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**Guía1. Definición Proyecto APT**

**Asignatura Capstone**

1. **PARTE I**

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| **1. Personal Background** |
| Below is a table where you need to complete the requested information. |

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| Student Name | **Carlos Calderón-Mario Fuentes-Diego Escobar** |
| Rut | **20281220-1 / 18220375-0 / 21090258-9** |
| Degree Program | **Ingenieria en Informática** |
| Campus | **DuocUC San Bernardo** |

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| **2. Project APT Description** |
| In the description, briefly mention the name of your APT project and the exit profile competencies that you will put into practice. If your program has defined performance areas, also mention which performance areas the project is linked to. |

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| **Project Name** | ***Finder*** |
| Performance Area(s) | The performance areas covered by this IT project include both software development and IT project management. In the field of software development, a deep understanding of various technologies is required to effectively tackle the project. On the other hand, IT project management is essential to generate documentation and apply the necessary methodologies, thus ensuring a comprehensive solution to the problem of lost pets. The development of the "Finder" software focuses on achieving high performance in both areas with the aim of offering a quality solution that has a positive impact on society. |
| Competencies | * Analysis and Planning of IT Requirements * IT Project Management * Analysis and Development of Data Models * Software Quality * Software Programming * Software Architecture |

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| **3. Project APT Rationale** |
| Below are various fields that you must complete with the requested information. This section aims to describe your project in detail and justify its relevance and appropriateness. |

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| Relevance of the Project APT | **Relevance of the Project APT**  **Why did you choose this topic, and why is it relevant to your career field?**  I chose this topic because the loss of pets is a recurring problem in many communities, causing high levels of anxiety and stress in affected families. Additionally, the relevance of this project lies in its social impact as it provides an efficient and centralized solution to a common problem by applying advanced technologies such as artificial intelligence and geolocation.  For my career field, which focuses on software development and the application of innovative technologies, this project is particularly relevant. It combines the creation of web applications with the integration of AI and mapping APIs, skills that are crucial in the current IT field and that also have a direct impact on society.  **Where is the situation you will address located, and what are the main characteristics of that place?**  The situation is mainly located in Chile, a country where a large percentage of families have pets and consider them an essential part of the family. The characteristics of the place include high smartphone penetration and internet access, making it easier to adopt web applications like Finder to address community problems.  **Who is affected or impacted by the situation you will address?**  The situation affects all families with pets that face the possibility of losing them. It also impacts local communities that can play a crucial role in searching for and recovering lost pets, fostering collaboration and mutual support.  **What would be the value contribution of your Project APT to the labor and/or social context in which it would be situated?**  The value contribution of the Finder project is twofold. Socially, it offers an organized and efficient solution for recovering lost pets, reducing the anxiety of affected families. Professionally, it serves as a practical case of applying advanced technologies in a real context, demonstrating how skills in web development, AI, and geolocation can solve everyday problems of great relevance.  **Description of the Project APT**  **What is expected to be achieved with the project, and how do you plan to address the problem?**  The Finder project aims to achieve a comprehensive solution for lost pets by creating a centralized web platform. This platform will allow users to report and search for lost pets quickly and efficiently. The project will be approached using a strategy based on artificial intelligence for image analysis, integration with Google Maps for the geographical visualization of alerts, and a notification system to keep users informed in real-time.  **Relevance of the project to the exit profile**  **¿** **How does your Project APT relate to your career's exit profile?**  The Finder Project directly relates to the exit profile of the Informatics Engineering program as it involves the application of knowledge in software development, the integration of advanced technologies, and the resolution of complex problems through the use of technology. The necessary competencies, such as programming, project management, and data analysis, are essential to develop a robust and effective technological solution that has a real impact on society. |
| Project APT Description | Finder is an innovative web application designed to effectively address the problem of lost pets. The solution centralizes lost pet alerts, allowing users to quickly report a lost pet and publish details such as photos, descriptions, and the location where it was lost.  The application uses artificial intelligence to analyze and compare photos of pets uploaded by the community, helping to identify possible matches between lost and found pets. Additionally, Finder is integrated with Google Maps, allowing users to visualize in real-time the areas where pets have been seen or found, facilitating quick and efficient localization. |
| Relevance of the project to the exit profile | Justification of the relationship between the Project APT and the exit profile:  The Finder Project directly aligns with the exit profile of the Informatics Engineering program, particularly with competencies related to software development, the integration of emerging technologies, and problem-solving through technological solutions. The selected competencies, such as advanced programming, project management, and the use of artificial intelligence, are essential to address the problem of lost pets. These competencies not only allow for the creation of a viable technical solution but also ensure that the solution is effective and oriented toward meeting real needs in society. |
| Relationship with professional interests | Linkage of the Project APT with your professional interests:  Our professional interests are centered on software development and the implementation of technological solutions that have a positive impact on society. The Finder Project reflects these interests as it combines web application development with the integration of artificial intelligence and geolocation to solve a real problem that affects many people. Working on this project will allow me to apply and expand my technical skills in a practical context, contributing significantly to my professional development. |
| Feasibility of developing the Project APT | Justification of the feasibility of the Project APT:  The development of Finder is feasible within the semester, considering the hours assigned to the course and the project schedule. The required materials, such as access to development environments (IDE, web servers) and APIs (Google Maps), are available and accessible. External factors, such as community user support and the availability of data to train the AI model, facilitate development. Possible challenges include the efficient integration of AI and geolocation components, but they can be mitigated with an iterative approach and continuous testing during development. |

