

# Guide 1. APT Project Definition Subject Capstone

## A. PART I

### 1. Personal Background

Below is a table in which you must complete the requested information.

Student's name	<b>Antonia Rocío Galaz León</b>
Rut	<b>20.992.650-4</b>
Career	<b>Computer Engineering</b>
Headquarters	<b>San Joaquín</b>

### 2. APT Project Description

In the description you must briefly state the name of your APT project and the competencies of the graduate profile that you are going to put into practice. If performance areas are defined in your career, also mention to which performance areas the project is linked.

Project name	<b>Management, Control and Monitoring System Praxis LTDA.</b>
Area(s) of performance	Web systems development and management. Database administration and consultation. Project management and analysis of performance indicators.
Competencies	Web system creation, database management and query, data visualization, analysis and reporting. Integration of modules for user administration, task assignment, and generation of graphs and reports. Implementation of monitoring and management systems based on indicators.

### 3. APT Project Rationale

Below are different fields that you must complete with the requested information. This section is intended to describe in detail your project and justify its relevance and pertinence.

Relevance of the APT project	<p>The APT Project aims to develop a comprehensive management and monitoring system that allows Praxis LTDA, a consulting firm of sociologists, to efficiently manage the preparation and implementation of Community Development Plans (PLADECO) for various municipalities in Chile. This system will address the need for a centralized tool that facilitates both Praxis LTDA consultants and municipal officials the management of tasks assigned to different users of a municipality, each with their respective positions and responsibilities. In addition, it will allow the effective administration of the Strategic Guidelines and their associated initiatives, with the ability to visualize and generate reports, which can be exported to Excel.</p> <p>The system will improve operational efficiency and decision making in the municipalities by providing a robust and centralized tool for monitoring PLADECOs. The relevance of this project extends to the municipalities that will receive a more efficient service and to the community that will benefit from the fulfillment of the objectives established in the PLADECOs, where officials will be able to better see the tasks and their completion.</p>
APT Project Description	<p>The objective of the project is to develop a web system for Praxis LTDA that allows the management and monitoring of a PLADECO. The system should include two different views of administrator and user. The administrator has the function of user registration, which will include a module for the assignment of strategic guidelines, initiatives and tasks to users with different roles within the municipalities and the sociological consultancy, as well as a "traffic light" system to indicate the status of tasks according to their deadline, and a control panel that will allow administrators to view graphs and analysis of compliance by strategic guideline. These graphs will show the percentage of completed tasks and can be exported to Excel for analysis and reporting. The user, for his part, will be able to change his credentials, as well as add tasks to his strategic guideline and initiative selected by the administrator and must fill in and advance with the assigned task, which must be verified through a document that proves this progress, if it is not sent and approved by an administrator, this task will not be considered as completed. The web page will consist of the system mentioned above as well as the Home, About Us, PLADECO and Contact screens.</p>
Relevance of the project to the profile of graduation	<p>The APT Project is directly related to several key competencies of the graduate profile of my career. In particular, the competence to <b>develop software solutions using techniques that allow systematizing the development and maintenance process</b> is essential to create the PLADECOs management and monitoring web system. In addition, the <b>administration of environments and application services and databases</b> is crucial to ensure the continuous operability and scalability of the system, ensuring that it can efficiently handle the tasks and data assigned in each project.</p>

	<p>Another relevant competence is the <b>management of IT projects</b>, which will allow structuring and coordinating the development of the system so that it meets the specific requirements of Praxis LTDA and the different municipalities with which they work. Likewise, the <b>transformation of large volumes of data to obtain information</b> is essential for the generation of graphs and reports that facilitate decision making and optimize business processes in the different municipalities.</p> <p>These competencies, combined, ensure that the project is not only technically feasible, but also aligned with the organizational and strategic needs of Praxis LTDA.</p>
Relationship to professional interests	<p>This project is deeply aligned with my professional interests, especially in the development of technological tools applied to project management and sociology. Moreover, it represents an invaluable opportunity to expand my knowledge in information systems, data analysis and project management, all key areas in computer science as well as in sociological consulting, a field in which I have been closely involved throughout my life and which I formally studied at the time. I am convinced that such systems are essential to improve efficiency in this area. Participating in this project would not only allow me to apply what I have learned, but also to acquire new skills and knowledge that will strengthen my professional development. I am excited for the opportunity to contribute to this effort and for all that I will be able to learn in the process.</p>
Feasibility of developing the APT Project	<p>The development of my APT Project is feasible within the framework of the 5-month semester, with approximately 6 hours per week dedicated to the subject. The materials required are minimal, limited to a computer, internet connection and basic peripherals, which is affordable. In addition, I will have the guidance provided by the client, Praxis LTDA, which will facilitate the development process. One factor that could hinder the project is the simultaneous completion of my internship, which takes up four days a week in full time. However, I plan to mitigate this challenge by requesting sporadic permission to leave an hour earlier from the internship center, which will allow me to dedicate the necessary time to the development of the project.</p>

## B. PART II

### 4. Objectives

In this section you should define general and specific objectives of the FFW Project. It is important to clarify that the objectives should be stated clearly, concisely and without further explanation, i.e., they should be understood by themselves. It is suggested that they be written using an infinitive verb, as this obliges you to specify concrete actions.

