

| **1. Final Report Project APT** |
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| The objective of this report is to describe the most relevant aspects of your Project APT. It is important to provide justification for the decisions you had to make throughout the process.  Below, you will find different sections that you need to complete with the requested information, which summarize your Project APT and its main results. |

| Name of the project | *Tinajas Rustic* |
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| Performance Areas | *Software development based on the creation of web and mobile systems, focused on managing reservations and automated transactions.*  *Application of user interface (UI) design principles and user experience (UX) to facilitate the platform's usability for both clients and company staff.*  *Integration of online payment services and security mechanisms (such as multi-factor authentication) to protect sensitive data.* |
| Competencies | *Design and Development of IT Solutions - Application of Standards and Technologies - Management of Interdisciplinary Projects - Integration of Professional Ethics and Lifelong Learning - Effective Communication - Risk Management.* |

| **Contenidos del informe final** | |
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| 1. Relevance of the project APT | * *What problem did your project aim to solve, and its relevance to the professional context?*   *This project is relevant to the field of computer engineering as it addresses the need to digitize and automate traditional business processes, such as managing reservations and payments. Digital transformation is crucial across many sectors, and the implementation of efficient technological solutions directly impacts the competitiveness and sustainability of small and medium-sized enterprises (SMEs).*   * *Where is the situation you are addressing located? (e.g., Country, region, municipality, or institution) What are the main characteristics of this place?*   *The project is being developed in Peñaflor, Chile, a locality with a growing interest in recreational and relaxation services, especially in natural environments. Tinajas Rustic is a family business that offers services like pools, saunas, and hot tubs, and aims to improve its clients' experience through technology. This is crucial in the digital age for attracting more clients and increasing reservations.*   * *Who does the situation you addressed affect or impact? (e.g., Age group, users of a service, etc.)*   *This project impacts both the clients of Tinajas Rustic and the company's staff. The clients, who are mainly adults from different educational backgrounds, will be able to make reservations more easily and from any device. Additionally, the company's staff will benefit from improved management of reservations and payments, optimizing operational handling and reducing the risk of errors.*   * *What was the value contribution (real or simulated) of your Project APT to the professional and/or social context it was situated in?*   *The value contribution lies in optimizing the company's operational processes through the implementation of a system that reduces manual work, minimizes errors, and enhances the user experience. In a social context, this project contributes to the digitalization of local businesses, promoting efficiency and the use of modern technologies in the region, which can serve as a model for other companies in similar situations.* |
| 2. Objectives | * *General and Specific Objectives*   *What is the general objective of your Project APT? What are the specific objectives of your Project APT?*  General Objective  Streamline the comprehensive management of Tinajas Rustic by implementing a technological system that optimizes operational, administrative, and logistical processes. The purpose is to reduce response times, optimize resource use, and enhance the customer experience, thereby increasing the business's profitability and competitiveness in the market.  Specific Objectives   * Increase customer retention by 15% by the end of the year by implementing a loyalty program and post-sale follow-up strategies to improve customer loyalty and satisfaction. * Automate the management of reservations and payments by 100%, eliminating manual handling and minimizing operational errors to improve service efficiency. * Reduce the average response time to inquiries and reservations by 25% by using automated notification tools and predefined responses to speed up communication with customers. * Implement a reporting and data analysis system to monitor business performance, enabling administrative staff to make real-time, data-driven decisions. |
| 3. Methodology | *Methodology Used and Its Relevance for Achieving Objectives*   * *What methodology did you use to develop your Project APT? Describe the phases and procedures you carried out to execute your project.*   *For the development of the project, we adopted the agile methodology Scrum, which allowed us to manage the work efficiently and promote continuous collaboration within the development team. Scrum is particularly suitable for dynamic projects, where requirements can evolve, and objectives require incremental delivery.*  *The methodology divides the work into short iterations called sprints, which enabled us to adapt the project to changes and new needs that arose during the development process. Each sprint has a specific duration, at the end of which a functional increment of the product is delivered, ensuring that we are always progressing toward the achievement of the stated objectives.*   * *Phases and Procedures Followed* * *Sprint Planning: In this phase, the tasks to be addressed in each sprint were defined, prioritizing the most important elements according to the client's needs.* * *Sprint Execution: During this stage, the team worked on the assigned tasks, holding daily follow-up meetings (daily stand-ups) to discuss progress, possible blockages, and solutions.* * *Sprint Review: At the end of each sprint, a review of the completed work was conducted, presenting the increments to the client and collecting feedback to adjust the following iterations.* * *Sprint Retrospective: An evaluation of the team's performance and processes was carried out, identifying areas for improvement for future sprints.* * *Justify, why was this methodology relevant for achieving the stated objectives?*   *Scrum was relevant for achieving the project's objectives because it allowed for a flexible and adaptive approach, crucial for a constantly changing environment like software development. Additionally, by dividing the work into small increments, we were able to deliver key functionalities continuously, ensuring sustained and visible progress for the client, which was essential for guaranteeing* |
