

**BỘ THÔNG TIN VÀ TRUYỀN THÔNG**  
**HỌC VIỆN CÔNG NGHỆ BƯU CHÍNH VIỄN THÔNG**



**First Report**  
**Foundation Internship**  
*ChippyCash*  
*Smart Chatbot for Easier Expense Management*

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# INTERNSHIP BASE REPORT - WEEK 1

## I. Project Introduction

This internship project focuses on developing ChippyCash, a smart chatbot for financial management. The chatbot leverages AI to help users track expenses, analyze spending habits, and optimize their budgets. With features like automated expense logging from receipts, real-time budget insights, and interactive chatbot support, ChippyCash enhances personal finance management by making it more intuitive and efficient.

## II. Objectives and Key Features

### 1. AI-Powered Expense Tracking

- **Automated Receipt Scanning:** Extract and categorize expenses from uploaded receipts using AI-powered image processing.
- **Smart Expense Recognition:** Identify and log expenses from user conversations with the chatbot.
- **Custom Expense Entry:** Allow manual addition and editing of expenses for better tracking.
- **Real-Time Spending Insights:** Generate summaries, visual reports, and spending trends for better financial awareness.

### 2. AI Chatbot for Financial Assistance

- **Conversational Expense Logging:** Users can simply chat with the AI to log their expenses.
- **Personalized Financial Insights:** AI-driven analysis to provide savings suggestions and spending pattern insights.
- **Instant Budget Recommendations:** Help users create and adjust budgets based on spending behavior.

### 3. Smart Analytics

- **Expense Breakdown:** Visualize income, expenses, and savings through charts and graphs.

- **AI-Driven Insights:** Get automatic recommendations on optimizing spending habits.
- 4. **Secure and Seamless Integration**
  - **Multi-Device Synchronization:** Real-time expense updates across all linked devices.
  - **Data Security & Privacy:** Implement encryption and secure authentication to protect user data.

### III. Technologies Used

- **Frontend:** CSS, Bootstrap.
- **Backend:** PHP.
- **Database:** MySQL.
- **Payment:** Integrated bank API.
- **Chatbot:** AI NLP (LlamaIndex).
- **Email Confirmation:** SMTP (Nodemailer).

### IV. Development Plan

1. **Phase 1: Analysis and Interface Design**
  - Define detailed functionalities.
  - Design database schema.
  - Create wireframes and UI/UX designs.
  - Build the user interface.
2. **Phase 2: Backend Development, Testing, and Deployment**
  - Develop APIs and connect to MySQL.
  - Integrate payment and chatbot systems.
  - Connect APIs.
  - Test features and ensure security.
  - Deploy to the server.

### V. Progress Report for Week 1

During my first week of internship, I focused on **Phase 2: Backend Development, Testing, and Deployment**. This report outlines the progress made, challenges encountered, and planned improvements for the upcoming weeks. Specifically:

- **Project Structure Implementation:**
  - Successfully established the foundational architecture for the backend system, organizing the code into logical components.
  - Configured environment settings using `.env`, `.env.example`, and `cfg.py` to ensure secure and scalable deployment.
  - Developed core files such as
    - `main.py` (application entry point).
    - `utils.py` (utility functions).
    - `load_chat.py` (chat processing).
    - `create_node.py` (data node management).
- **AI Assistant Integration:** Developed **Chippy**, an AI-powered financial assistant designed to help users manage personal expenses.
  - Implemented **natural language processing capabilities** to understand financial queries and assist users effectively.
  - Built a structured system for tracking:
    - **Income sources** (Salary, Bonuses, Interest, Sales, ...).
    - **Expense categories** (Food, Transportation, Education, Entertainment, Utilities).
  - Created a conversation flow logic to guide users through financial data input and provide actionable insights.

### ❖ Next Steps:

- Enhance the chatbot's ability to understand and process bills, extracting relevant financial details automatically.
- Improve the chatbot's contextual understanding to provide more accurate financial insights and personalized recommendations.
- Continue refining the user experience by integrating these features smoothly into the existing system.
- Begin developing the UI, focusing on a seamless and intuitive user experience for interacting with the AI assistant.
- Design and implement key frontend components such as the chat interface, financial dashboard, and reporting visualization.