

Group79--Product Prototype

Product: DeepManage--AI Expense Categorization Assistant

Version: v1.0

Core Overview

DeepManage simplifies personal and business finance management through **smart automation** and **human-friendly** controls. Think of it as an AI assistant with:

1. Smart Automation

DeepManage simplifies money tracking by **auto-sorting expenses** (e.g., “Netflix → Entertainment”) and **importing data** from any source – type manually, upload bank files, or snap receipts. It learns from your corrections, getting smarter over time.

2. Proactive Planning

The AI acts as a **24/7 financial advisor**: 1. Flags overspending (e.g., “Dining budget exceeded!”). 2. Predicts seasonal costs (holidays, sales) and adjusts budgets. 3. Optimizes savings and investments with easy “Accept” or “Customize” buttons

3. Secure & Adaptive

Bank-grade security **protects your data** while letting you control permissions (e.g., share budgets with family). Works seamlessly with WeChat, Alipay, and global banks – no app switching.

Functional Module Design

Module 1: Integrated Financial Transaction Processing Module

Module Function:

1. Module Overview

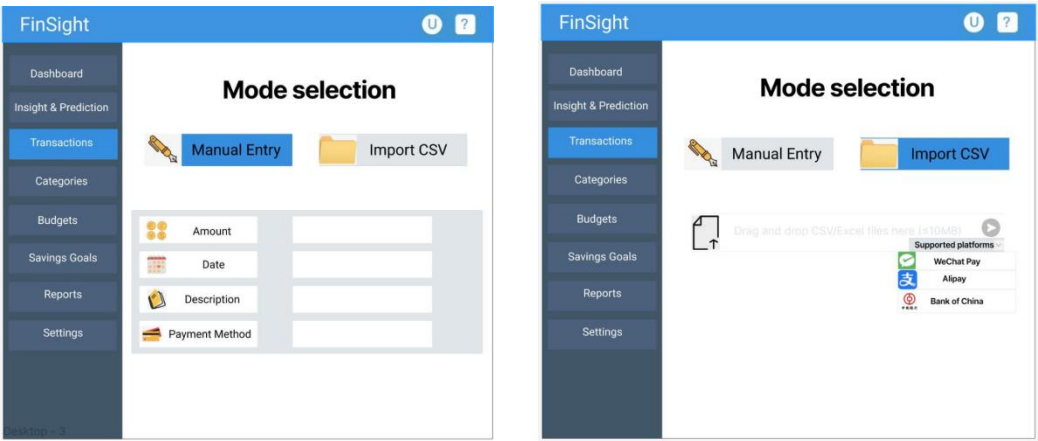
The **Dual-mode Data Input System** is designed to streamline the process of entering financial data through two primary methods: **Manual Entry** and **Import CSV**. This

system ensures precision, efficiency, and security, catering to diverse user needs. The interface features a clear visual hierarchy with blue accents for primary actions and gray for secondary elements, while leveraging white space to segment functional zones. Intelligent assistance, such as auto-completion and real-time validation, enhances the user experience, and robust security mechanisms ensure data integrity and protection.

1. Core Capabilities:

Manual Entry: The Manual Entry mode provides precise control over data input through a structured process. Users enter information in a hierarchical sequence: Amount (currency input), Date (calendar picker), Description (text field), and Payment Method (dropdown). Intelligent features include auto-completion (e.g., suggesting "Alipay" when typing "zhī") and real-time validation of number formats and reasonable ranges, ensuring accuracy and efficiency.

Batch CSV Import: The Import CSV mode supports batch processing for users handling large datasets. It automatically parses formats from platforms like WeChat Pay, Alipay, and Bank of China, converting complex fields into standard formats. Security measures include file size limits (<10MB) to prevent system crashes and desensitization of sensitive fields (e.g., masking bank account numbers). The system also provides visual feedback, such as green borders and zoom-in animations, during drag-and-drop uploads, and instant error prompts for non-CSV/Excel files.



System-Level Capabilities: The system includes a Data Validation Engine that ensures compliance with date, amount, and bank code formats and resolves conflicts through intelligent merging strategies for duplicate records. It supports multi-platform collaboration, adapting to formats from WeChat Pay, Alipay, and Bank of China, while handling special encoding like GB18030. A Security Audit System ensures traceability with version control for manually modified records and configures import/modify permissions for different users in the settings. Platform identification is enhanced through brand-specific colors (e.g., WeChat Pay green #00C800, Alipay blue #0099E6, Bank of China red #D40000).