| 4. Development | *Description of the Stages or Activities of the Project APT.*   * *What were the stages or activities you developed in your Project APT?*     *Difficulties and Facilitators in the Development of the Project APT*   * *What elements/aspects facilitated or helped you in the development of your Project APT?* * Technological Support: The choice of technologies such as Firebase, Angular, and the agile Scrum methodology enabled more efficient and organized development, allowing for quick adaptation to changes and reducing implementation times. * Team Collaboration: Teamwork and constant meetings facilitated the quick resolution of problems and progress in each sprint. Continuous feedback from the client was also key to adjusting functionalities to their needs. * Available Resources: Having clear documentation and accessible tools, such as external libraries and payment APIs, contributed to the project's agility and the smooth integration of services. * *What difficulties did you face in the development of your Project APT?* * Integration Issues: In the initial phase, there were difficulties integrating the payment system with Transbank, which delayed development until an effective solution for secure transactions in the testing environment was found. * Responsiveness Challenges: Designing the platform to be compatible with various devices posed an additional challenge regarding responsiveness and adaptation of the system to different screen sizes, particularly in mobile views. * Database Management: During development, it was challenging to define a database structure that allowed for quick and efficient access for reservations and user management without affecting the overall performance of the application.   *Adjustment Made.*   * *How did you address the difficulties to meet the objectives? Did you have to make any adjustments? What adjustments?* * Solution to Integration with Transbank: To overcome the initial issues with the payment system, several integration tests were conducted. Ultimately, the endpoints and communication methods between the backend and the payment service were adjusted to ensure secure transactions. * Improvement in Responsiveness: The Flatpickr framework was implemented to optimize the display of the reservation calendar, and SCSS adjustments were made to enhance the adaptability of views on mobile devices, ensuring a better user experience. * Optimization of the Database: To improve data access and management, the structure of collections in Firebase was reorganized, achieving more efficient access and better organization of reservation and user data. |
| 5. Evidences | *Attach Evidence That Demonstrates the Development of the APT Project and Its Final Results.*   * *What evidence can serve to help others visualize and understand the various stages of your APT Project and the final result?* |
| 6. Interests and professional projections | *Reflection on the Contribution of the APT Project to the Development of Professional Interests*   * *How did your APT Project help you gain a better understanding of your professional interests? After completing your APT Project, do your professional interests remain the same as those you outlined at the beginning of the course?*   As a team, the APT Project allowed us to clearly identify our individual strengths and how each of us could uniquely contribute to the overall objectives. In this project, we learned to apply our knowledge in software development, database management, and process automation to a real-world problem, which gave us a greater understanding of our professional areas of interest.  This project helped us confirm that developing technological solutions is an area we want to continue specializing in. The experience of implementing an online reservation system, which optimizes both customer experience and the internal management of the business, reinforced our interest in technologies like Angular, Firebase, and integrated payment systems. Additionally, it showed us the impact that digital solutions can have on the efficiency and competitiveness of businesses.  By the end of the APT Project, our team continues to have a strong interest in the areas of process automation. This project was an excellent opportunity to better understand how current technologies can transform traditional business models, and it motivates us to continue delving into these areas to become more well-rounded professionals.  *Labor Projections Based on APT Project*   * *What professional interests would you like to explore or delve deeper into?* * *How do you see yourself professionally after completing your APT Project?*   Looking to the future, as a team, we would like to continue exploring and developing our skills in IT integrations, process automation, and data science. We are passionate about these areas because we see the potential to optimize and transform businesses through data analysis and the implementation of efficient technological solutions.  We envision ourselves working in roles that involve creating innovative solutions that help companies automate their processes, improve decision-making through the use of data, and adapt to the needs of the modern market. In the long term, we see ourselves working on projects that combine data science, automation, and cloud management to solve complex problems and add value to organizations.  As a team, we have gained greater confidence in our abilities and a clearer vision of how we want to contribute to the development of technology in the workplace, helping businesses operate more efficiently and scalably. |