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1. **PARTE I**

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| **1. Antecedentes Personales** |
| A continuación, se presenta una tabla en la que debes completar la información solicitada. |

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| Nombre estudiante | **Isaac Rubilar - Williams Zapata - Javier Vergara** |
| Rut | **19785812-5 - 18358225-9 - 20921479-2** |
| Carrera | **Ingeniería Informática** |
| Sede | **San Bernardo** |

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| **2. Descripción Proyecto APT** |
| En la descripción debes señalar brevemente el nombre de tu proyecto APT y las competencias del perfil de egreso que vas a poner en práctica. Si en tu carrera están definidas las áreas de desempeño, también menciona a qué áreas de desempeño está vinculado el proyecto. |

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| Nombre del proyecto | *Psywell* |
| Área (s) de desempeño(s) | **Software Engineering, Digital Health** |
| Competencias | **Innovative Software Development: Apply advanced programming techniques to create a robust and scalable mobile application that integrates diverse data sources, including IoT devices, for continuous mental health monitoring.**  **Emerging Technology Integration: Use information technologies to develop solutions that combine physiological and emotional data, facilitating faster and more personalized intervention in patient wellness.**  **Data Security and Protection: Implement high quality security measures to protect the privacy and confidentiality of patient information, complying with data protection regulations.**  **Data Analysis and Visualization: Develop skills in managing and analyzing large volumes of data to provide useful insights to both patients and psychologists, improving therapeutic decision making.**  **Technology Project Management: Lead and manage the project using agile methodologies such as Scrum, ensuring that project deadlines and objectives are met while fostering collaboration and adapting to change.** |

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| **3. Fundamentación Proyecto APT** |
| A continuación, se presentan distintos campos que debes completar con la información solicitada. Esta sección busca que describas en detalle tu proyecto y justifiques su relevancia y pertinencia. |