Module 2: AI-Driven Financial Health Management System

Module Function:

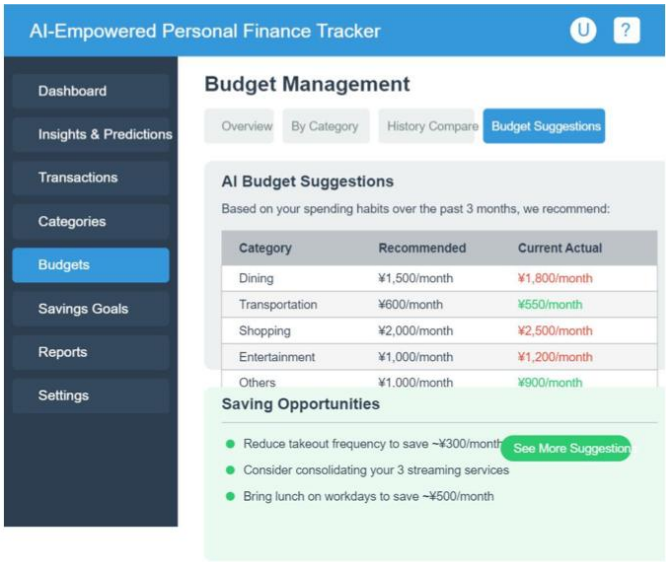
1. Module Overview

Unifies budget management, savings goals tracking, and spending pattern analysis into a single workflow.

Leverages AI to generate actionable insights across all financial dimensions (e.g., budget suggestions, savings optimizations, behavioral patterns).

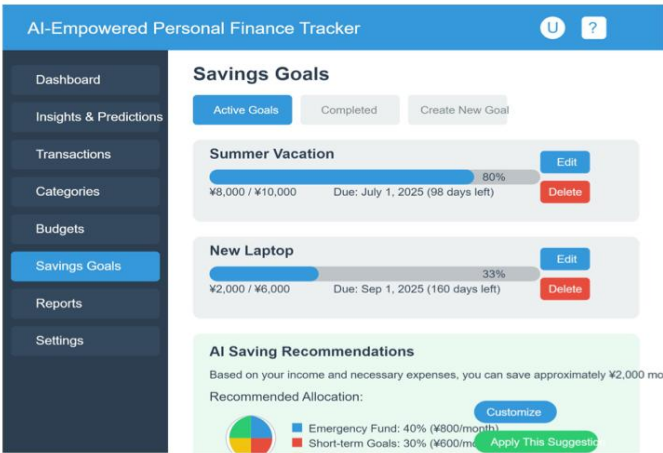
2. Core Capabilities:

Budget Management: The Budget Management feature provides a clear overview of finances by comparing AI-recommended budgets with actual spending across categories. The interface uses color coding—red for overspending, green for underspending—to highlight areas of concern. A Saving Opportunities section offers actionable recommendations (e.g., "Reduce dining-out by 20%") to address overspending. Users can also interact with color-coded action buttons (Accept All, Customize, Reject) to make decisions based on AI insights, ensuring a streamlined budgeting process.



Savings Goals Management: The Savings Goals Management feature helps users track and achieve financial goals through visual timelines and AI recommendations. Each goal is displayed in a goal card with a progress bar, numerical metrics, and a due date, providing immediate feedback on progress. The AI Saving Recommendations section uses a pie chart to suggest fund allocations across emergency funds,

short-term goals, and long-term investments, which users can apply or customize to align with their objectives.



Spending Pattern Analytics: The Spending Pattern Analytics feature transforms financial data into visual insights, helping users understand spending behaviors and identify hidden patterns. A primary line chart shows spending trends over six months, while a pie chart breaks down spending by category to highlight key areas. The Detected Spending Patterns section uses AI to uncover trends (e.g., "Monthly subscription creep") and presents them in a bullet-point format for quick scanning, enabling users to optimize their spending.



Module 3: Intelligent Transaction Classifier

Module Function:

1. Module Overview:

The **Expense Categorisation interface** seamlessly integrates **AI-driven automation** with **manual user corrections** to streamline transaction classification. By combining efficiency and user control, it ensures accurate financial tracking while adapting to individual spending habits. The system not only automates categorization but also learns from user inputs, providing actionable insights and identifying seasonal spending patterns to empower informed financial decisions.