General Objective	To develop an integral web system for Praxis LTDA that allows the management, control and efficient follow-up of the Communal Development Plans (PLADECO) in different communes of Chile, facilitating the administration of strategic guidelines, the assignment of tasks and the visualization of performance indicators.
Specific objectives	<ol style="list-style-type: none"> <li>1. Implement a user management system that allows users to register, edit and delete users with differentiated roles (administrators and users) within the system, ensuring that each user has access only to the functionalities relevant to his or her role.</li> <li>2. Develop a task assignment module that allows administrators to assign strategic guidelines, initiatives and specific tasks to users, with clear deadlines, and allows users to visualize their pending tasks.</li> <li>3. Create a traffic light-based tracking system that classifies tasks according to their progress status: green (on schedule), yellow (close to deadline), and red (deadline reached or exceeded), allowing administrators and users to efficiently prioritize and manage pending work.</li> <li>4. Design an interactive control panel that allows managers to visualize the general and specific progress of the PLADECOs, showing compliance graphs by strategic guideline and offering the option of exporting these graphs and reports to Excel for analysis and documentation.</li> <li>5. Develop a task update and verification system that allows users to upload documents that provide evidence of progress on assigned tasks, and for managers to approve or reject those tasks based on the evidence submitted, thus ensuring the accuracy and validity of the progress reported.</li> <li>6. Integrate a reporting and visualization function to filter and visualize the status of tasks and strategic directions in detail, providing managers with tools to evaluate performance and make informed decisions based on concrete data.</li> </ol>

## 5. 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.

### Methodology Description

To address the development of the web system for Praxis LTDA, I will use the Scrum methodology, adapted to an individual environment where I will be the only responsible for the project. Scrum is an agile methodology that facilitates the organization and continuous progress in software development projects, allowing rapid adaptation to changes and incremental delivery of functionality.

#### Structure of the work:

- **Role and Responsibilities:** As the sole member of the team, I will assume all roles within the project, including Product Owner, Scrum Master, and development team. This implies that I will be in charge of planning, development, testing, and communication with the client.
- **Daily Scrum Meetings:** I will conduct daily Scrum meetings, where I will focus on organizing information, reviewing progress, and setting goals for the day. These meetings will be conducted using a dashboard in Notion, where I will manage tasks, weekly goals and project backlog.
- **Weekly Objectives:** I will work in weekly sprints, each with clear and specific objectives that will allow me to make incremental progress. The sprints will be reviewed at the end of each week to adjust the planned work as needed.
- **Client Meetings:** I will have between one and three weekly meetings with Praxis LTDA representatives, which will function as part of the sprint review process and planning for the next sprint. These meetings will allow to receive continuous feedback and adjust the development of the system according to the client's needs.

#### Stages of the Project:

- **Initial Planning:** Definition of the system requirements and creation of the initial backlog in Notion. Establishment of the sprint schedule.
- **Iterative Development:** Each sprint will focus on completing specific modules of the system, such as user management, the implementation of the "traffic light" system, and the creation of the control panel.
- **Testing and Review:** At the end of each sprint, functional tests will be performed and the work will be reviewed with Praxis LTDA to ensure that it meets the requirements.
- **Adjustments and Refinements:** Based on the feedback received, adjustments will be made to the system in subsequent sprints. This cycle will be repeated until the system is complete.
- **Final Delivery and Training:** Once the development is completed, we will proceed with the delivery of the system, including documentation and a training session for Praxis LTDA end users.

This methodology will allow me to effectively manage the development of the system, ensuring that each stage of the project is completed according to the established standards and requirements.

## 6. Evidence

Next, describe what evidence will be evaluated in the progress report and in the final report of your APT project. These evidences should be agreed with your teacher. Evidence will be understood as the products developed during the project and whose purpose is to make visible or document how the work has been implemented.