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| Relevance of the APT Project | **Problem Statement** The APT Project, through the PsyWell application, aims to solve the issue of the lack of continuous and effective monitoring in mental health management. Currently, many individuals facing mental health issues, such as anxiety and depression, do not have access to consistent monitoring of their emotional well-being, which can lead to delayed intervention and less effective treatment. Additionally, psychologists often lack tools to objectively evaluate the progress of their patients between sessions, limiting their ability to personalize interventions in a timely manner. **Relevance to the Career Field** This topic is highly relevant to the field of computer science as it focuses on the development of innovative technological solutions for mental health, an area of growing importance globally. The integration of technologies such as IoT, data analysis, and mobile applications is essential to provide solutions that are accessible, effective, and secure. By addressing mental health issues through technology, the project not only contributes to individual well-being but also opens up new opportunities in the digital health market, a field with high growth potential and demand. **Context of the Problem** The issue that PsyWell seeks to address has a global reach, but it can be initially implemented in a local context, such as in mental health centers, hospitals, and clinics in a specific city or region. For example, in a large city with a high population density and a growing number of anxiety and depression cases, such as Santiago in Chile, there is an urgent need for effective solutions for mental health monitoring and treatment. These cities often have limited access to quality mental health services, highlighting the need for tools that can extend the capacity for care beyond in-person sessions. **Impact on Specific Groups** PsyWell is designed to impact several key groups:   * **Patients with Mental Health Issues**: It allows users to monitor their mood and receive early alerts for potential crisis episodes, empowering them to actively manage their emotional well-being. * **Psychologists and Health Professionals**: It provides tools for more precise and continuous monitoring of patients' emotional states, improving therapeutic decision-making. * **Family Members and Caregivers**: It facilitates better communication and understanding of the patients' conditions, which can enhance the emotional and practical support they provide.  **Value Contribution to the Professional and Social Context** The APT Project provides significant value in both professional and social contexts. In the professional realm, it represents an opportunity to innovate in software development, integrating IoT solutions and ensuring the protection of sensitive data. This not only enhances the competencies of IT professionals but also contributes to the creation of products that can be commercialized and scaled, generating new business opportunities.  In the social realm, PsyWell contributes to improving mental well-being, a fundamental aspect of quality of life. By providing an accessible and effective tool for mental health monitoring, it can help reduce the stigma associated with emotional issues and promote a proactive approach to mental health management. This can have a positive long-term impact, reducing the burden on healthcare systems and improving the lives of people in the community. |
| Description of the APT Project | **Project Objective** The primary objective of the APT Project is to develop a technological application, named PsyWell, that facilitates continuous and personalized monitoring of users' mental health, providing tools for both patients and psychologists. PsyWell is expected to improve the effectiveness of mental health treatments by empowering users to actively manage their emotional well-being and providing healthcare professionals with valuable data to adjust therapeutic interventions in a timely manner. **General Description of the Project** PsyWell is an application designed for mobile and desktop devices that allows users to record their mood and other significant emotional events on a daily basis. The application integrates with IoT devices, such as heart rate monitoring watches, to collect real-time physiological data, complementing users' subjective logs. This combination of data provides a more comprehensive and accurate view of patients' mental states. **How the Problem Will Be Addressed** To address the lack of continuous monitoring in mental health, the APT Project will implement the following strategies:   1. **Daily and Continuous Monitoring**: PsyWell will allow users to regularly record their moods and emotional experiences. This continuous monitoring is essential to identify patterns and changes in users' emotional states, facilitating early detection of potential issues. 2. **Integration of IoT Technologies**: The application will connect with heart rate monitoring devices to collect real-time physiological data, such as heart rate and sleep patterns. This data provides an additional layer of objective information that can help identify episodes of anxiety or stress, providing an alert signal for patients and healthcare professionals. 3. **Data Analysis and Visualization**: PsyWell will include analytical tools that allow psychologists to visualize trends and patterns in their patients' data. Through graphs and reports, professionals can make informed decisions about treatments, adjusting them based on the specific needs of each patient. 4. **Personalized Notifications and Alerts**: The application will send reminders to users to log their mood daily. Additionally, it will establish automatic alerts in case unusual physiological data or significant changes in emotional records are detected, suggesting that the user take self-care measures or contact their support network. 5. **Data Security and Privacy**: Given the sensitive nature of the information handled, PsyWell will implement high standards of security and privacy to protect user data. This includes data encryption, controlled access, and compliance with data protection regulations |
| Relevance of the Project to the Graduate Profile | **Alignment of the APT Project with the Graduate Profile** The APT Project closely aligns with the graduate profile of the Computer Engineering program, which emphasizes the ability to develop innovative and efficient technological solutions for complex problems. This project combines the use of advanced technologies such as IoT, mobile and desktop application development, and data security, which are fundamental in the field of modern computing. Through PsyWell, students not only apply advanced technical knowledge but also develop skills in project management, data analysis, and effective communication, all of which are essential competencies for a computer engineer. **Selected Competencies and Their Relation to the Problem**  1. **Software Development Solutions**: One of the key competencies of the graduate profile is the ability to develop software solutions using techniques that allow for the systematic development and maintenance process. This competency is essential for the APT Project, as it involves creating a robust and scalable application that can integrate with multiple devices and handle large volumes of data. The development of PsyWell requires a methodical and structured approach to ensure that the solution is reliable, efficient, and easy to maintain. 2. **Integration of Information Technologies**: The competency of implementing comprehensive systemic solutions to automate and optimize business processes is highly relevant to PsyWell. The integration of IoT technologies for real-time monitoring of physiological data and their combination with users' subjective records requires a deep understanding of how to integrate different systems and technologies to create a cohesive and functional solution. 3. **Information Security and Privacy**: Addressing systemic vulnerabilities to ensure that the software meets industry-required security standards is another key competency. Since PsyWell handles sensitive mental health data, it is crucial to implement robust security measures to protect user privacy. This competency is fundamental to ensuring that the application meets data protection standards and builds user trust. 4. **Data Analysis and Management**: The competency of developing the transformation of large volumes of data to obtain information and knowledge is vital for the success of PsyWell. The application must be capable of analyzing physiological and emotional data to provide valuable insights to psychologists. This involves not only data collection but also its analysis and presentation in a way that is useful and understandable for healthcare professionals. 5. **Project Management**: The ability to manage IT projects, offering alternatives for decision-making, is essential in the development of PsyWell. This project requires effective management of time, resources, and the team to ensure that all stages of the project are completed on time and meet the required quality standards. Using agile methodologies such as Scrum allows the team to adapt to changes and ensure continuous delivery of value. |