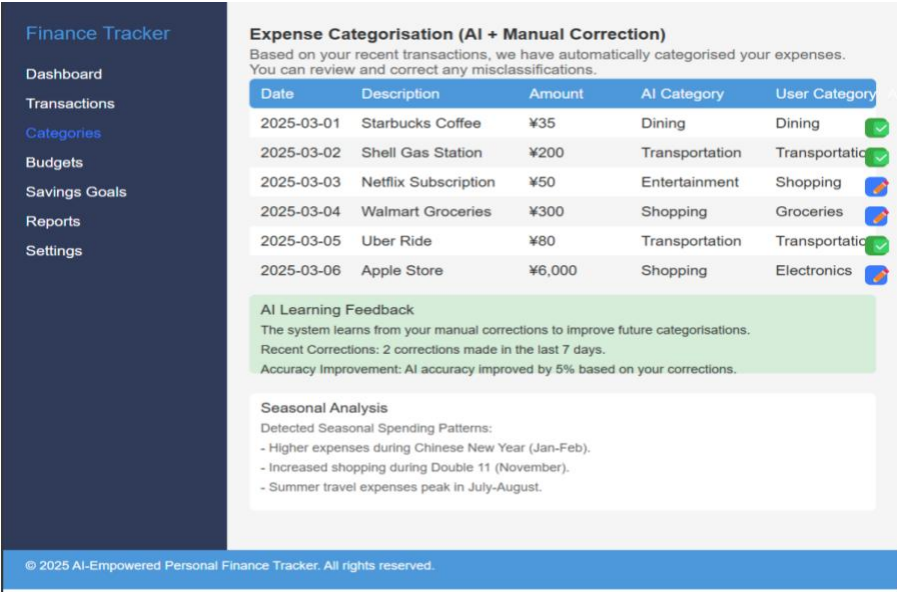
2. Core Capabilities:

Transaction Categorisation Table: The Transaction Categorisation Table forms the core of the interface, enabling users to review and refine AI-generated classifications. Transactions are automatically categorized (e.g., "Dining," "Transportation") based on descriptions and historical patterns. Users can override these classifications using action buttons, ensuring accuracy. Corrections are saved and applied to future similar transactions, improving consistency over time.

AI Learning Feedback: The AI Learning Feedback module enhances the system's accuracy by retraining its model based on user corrections. It tracks metrics such as "Recent Corrections" and "Accuracy Improvement," providing transparency into the AI's learning progress. For example, repeated manual reclassifications of "Walmart Groceries" from "Shopping" to "Groceries" prompt the AI to prioritize the latter for similar transactions, ensuring continuous improvement.

Seasonal Analysis: The Seasonal Analysis feature identifies recurring spending trends tied to specific time periods, such as holiday shopping spikes or summer travel peaks. It highlights these patterns (e.g., "Higher expenses during Chinese New Year") and offers actionable insights, such as recommending budget adjustments ahead of detected spending peaks. This proactive approach helps users plan for seasonal expenses effectively.

User Interaction Flow: The interface follows an intuitive workflow: users review transactions, confirm correct classifications with **✓**, or edit misclassifications with **✗**. Corrections are logged, and the AI adapts its logic accordingly. Users can also leverage detected seasonal patterns to adjust budgets proactively, ensuring they stay on top of their financial goals.