Type of evidence (advance or final)	Name of evidence	Description	Justification
Advance	System Requirements Document	Detailed document including functional and non-functional system requirements, sprint schedule and initial backlog.	Allows to evaluate the planning and understanding of the system requirements from the beginning of the project.
Advance	Database Design	Database diagram and configuration schema in MySQL Workbench, showing the structure of tables, relationships and constraints.	Ensures that the data structure is well designed and supports the system requirements.
Advance	Backend Code	Backend source code implemented in Node.js and Express.js, along with documentation explaining the server logic and usage examples.	Verifies the correct implementation of the server logic and its integration with the frontend and the database.
Advance	System Integration	Documentation and screenshots showing the integration between the frontend, backend and database, as well as the results of integration tests.	Ensures that all system components are properly integrated and work together.
Final	Complete System	Complete application running, including all implemented functionalities: user management, task and traffic light module, control panel, and report generation.	It shows the finished and functional system, ready for delivery and training.
Final	Technical and User Documentation	Complete system documentation including user guides, administration manuals, and technical notes.	Facilitates customer understanding and use of the system and provides support for system administration.
Final	Training Material	Training material prepared for end users, including presentations and user manuals.	Ensures that end users are trained to use the system effectively.
Final	Testing and Error Correction Report	Detailed report on the tests performed, bugs found and solutions applied during the development process.	It documents the quality of the system and the efforts made to solve problems and improve the final product.

## 7. Work Plan

In the following table you define the planning of your APT Project according to your requirements.

APT Project Work Plan						
Competence or units of competence	Name of Activities/Tasks	Description Activities/Tasks	Resources	Duration of the activity	Responsible	Remarks
Develop a software solution using techniques to systematize the development and maintenance process.	Project Planning	Define system requirements, sprint schedule, and initial backlog.	Notion, Planning tools	4 weeks	Antonia Galaz	Coordination with the customer to define requirements
Build data models to support the organization's requirements.	Database Design and Configuration	Create and configure the database in MySQL, define tables and relationships.	MySQL Workbench	2 weeks	Antonia Galaz	Data integrity and security verification
Program queries or routines to manipulate database information	Backend Development	Implement server logic using Node.js and Express.js.	Node.js, Express.js	2 weeks	Antonia Galaz	Implementing security and error handling in the backend
Construct programs and of routines varying complexity.	System Integration	Integrate the frontend with the backend and the database.	Continuous integration tools (GitHub Actions)	1 week	Antonia Galaz	Perform integration tests to ensure proper operation
Perform certification testing of both products and processes.	Development of User Management Functionalities	Create and test functions for user registration, editing and deletion.	Web development tools (HTML5, CSS3, JAVASCRIPT, BOOTSTRAP)	1 week	Antonia Galaz	Ensure that roles and permissions are working properly
Build the architectural model of a	Task and Traffic Light	Implement the module for assigning tasks and the traffic	Web development tools (HTML5, CSS3,	2 weeks	Antonia Galaz	Verify that the traffic light system correctly

systemic solution.	Module Development	light system for follow-up.	JAVASCRIPT, BOOTSTRAP)			reflects the status of the tasks.
Implement comprehensive systemic solutions to automate or optimize business processes.	Control Panel Development	Create the interactive control panel for displaying graphs and reports.	Data visualization tools (Excel, PowerBI)	1 week	Antonia Galaz	Ensuring that graphs and data are accurate and clear
Resolving systemic vulnerabilities and ensuring security standards	Testing and Error Correction	Perform functional and usability tests, correct errors found.	Testing and debugging tools	1 week	Antonia Galaz	Document errors and solutions, perform comprehensive tests
Develop the transformation of large volumes of data	Report Functionality Development	Create reporting and visualization systems for data analysis.	Analysis and reporting tools	1 week	Antonia Galaz	Implement filters and display options for detailed analysis
Manage IT projects	Delivery and Training	Deliver the finalized system and train Praxis LTDA end users.	Documentation, Presentation tools	3 weeks	Antonia Galaz	Prepare training material and final documentation

## 8. Gantt Chart



Find a Gantt Chart format that suits you and organize in it the activities planned in the previous point considering the period assigned for the development of your APT Project. You must maintain the temporality of the academic period in the development of the three phases of the Degree Portfolio Course.

Activity	Phase 1				Phase 2											Phase 3		
	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	S 9	S 10	S 11	S 12	S 13	S 14	S 15	S 16	S 17	S 18
Project Planning	X	X	X	X														
Database Design and Configuration					X	X												
Backend Development					X	X	X	X	X									
System Integration													X	X	X			
Development of User Management Functionalities					X	X	X	X	X									
Task and Traffic Light Module Development							X	X	X	X								
Control Panel Development						X	X	X	X	X								
Report Functionality Development												X	X	X				
Testing and Error Correction															X			

## Student Guide - APT Project Definition Phase 1

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