

**Capstone**

PTY4614 - 004D

ANTONIO VARAS

**APT PROJECT REPORT: ARTIFICIAL INTELLIGENCE AGENT FOR PERSONALIZED FINANCIAL EDUCATION**

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## **TABLE OF CONTENTS**

[TABLE OF CONTENTS 2](#_4k9cmto6992m)

[**Introduction 3**](#_7j8xp3euar8b)

[**1. Relationship of the project with graduation profile competencies. 3**](#_ctp81ey68jfe)

[**2. Relationship of the project with my professional interest. 4**](#_g0bypk6twcry)

[**3. Argument on the feasibility of the project within the course. 4**](#_4nz9lkqojdbd)

[**4. Conclusion 5**](#_bis7mk55t1o3)

# Introduction

The project consists of the development of an artificial intelligence agent specialized in personalized financial education, capable of adapting to different age groups (children, youth, adults, and the elderly). Through natural language processing, the agent will answer questions in everyday language, provide recommendations on saving, investment, and debt management, and allow practical simulations.

The relevance of this project lies in the fact that financial literacy continues to be an unmet need for much of the population. The absence of adequate knowledge generates over-indebtedness, misinformation, and poor economic practices. In this context, the AI agent emerges as an innovative, dynamic, and inclusive solution that contributes to the development of financial skills from an early age.

# 1. Relationship of the project with graduation profile competencies.

The development of this APT project involves applying multiple competencies acquired throughout the degree program:

* **Requirements design and management (PRY1111):** enables identifying user needs and transforming them into agent functionalities.
* **Database modeling (MDY1131):** necessary to structure financial information and records of user interactions.
* **Algorithm programming (PGY1121):** the foundation for implementing practical modules of the simulator and the agent’s logic.
* **Web/mobile application development (PGY1212):** linked to creating an accessible and intuitive interface.
* **Artificial Intelligence and Natural Language Processing (electives and advanced tracks):** key to building a conversational system that explains financial concepts in simple terms.
* **Project management (PRY1211):** used to structure schedules, resources, and pilot validations.

In this way, the project practically integrates both technical and management competencies, fulfilling the graduation profile of Computer Engineering.

# 2. Relationship of the project with my professional interest.

Our professional interests focus on AI, databases, and data analysis, and the APT project of an AI Agent for Financial Education directly reflects these areas. The implementation of a conversational agent allows us to apply artificial intelligence and natural language processing techniques; the design of the application requires the creation and management of robust databases; and analyzing user information will improve the personalization of financial learning through data analytics.

Carrying out this project will contribute to our professional development by strengthening our technical competencies, providing us with experience in designing innovative solutions with social impact, and preparing us to face projects in the fields of applied AI, data science, and information systems development.

# 3. Argument on the feasibility of the project within the course.

The project is feasible to develop within the framework of the course for the following reasons:

* **Defined and progressive scope:** a five-month schedule was planned, allowing progress from research to prototype validation.
* **Availability of technologies:** accessible frameworks exist for conversational AI (such as Rasa, Dialogflow, or NLP models in Python) and rapid web/mobile development environments (React Native, Flutter).
* **Academic resources and prior competencies:** the content of the degree provides the necessary foundations for prototype implementation, both in programming and in management.
* **Scalable validation:** an initial large-scale deployment is not required, since pilot testing can be conducted with small groups within the context of the course.

Consequently, this is an innovative project, aligned with training competencies, with social value, and fully achievable within the timeframe and resources available in the course.

# 4. Conclusion

After the analysis, it can be deduced that this project represents a viable and innovative initiative that combines artificial intelligence with financial education. The use of natural language processing ensures accessibility for diverse audiences, while the structured development plan guarantees its feasibility within the course framework.

Thanks to all the above, it is possible to interpret that the APT project will not only strengthen the academic training of its participants but also generate a positive social impact by contributing to financial literacy at different stages of life.