1. **PARTE II**

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| **4. Objectives** |
| In this section, you should define general and specific objectives for the Project APT. It is important to clarify that the objectives should be stated clearly and concisely, without giving too many explanations; in other words, they should be understood on their own. It is suggested to write them using an infinitive verb, as this forces you to specify concrete actions. |

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| General Objective | General Objective  Develop a web application that centralizes and optimizes the process of searching and reporting lost pets using artificial intelligence to analyze photos and geolocation to improve the efficiency of pet recovery. |
| Specific Objectives | Design and implement a real-time reporting and visualization system for lost pets using Google Maps.  Develop an artificial intelligence model capable of analyzing and comparing images of pets to identify possible matches between lost and found pets.  Integrate a notification system to keep users informed about sightings and relevant updates. |

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| **5. Methodology** |
| In the following section, you should describe the methodology specific to your discipline that you will use to solve the Project APT described earlier, including the stages and methods of work. |

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| Description of the Methodology |
| The development of the Finder Project will be approached using the agile SCRUM methodology, which allows for rapid iteration over functionalities and constant feedback. The project stages will include:  Requirements Gathering: Identify key user needs.  Design: Create wireframes and prototypes for the user interface and design the system architecture.  Development: Implement the basic functionalities, starting with the lost pet reporting system, followed by the integration of artificial intelligence and geolocation.  Testing: Perform unit and integration tests to ensure system functionality and reliability.  Deployment: Configure the necessary infrastructure for the application deployment in a production environment and conduct final tests with real users.  Each stage will include the definition of specific tasks, assignment of responsibilities, and the use of collaborative tools like Git and TRELLO to track progress. |

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| **6. Evidences** |
| Below, describe what evidences will be evaluated in the progress report and the final report of your Project APT. These evidences should 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. |

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| **Type of Evidence (Progress or Final)** | **Evidence Name** | **Description** | **Justification** |
| **Progress** | **Finder Report** | *This report details the problem, solution, technologies used, and those that are part of the project.* |  |
| **Progress** | **Presentation** | *In this presentation, the idea of Finder, the project concept, the problem, and our solution are explained.* |  |
| **Progress** | **Project Scope** | *A document was created that contains the project's scope, what we will do, and what is not considered within the first version of Finder.* |  |
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| **7. Work Plan** |
| In the following table, define the planning of your Project APT according to what is required. |

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| **Project APT Work Plan** | | | | | | |
| **Competency or Unit of Competencies** | **Activity/Task Name** | **Activity/Task Description** | **Resources** | **Duration of the Activity** | **Responsible** | **Observations** |
| *Analysis and Planning of IT Requirements* | *Requirements Gathering* | *Identification of key user needs and definition of functional and non-functional requirements.* | |  | | --- | | *Analysis tools* |  |  | | --- | |  | | |  | | --- | | *1 week* |  |  | | --- | |  | | |  | | --- | | *Full team* |  |  | | --- | |  | | *All members must participate to ensure correct needs identification.* |
| *IT Project Management* | *Project Planning* | *Establishment of the schedule and allocation of resources and responsibilities.* | *Project management tool (Trello)* | *1 week* | *Diego Escobar* | *Weekly review of the plan to adjust according to project progress.* |
| *Analysis and Development of Data Models* | *Database Design* | *Creation of the data model to support the application, including structure and relationships between entities.* | |  | | --- | | *SQL Server* |  |  | | --- | |  | | *1 week* | |  | | --- | | *Full team* |  |  | | --- | |  | | *Ensure the database is scalable and efficient.* |
| *Software Programming* | *Backend Development* | *Implementation of the business logic and web services that will support the application..* | *Python programming language* | |  | | --- | | *3 weeks* |  |  | | --- | |  | | *Mario Fuentes* | *It is recommended to perform unit tests in parallel with development to ensure quality.* |
| *Software Architecture* | *System Architecture Design* | *Creation of the high-level application structure, defining key components and their interactions..* | *UML Diagrams, Design Tools* | |  | | --- | | *1 week* |  |  | | --- | |  | | *Diego Escobar* | *Validate the architecture with all team members before starting development.* |
| *Application Testing* | *Application Testing* | *Perform unit, integration, and acceptance tests to ensure proper system functionality.* | *Testing tools (Selenium, JUnit)* | |  | | --- | | *2 weeks* |  |  | | --- | |  | | *Diego Escobar* | *Document the test results and make adjustments based on the findings.* |
| *IT Requirements Analysis, IT Project Management* | *Final Project Documentation* | *Preparation of the complete project documentation, including user and technical manuals.* | *Document editing tools* | |  | | --- | | *1 week* |  |  | | --- | |  | | *Mario Fuentes* | *Ensure the documentation aligns with discipline standards and is understandable for both users and technicians.* |
| *Data Model Analysis and Development, Software Architecture, Software Quality* | *Implementation and Deployment* | *Deployment of the application in a production environment using AWS S3 and configuration of the execution environment.* | *S3* | |  | | --- | | *1 week* |  |  | | --- | |  | | |  | | --- | | *Full team* |  |  | | --- | |  | | *Perform post-deployment functionality tests to ensure the application is working correctly in the production environment.* |
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| **8. Gantt Chart** |
| Find a Gantt chart format that suits you and organize the activities planned in the previous section, considering the assigned period for the development of your Project APT. You must maintain the academic period timeline during the three phases contemplated in the Capstone Portfolio course. |

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| **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** |
| Initial Research |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Project Scope Definition |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| |  | | --- | | Requirements Definition |  |  | | --- | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Application Architecture Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Database Architecture Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Backend Development |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Frontend Development |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Integration with Google Maps |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Application Testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Integration Testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Acceptance Testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Implementation and Deployment in the cloud with S3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Final Documentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
| Project Presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |