icon of a person using a computer), and "Build with AI" (with an icon of a document and a person). Below each option, there is a brief description.

Home Plans & Pricing Multi-survey Analysis

What do you want to do?

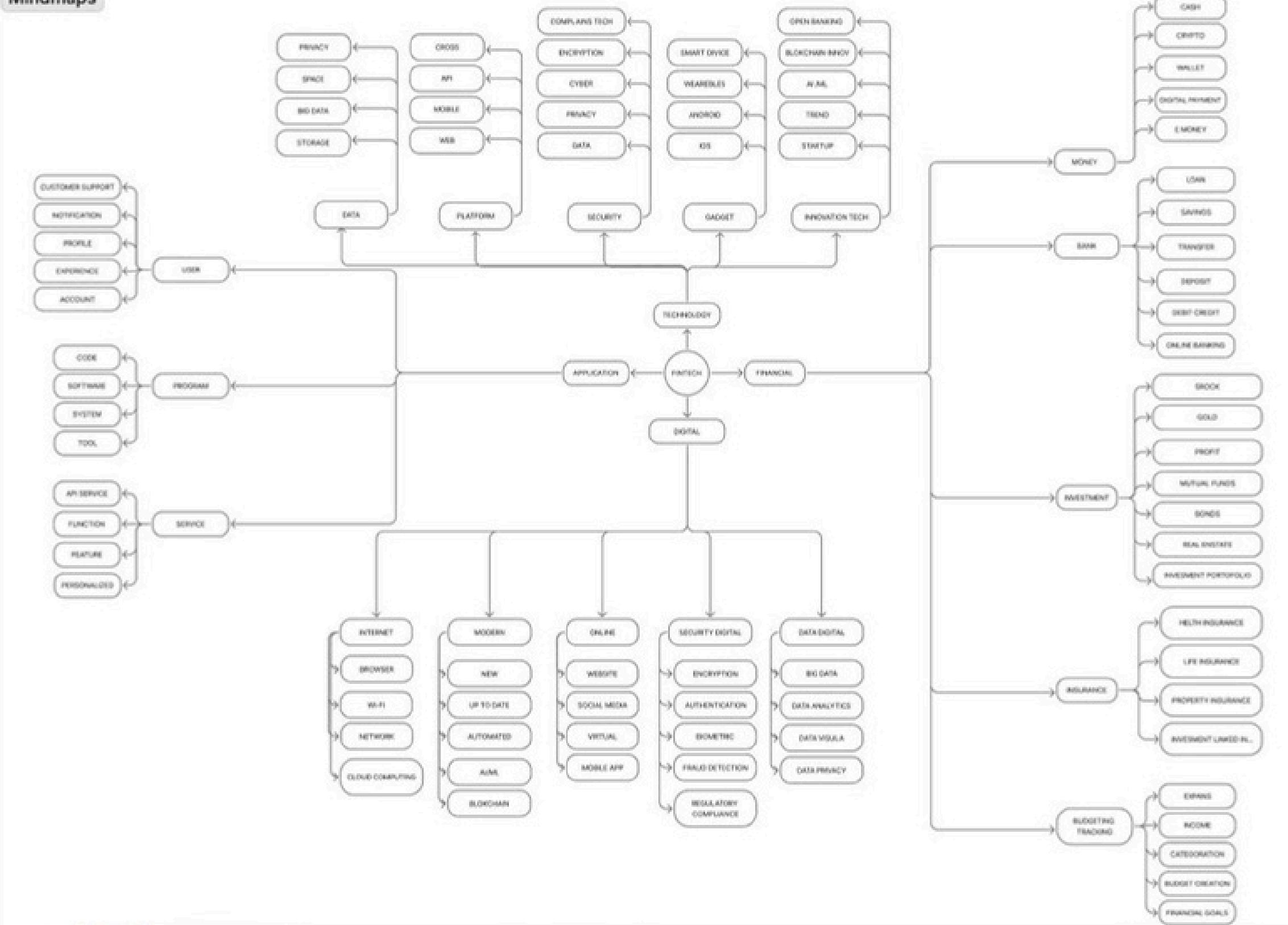
Start from scratch
Begin with a blank page, or copy and paste a survey you've written.

Use a quick template
Use a template we've picked for you to create and send surveys faster.

Build with AI
Type a short prompt. AI will create a tailored survey just for you.

