# Vision Wealth: Personalized Financial Planning With AI

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**Abstract- In today's dynamic financial landscape, individuals require intelligent and accessible tools to manage their finances effectively. This study introduces *Vision Wealth*, a personalized financial planning platform that integrates deep learning with rule-based financial logic to deliver tailored, actionable recommendations. Users submit key demographic and financial information through a secure, Flask-based web interface, that supports real-time interaction, data visualization, and PDF report generation. The system employs a hybrid inference engine, comprising a pre-trained neural network and domain-specific financial formulas to predict optimized budget allocations across categories such as savings, investments, insurance, emergency funds, healthcare and retirement planning. Evaluations using simulated and real user inputs demonstrated the platform's effectiveness in generating realistic and practical financial plans. With its emphasis on personalization, transparency and usability, *Vision Wealth* showcases the convergence of AI and financial technology in empowering individuals to make informed financial decisions.**

**Keywords— Artificial Intelligence, Budget Allocation, Deep Learning, Financial Planning, Flask, Personal Finance, Rule-Based Systems.**

## I. INTRODUCTION

The need for effective personal financial planning is more pressing than ever in the current volatile economic environment. Inflation, healthcare costs, job uncertainty and rising education expenses make it difficult for individuals to allocate their income optimally across essential financial categories. Despite the surge in fintech applications, a significant portion of the population still lacks access to affordable, reliable and personalized financial guidance. In India, for example, only 27% of adults are considered financially literate [1], and most rely on informal advice or rigid templates that do not consider their unique circumstances. Traditional financial advisors often come with high fees and biases, whereas existing budget apps focus on tracking rather than planning. Moreover, tools that offer recommendations usually adopt a one-size-fits-all model, disregarding crucial user-specific parameters such as family structure, age, location and financial priorities.

Recent advancements in artificial intelligence (AI) and machine learning (ML) have shown promise in addressing these issues through automation and personalization of the learning experience. However, AI models in finance frequently suffer from a lack of transparency, leading to reduced trust. In contrast, purely rule-based systems are easy to explain but cannot learn from patterns in real-world data or adapt to edge cases.

To bridge this gap, we introduce *Vision Wealth*, a hybrid financial planning platform that combines the adaptability of deep learning with the reliability of expert-defined financial rules. The system collects structured demographic and financial data from users through a secure web interface, processes it through a hybrid inference engine and provides optimized budget recommendations across key categories such as life insurance, healthcare, investments, savings, and emergency funds. The core innovation lies in *Vision Wealth*'s dual-layered engine: a neural network trained on structured financial profiles and a post-processing module that validates or refines outputs based on widely accepted financial planning heuristics. This approach ensures that the outputs are not only tailored to the user's profile but also grounded in practical and safe budgeting principles.

The platform is deployed as a Flask-based web application with real-time interactivity, visual charts and downloadable PDF reports, making it accessible and user-friendly. By merging explainability with predictive intelligence, *Vision Wealth* represents a step toward democratizing financial planning, especially for underserved populations in emerging economies.

## II. RELATED WORK

Traditional financial planning tools range from manual spreadsheet-based models to mobile apps such as *ET Money*, *Scripbox* and *Mint*, which focus on expense tracking, investment visualization and automated *Systematic Investment Plans (SIPs)*. Although useful, these platforms typically lack personalization and transparency in their recommendation logic. Most rely on fixed percentage allocation templates that do not adapt to a user's age, dependents, income level or financial goals.

Recent advances have led to the rise of *robo-advisors* and *AI-driven credit scoring models*, which use predictive analytics to automate recommendations. However, these systems often operate as black boxes, offering little insight into *why* a particular allocation was made, which limits their trust and adoption [1][2].

Academic research supports the combination of domain-specific financial rules with machine learning to improve both interpretability and performance. For example, Bartram et al. [2] emphasized the role of hybrid systems in asset management, while Zhang et al. [5] highlighted that financial literacy tools benefit from transparent logic when targeting non-expert users.

