**Student Guide - Project Definition Phase 1 (APT)**

**PART I**

1. **Personal Background**

| **Student Name** | **RUT** | **Program** | **Campus** |
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| Francisco Ignacio Vega Sotelo | 17.776.815-4 | Computer Engineering | Antonio Varas |
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1. **APT Project Description**

In the description, briefly state the name of your APT project and the competencies from the graduation profile that you will put into practice. If your program has defined areas of performance, also mention which areas of performance the project is linked to.

* **Project Name**: Aiura
* **Area(s) of Performance**: Software Engineering, Mobile Application Development, Web Development
* **Competencies**:
  + Manage the configuration of application environments, services, and databases in a business environment to enable operability or ensure continuity of systems that support business processes, according to industry standards.
  + Provide IT solution proposals by analyzing processes comprehensively in accordance with organizational requirements.
  + Develop a software solution using techniques that enable the development and maintenance process to be systematized, ensuring the achievement of objectives.

1. **Project Rationale**

This section seeks a detailed description of your project and justifies its relevance and pertinence.

* **Relevance of the APT Project**: The relevance of the project lies in several key aspects:
  + **Optimization of teachers' time**: The AI tool integrated into the LMS allows teachers to automatically generate class plans and complete units, significantly reducing the time normally spent on this task. This frees up time for teachers to focus on other important pedagogical activities, such as personalized attention to students.
  + **Improvement of educational quality**: By standardizing and automating the generation of lesson plans, the system can ensure that all units and classes are well-structured and aligned with learning objectives. This contributes to greater consistency and quality in teaching, which benefits students.
  + **Response to digitalization needs in education**: Education is undergoing a rapid digital transformation, especially after the COVID-19 pandemic, which highlighted the need for robust technological tools for distance learning and academic management. This LMS directly responds to this demand by offering a comprehensive and modern platform for educational management.
  + **Promotion of innovation through artificial intelligence**: The use of AI for the automatic creation of educational content represents an innovative approach that can be an important differentiator in the LMS market. This approach not only modernizes educational planning but also promotes the use of advanced technologies in the academic field.
  + **Scalability and adaptability**: The system is designed to be scalable and adaptable to different educational contexts, from schools to universities. This flexibility makes it relevant to a wide variety of institutions looking for customized solutions to improve academic management and teaching quality.
  + **Positive impact on the learning experience**: By facilitating the organization and accessibility of educational resources and activities, the LMS can improve the learning experience of students, allowing them to access relevant materials and content more efficiently.
* **APT Project Description**: Indicate what is expected to be achieved with the project (objective) and briefly describe what it would consist of and how you plan to address the issue presented in the previous section.
* **Relevance to the Graduation Profile**: The proposed Learning Management System (LMS) is a digital platform designed to facilitate the academic management of educational institutions. It allows teachers to manage classes, record and upload grades, take attendance, and share didactic resources and materials. The most innovative tool of the system is an artificial intelligence that, based on a form specifying the subject matter and timing, automatically generates complete lesson plans and units, including activities and assessments.
* **Relation to Professional Interests**: The development of the LMS aligns with our professional interests. For example:
  + **Competence in software development**: The project involves the design, implementation, and testing of a robust and scalable software system that includes both frontend and backend.
  + **Integration of emerging technologies**: By using artificial intelligence to generate lesson plans, knowledge in machine learning and natural language processing, which are emerging technologies in the field of computer science, is applied.
  + **Management of technological projects**: The development of the LMS involves planning, organizing, executing, and monitoring a large-scale software project, following agile methodologies.
  + **User-centered design**: The system is designed with an intuitive and accessible interface to be easily used by teachers and educational administrators.
* **Feasibility of the APT Project Development**: The project is feasible within the context of the course for several reasons. First, it is based on technologies and knowledge acquired throughout the program, such as web application development, databases, and artificial intelligence algorithms. Second, it has a clearly defined scope and specific objectives that are manageable within the available timeframe and resources. Additionally, the support of the faculty and the availability of technical tools and resources at DuocUC facilitate its development.

**PART II**

1. **Objectives**

In this section, you should define the general and specific objectives of the APT Project. It is important to clarify that the objectives should be stated clearly and concisely without giving further explanations; they should be self-explanatory. It is suggested to draft them using an infinitive verb, as this forces you to specify concrete actions.

* **General Objective**: Develop a Learning Management System (LMS) with artificial intelligence integration to automate the generation of lesson plans and educational units, optimizing the academic management of educational institutions and improving the efficiency of teachers' work.
* **Specific Objectives**:
  + Reduce the time teachers spend planning courses by automating the creation of schedules and activities using artificial intelligence.
  + Improve the customization of educational plans by adapting automatically generated content to the needs and levels of students.
  + Minimize the administrative burden related to the organization and storage of data by providing a solution that centralizes course and user information management in a secure and scalable database.

1. **Methodology**

In the following section, you should describe the methodology specific to your discipline that you will use to solve the APT project described above, including the stages and working methods.

* **Description of the Methodology**: We are using the Scrum methodology for this project because it is an agile framework that facilitates the management of complex projects, especially when high adaptability and iterative deliveries are required.

1. **Evidence**

Below, describe what evidence will be evaluated in the progress report and in the final report of your APT project. This evidence must be agreed upon with your teacher. Evidence will be understood as the products developed during the project, whose purpose is to visualize or document how the work has been implemented.

| **Type of Evidence** | **Name of the Evidence** | **Description** | **Justification** |
| --- | --- | --- | --- |
| Technical Documentation | Requirements Specification Document (RSD) | A detailed document that includes the functional and non-functional requirements of the LMS, as well as the technical specifications of the system. | Provides a solid foundation for the project development, ensuring that all parties involved clearly understand the objectives and scope of the system. |
| User Interface Prototype (UI) | User Interface Design (Mockups) | Images of the main screens of the LMS, including features for managing classes, grades, attendance, and automated lesson planning generation. | Allows stakeholders to visualize the final user experience, validating the design and ensuring it is intuitive and easy to use. |
| Software Development | System Source Code | Repository of code with the LMS implementation, including both frontend and backend, and the integration of artificial intelligence for lesson planning generation. | Demonstrates the technical progress of the project, showing how the agreed functionalities have been developed, and allows for code reviews and evaluations by the teachers. |
| Testing and Validation | Usability Test Results | Report with the results of usability tests conducted with teachers and potential users, including feedback and suggestions for improvements. | Ensures that the system meets the requirements of end users, providing key information for adjustments and improvements in design and functionality. |
| Performance Evaluation | AI Evaluation Report | Document detailing the performance of the AI tool in generating lesson plans, including metrics on accuracy, efficiency, and user feedback. | Justifies the effectiveness of AI integration in the LMS and identifies areas for improvement to optimize its functionality and utility. |
| Security and Privacy | Data Security and Privacy Report | Document describing the measures implemented to protect user data, including privacy policies and data encryption techniques. | Ensures that the LMS complies with required security and privacy standards, protecting the information of teachers and students stored on the platform. |
| Project Presentation | Progress Presentation | Slides and oral presentation of the current state of the project, including progress, challenges encountered, and next steps. | Facilitates communication with teachers and other stakeholders about the project's development, allowing for constructive feedback and plan adjustments as needed. |
| User Manual | LMS User Guide | Document explaining how to use the different features of the LMS, aimed at teachers and educational administrators. | Ensures that end users understand how to use the system effectively, increasing the likelihood of adoption and user satisfaction. |