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



# First Report Foundation Internship

**ChippyCash** 

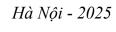
Smart Chatbot for Easier Expense Management

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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.