In the Indian context, tools tend to overlook localized needs, such as planning for multi-generational households, education-linked allocations or healthcare inflation due to aging parents. *Vision Wealth* addresses these gaps by integrating the following:

- Culturally grounded budgeting rules,
- Custom tax models aligned with Indian regimes,
- A hybrid AI pipeline that merges explainability with data-driven insights.

By fusing these perspectives, *Vision Wealth* contributes to the field as a context-aware and explainable AI system for personal finance tailored to emerging markets.

## III. METHODOLOGY

*Vision Wealth* follows a multi-phase methodology designed to collect structured user inputs, process them through a hybrid inference engine and deliver practical financial recommendations. The pipeline consists of five main stages: data acquisition**,** feature engineering**,** scaling**,** hybrid inference and output generation. Each stage was engineered for accuracy and a user-centric design.

### A. User Data Collection and Validation

Users interact with the Vision Wealth web platform by completing a dynamic financial profiling form. The form captures essential information, including:

• Demographic Details: Age, marital status, family structure (number of children, adults, and parents)

• Financial Information: Gross monthly income, spouse's income, number of working individuals, pension income, etc.

• Lifestyle Context: Housing (own/rent), location (urban/rural), goal prioritization (e.g., retirement, education, healthcare)

The frontend interface, built with *HTML5* and enhanced by *JavaScript*, uses dynamic fields that are adjusted based on user input. Flask-WTF handles form validation and CSRF protection, whereas secure sessions manage the user state. All data were securely stored using SQLAlchemy ORM with *MySQL*.

### B. Feature Engineering and Encoding

The collected inputs were converted into model-compatible features. The derived features included:

• Adjusted income after tax, using Indian tax slab calculations and standard deductions

• Binary indicators: has spouse, house ownership, city residence

• Categorical encoding: Financial goals were numerically encoded (e.g., education = 1, retirement = 3)

• Family complexity metrics: Total dependents, child age distribution

These features improve the model's ability to distinguish between user profiles and effectively tailor recommendations.

C. Pre-processing and Scaling

To standardize the input values and accelerate the model convergence, the numerical features were scaled using *StandardScaler* (mean-zero, unit variance). A pre-trained X scaler file handles the input transformation, whereas a corresponding Y scaler file normalizes the model outputs during training.

D. Hybrid Inference Engine

The core logic of *Vision Wealth* relies on a dual-layered inference engine as follows:

1. Deep Learning Layer:

A fully connected neural network trained on a curated dataset of synthetic and real-world financial profiles predicts budget allocations across 11 categories of spending. The network consists of the following:

• Input Layer: 10 features

• Hidden Layers: 1024 → 512 → 256 → 128 → 64 neurons

• Activations: ReLU with Batch Normalization and Dropout

• Output Layer: 11 budget categories (e.g., Insurance, Healthcare, Investment, Savings)

The model was trained using the Huber loss function and optimized using the Adam optimizer. Early stopping and learning rate decay were applied to avoid overfitting. The model evaluation metrics included MAE, MSE, and $R^2$ score, with performance logged throughout.

2. Rule-Based Logic Layer:

The raw predictions are passed through a post-processing module that applies financial planning heuristics to validate or adjust allocations. This rule enforcement ensures that the final recommendation adheres to both predictive intelligence and domain best practices.

E. Output Generation and Visualization:

The final adjusted budget is rendered to the user via:

• JSON API response, parsed into interactive charts (bar/pie) on the dashboard

• PDF Report Generator, using ReportLab to export personalized plans

• Recommendation explanations, optionally displaying rule-based rationale

The system logs every plan with a timestamp tied to the user ID for longitudinal tracking.