Module 4: Financial Insights Module

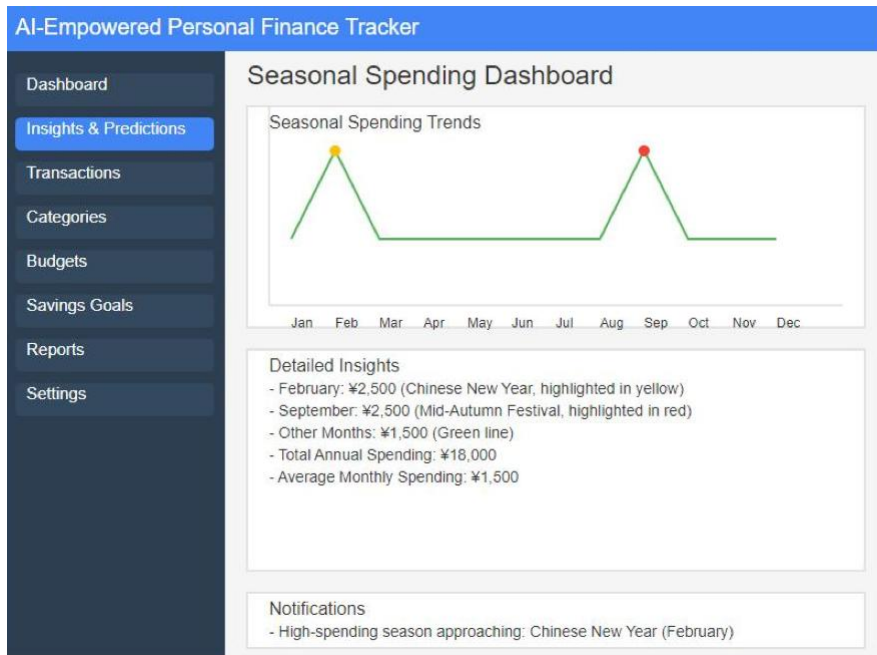
Module Function:

1. Module Overview:

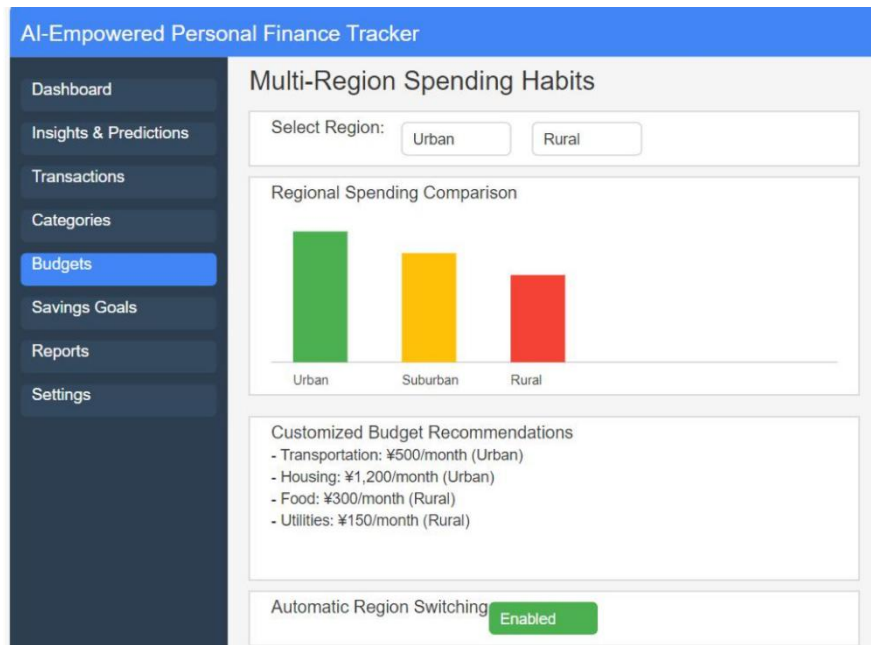
The **Seasonal Spending Detection**, **Multi-Region Spending Habits Integration**, and **Online Shopping Alerts** interfaces are designed to provide users with comprehensive tools for managing their finances across various contexts. These interfaces combine **AI-driven insights**, **visual analytics**, and **customizable** features to help users understand spending patterns, adapt to regional differences, and plan for seasonal or promotional expenses. By integrating **real-time notifications**, **actionable recommendations**, and **manual adjustment** tools, these interfaces empower users to make informed financial decisions tailored to their unique needs.

2. Core Capabilities:

Seasonal Spending Detection: The Seasonal Trends Visualization feature uses a Seasonal Trends Chart to display historical spending patterns during key events like Chinese New Year and Mid-Autumn Festival, employing color-coded bars and annotations for clarity. The Budget Adjustments section provides AI-driven recommendations for managing budgets during high-spending seasons, presented in a card format with action buttons such as Accept and Customize. A Notifications Panel alerts users about upcoming high-spending seasons, offering details and links to adjust budgets proactively. Additionally, Manual Adjustment Tools include sliders and input fields, allowing users to manually set or modify their seasonal spending expectations for greater control and flexibility.