MIND MAP

Mindmaps

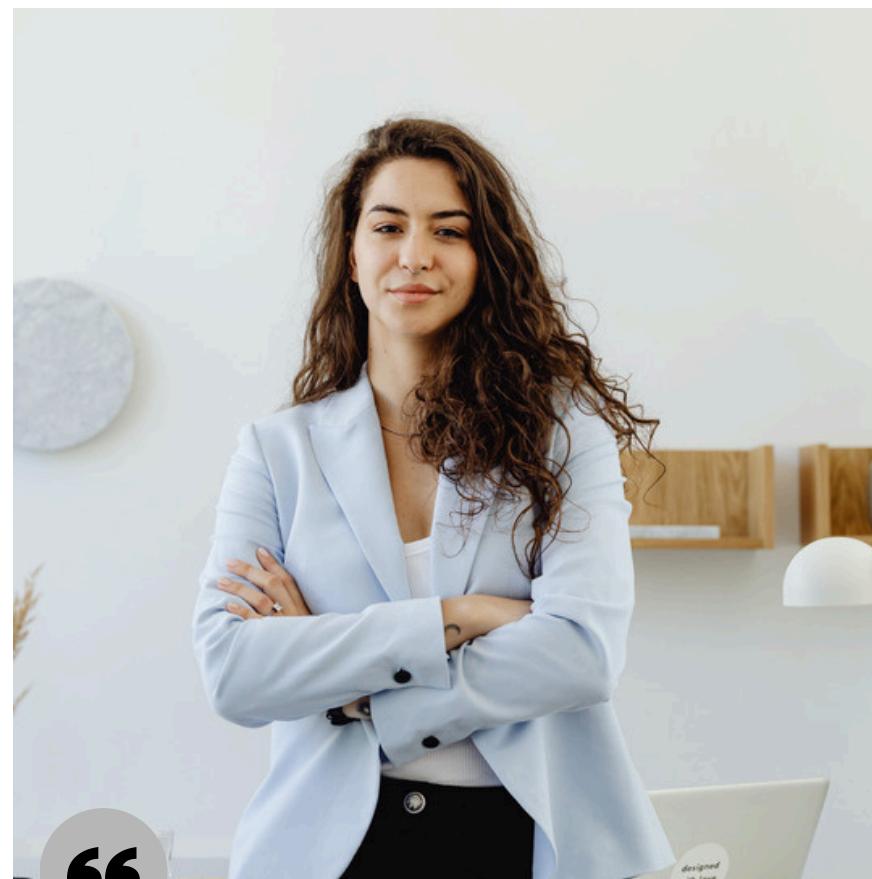


USER PERSONA

DINDA PRAMESWARI

PROFILE

Gender	:	Female
Age	:	28
Education	:	Bachelor's degree
Occupation	:	University Student (Undergrad)
Address	:	Bandung, Indonesia



“

BIOGRAPHY

Digitally and socially active. Dinda often uses her e-wallet to shop online, pay for rides, dine out, and subscribe to digital services. She tries to save but often ends up spending on impulsive purchases due to sales and promotions. She wants a system that can help her manage her money automatically but still give her flexibility.

MOTIVATIONS

Dinda often struggles with impulse spending and forgets to save money after receiving her allowance or income. Using a single e-wallet for all expenses makes it hard to manage her finances, and she frequently gives in to the temptation to withdraw from her savings, even when it's meant for long-term goals.

GOALS

Save money for holidays and emergencies

Stay disciplined with weekly spending

Use a locked system that prevents impulsive withdrawals

Save without needing to do complicated calculations manually

FRUSTRATIONS

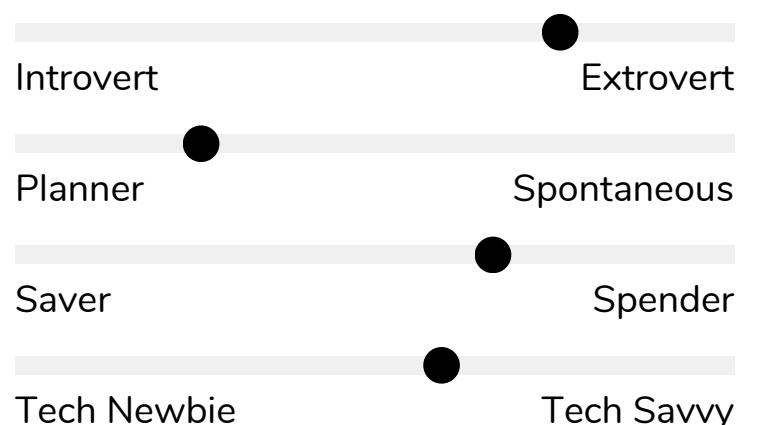
Hard to resist online shopping temptations

E-wallet balance drains quickly because it isn't separated for essentials

Unsure how to allocate savings toward different goals

Forgets to set aside money right after receiving monthly allowance

PERSONALITY



HOBBY

- Online shopping (Shopee, Tokopedia)
- Watching anime and TV series
- Creating TikTok content
- Hanging out and exploring food spots

BRANDS

- Tokopedia
- GoPay
- Scarlett
- Shopee
- HijUp

FLOWCHART

PURSE Flowchart

The name of app called
“PURSE”



Represents addition, increase, and
wealth building

AI presents opportunities for real-time
analysis, budgeting, and investment advice.



PROTOTYPE

PURSE Prototype



EXPECTED OUTCOMES



Improved Financial Literacy

Users gain better financial knowledge, enabling more informed budgeting, saving, and investing decisions.



Enhanced Financial Management

The system helps users efficiently track income, expenses, and goals, leading to better budgeting and saving habits.



Increased Savings and Reduced Debt

Actionable advice and goal-based recommendations will help users save more and reduce debt faster.



CONCLUSION

► AI-Powered Solution

The project addresses the limitations of traditional finance tools by offering personalized, real-time insights and adaptive budgeting.

► Improved Financial Outcomes

Empowers users to make smarter financial decisions, improve financial literacy, and enhance savings habits.

► Scalable & Dynamic

The AI system evolves with users' financial behaviors, providing long-term value.

► Future Enhancements

Further refinements and real-world testing in FYP 2 will optimize the system for broader user adoption.

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THANK YOU

ANY QUESTION

Smart Money
Smarter You