## IV. RULE-BASED FINANCIAL LOGIC

To ensure realistic financial guidance, Vision Wealth implements the following validated financial rules:

| Category | Rule |
|---|---|
| Emergency Fund | 3–6 months of expenses (min 6% of annual income) [3][4] |
| Life Insurance | Minimum 10× annual income, adjusted by dependents [5][6] |
| Healthcare | 3–4% of income, increased for older users or healthcare goals [3][7] |
| Investment | 15–20% of income depending on goal [8][9] |
| Retirement | 4–8% of income depending on retirement priority [10] |
| Education | % of income × number of children, higher for education goal [11][12] |
| Tourism, Vehicle | Flat 5% each of income |
| Savings | 6–7% of income, higher in healthcare-centric profiles |

| Category | Rule |
|---|---|
| Home Allowance | 10% of income |
| Loan Capacity | Estimated as 8% of post-tax income [13] |

These rules were encoded in the training dataset and validated using post-inference logic.

## V. EVALUATION

### A. Case Study:

For a user with a ₹25,00,000 income, aged 36, married, having four children, and both parents with retirement as the primary goal, the system generated:

| Category | Allocation (₹) |
|---|---|
| Tax | 3,75,000 |
| Life Insurance | 1,89,000 |
| Parent Insurance | 92,000 |
| Healthcare | 1,60,000 |
| Parent_Healthcare | 1,02,000 |
| Investment | 2,35,000 |
| Emergency Fund | 1,70,000 |
| Retirement | 3,05,000 |
| Education | 2,25,000 |
| Tourism | 95,000 |
| Vehicle Allowance | 95,000 |
| Home Allowance | 1,90,000 |
| Savings | 2,37,000 |

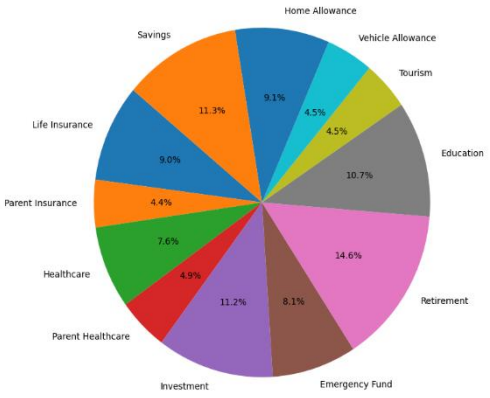


*Fig 1: Visualization of Financial allocation*

Figure 1 shows the predicted allocation breakdown for the user.

### B. User Feedback:

30 users tested the system, of which:

• A total of 93.87% of the participants found the recommendations to be realistic.

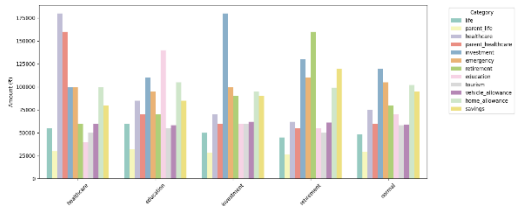

Fig 2: Average allocation across various financial goals

As shown in Figure 2, the model dynamically adjusts the allocations based on the user goals.

• Users appreciated the visualization and PDF export features.

• Suggestions included multilingual support and mobile application access.

## VI. CONCLUSION

This study presents *Vision Wealth*, a hybrid financial planning platform that combines deep learning with rule-based financial logic to generate personalized, actionable budget recommendations. By integrating predictive modeling with domain-specific heuristics, the system ensures that the outputs are both data-driven and practically grounded.

The platform addresses the key limitations of existing tools by offering user-specific insights, explainability, and accessibility through a secure and interactive web interface. The evaluation results show that Vision Wealth can deliver realistic financial plans that are aligned with user goals and best practices.

By bridging automation with financial literacy, Vision Wealth offers a scalable and user-friendly solution for personalized financial planning, particularly in emerging markets. Future enhancements will focus on mobile deployment, multilingual support and real-time integration of financial data.

## VII. FUTURE WORK

- Mobile application deployment
- Goal progress tracking and alerts
- Integration with real-time financial APIs
- Financial literacy modules within UI
- Multilingual support and voice input

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