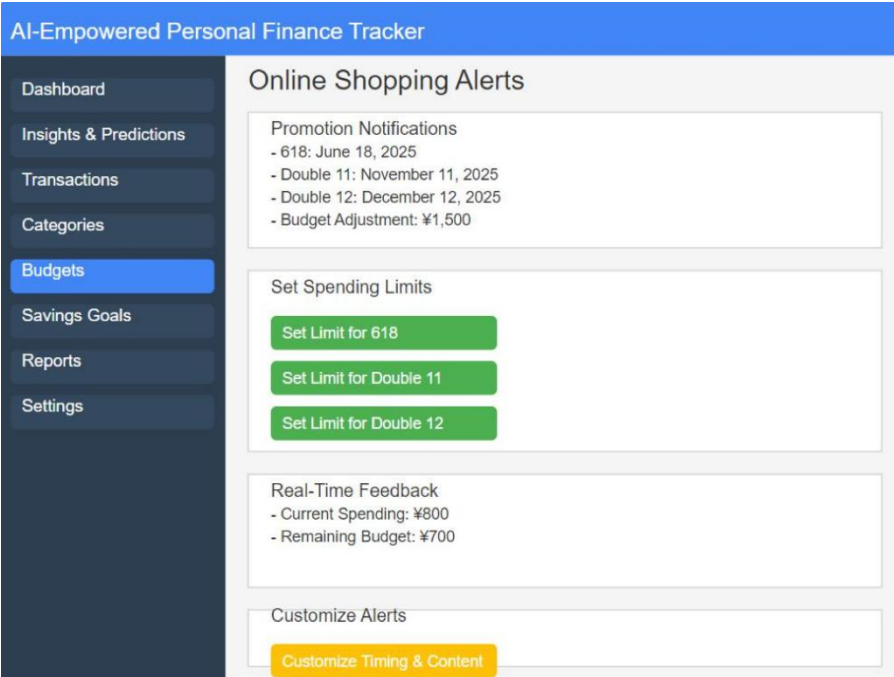


Multi-Region Spending Habits Integration: The Regional Spending Comparison Chart visually compares spending levels across different regions, highlighting key differences such as higher transportation costs in cities. Based on the selected region, AI-driven Customized Budget Recommendations are presented in a card format with action buttons like Accept and Customize, allowing users to easily adjust their budgets. Additionally, an Automatic Region Switching feature uses a toggle switch to enable the system to detect the user's location and automatically adjust budget recommendations accordingly, ensuring a seamless and personalized budgeting experience.



Online Shopping Alerts: A Promotion Notifications Panel alerts users about upcoming e-commerce promotions, such as Double 11, providing details and links to adjust budgets. The interface also offers AI-driven Budget Adjustment

Recommendations, presented in a card format with action buttons like Accept and Customize, to help users manage their spending during promotions. Additionally, Spending Limit Setting tools allow users to set specific spending limits for promotions, with previews showing how these changes will impact the overall budget, ensuring better control and planning.



Module 5: AI-Driven Portfolio Intelligence Platform

Module Function:

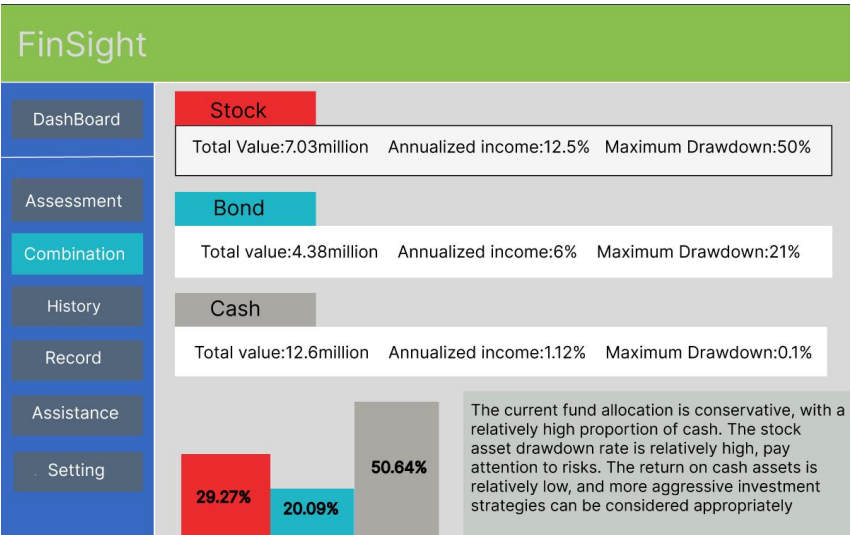
1. Module Overview:

The **Intelligent Optimization Interface** for Investment Portfolio is a comprehensive system designed to help users manage and optimize their investment portfolios through intuitive tools and data-driven insights. It integrates three core modules: **Portfolio Overview**, **Historical Appreciation Data**, and **Transaction Record System**, each providing unique functionalities to enhance financial decision-making. The interface features a consistent left navigation bar with a dark blue background and white font, offering easy access to key sections such as risk assessment, portfolio overview, historical backtesting, and transaction records, along with help and settings options. The right main content area, with a light gray background, is dynamically divided based on the selected module, ensuring a seamless user experience.

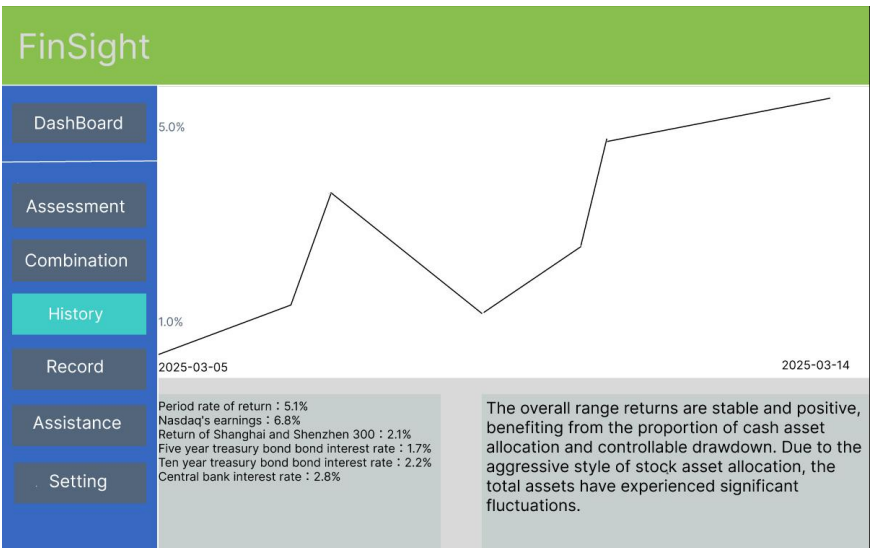
2. Core Capabilities:

Portfolio Overview: The Portfolio Overview feature provides a detailed breakdown of investment assets, including stocks, bonds, and cash, each marked with distinct colors. It displays key metrics such as annualized rate of return, total value, and

maximum drawdown, while a bar chart visualizes the proportion of each asset type relative to total assets. Additionally, a text box offers pre-set phrases evaluating the style and rationality of asset allocation, along with explanations for assets with abnormal indicators.



Historical Appreciation Data: The Historical Appreciation Data feature tracks asset changes over time through a line chart, with black lines highlighting key points. Users can adjust the displayed time and scale via the settings bar. It also compares user asset growth with financial indicators like major index fund yields, treasury bond yields, and central bank interest rates. An automated evaluation of historical asset appreciation performance combines portfolio data to attribute the characteristics of asset growth.



Transaction Record System: The Transaction Record System organizes and displays transaction details in a structured format. The top directory area, with a dark gray background, lists transaction type, fund flow, transaction amount, transaction fee, and transaction time, remaining visible even when scrolling. The lower billing area, with a

light gray background, arranges transactions in lines according to the directory, allowing users to sort transactions by time or amount using the settings column.

FinSight					
DashBoard	Type of transaction	capital flow	Transaction amount	commission	Transaction occurrence time
Assessment	Tesla stock	buy	\$120605.23	\$18.34	2025-03-16-15:34:12
	tsmc stock	sell	\$358794.20	\$31.34	2025-03-16-12:31:56
Combination	NASDAQ ETF	buy	\$950000.26	\$67.49	2025-03-16-09:21:07
History	to transfer into	to transfer into	\$100000.00	\$0.0	2025-03-16-19:05:00
Record					
Assistance					
Setting					