| Relation to Professional Interests | **Professional Interests of the Team** As a team, we share a strong interest in software development, particularly in areas related to the integration of emerging technologies such as IoT, data analysis, and the creation of solutions that enhance people's quality of life. Each team member is motivated by the desire to use technology to address real-world problems and create a positive impact on society. Additionally, we have a common interest in strengthening our skills in project management, information security, and delivering innovative and secure software solutions. **Reflection of Professional Interests in the APT Project** The APT Project aligns perfectly with our professional interests for several reasons:   1. **Software Development and Front-End**: PsyWell requires a comprehensive approach to software development, from user interface design to backend infrastructure. This project allows us to apply and enhance our skills in front-end development and interface design, ensuring that the application is intuitive and meets the needs of end-users, who are both patients and psychologists. 2. **Integration of IoT Technologies**: One of the most challenging and exciting aspects of PsyWell is its integration with IoT devices for real-time monitoring of physiological data. This project provides us with the opportunity to work with cutting-edge technologies, explore new methods of data collection and analysis, and learn how to effectively integrate these technologies to provide innovative health solutions. 3. **Social Impact and Improvement of People's Lives**: Everyone on the team is motivated by the potential to develop a solution that has a real impact on people's mental health. PsyWell is not only an opportunity to apply our technical skills but also to contribute to a significant problem in today's society. We firmly believe in the potential of technology to improve people's lives, and this project reflects that commitment. 4. **Information Security and Privacy**: Since we will be handling sensitive data, we are keen on ensuring that the highest security standards are applied. This project allows us to apply our knowledge in cybersecurity and data protection, ensuring that users' personal information is safeguarded and that privacy regulations are met. 5. **Project Management and Teamwork**: PsyWell is an opportunity to apply agile methodologies and improve our project management skills. Working together on a project of this magnitude enables us to develop communication, coordination, and decision-making skills, all of which are essential for success in any professional environment. |
| Feasibility of the APT Project Development | **Justification of Feasibility** The development of the APT Project is feasible within the framework of the course for several fundamental reasons. The following outlines the key factors that justify the feasibility of carrying out this project, considering the time, material resources, and external factors that may influence its development.   1. **Duration of the Semester and Allocated Hours**: The project is designed to be completed over the course of an academic semester, providing us with approximately 15 weeks for its development. Each team member is assigned weekly hours dedicated to the course, allowing for a sustained and structured focus on each phase of the project, from initial planning to implementation and final testing. 2. **Required Materials**: The development of PsyWell primarily requires development software (such as integrated development environments, project management tools, and databases), IoT devices for testing (such as heart rate monitoring watches), and access to cloud resources for data storage and processing. All these materials are accessible to the team, as the university provides access to well-equipped computer labs and software resources. Additionally, many of the necessary IoT devices are available through institutional agreements or can be acquired with a reasonable budget. 3. **External Factors Facilitating Development**:    * **Academic and Technical Support**: We have the support of professors and experts in the areas of software development, IoT, and information security. This academic support facilitates access to specialized knowledge and guidance in case of technical challenges.    * **Collaboration and Teamwork**: The team has a collaborative work dynamic and effective communication, which facilitates task coordination and management. The adoption of agile methodologies like Scrum also facilitates incremental development and quick adaptation to changes or unforeseen issues.    * **Access to Digital Resources**: The university provides access to digital libraries, research databases, and development software, which is essential for obtaining updated information and necessary tools for the project. 4. **External Factors Hindering Development and Potential Solutions**:    * **Time Constraints**: The academic semester has a limited duration, which may restrict the time available for the application's testing and adjustment phases. To mitigate this risk, a detailed schedule has been developed that includes time buffers for possible delays, and the delivery of critical functionalities has been prioritized in the early stages of development.    * **Availability of IoT Devices**: Ensuring sufficient IoT devices for testing can be a challenge. To address this, the team plans to use data simulators in the early stages and secure a limited number of devices for physical testing, optimizing their use among team members.    * **Data Security and Privacy**: Since the project handles sensitive health data, implementing robust security measures is crucial. To address this challenge, the team is committed to following best practices in cybersecurity and consulting with data protection experts to ensure compliance with relevant regulations. |

1. **PARTE II**

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| **4. Objetivos** |
| En este apartado debes definir objetivos generales y específicos del Proyecto APT. Es importante aclarar que los objetivos se deben plantear en forma clara, concisa y sin dar mayores explicaciones, es decir, deben entenderse por sí solos. Se sugiere redactarlos utilizando un verbo en infinitivo, pues ello obliga a precisar acciones concretas. |

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| General Objective | Develop a mobile application and a desktop version that facilitate the work of psychologists through continuous monitoring of patients' mental health, integrating IoT technologies to provide accurate and up-to-date data that enhance the effectiveness of treatments. |
| Specific Objectives | Create an intuitive and accessible platform that allows patients to easily and continuously record their emotional state and relevant data.  Integrate IoT devices for real-time physiological data collection, complementing patients' subjective logs and providing a more comprehensive view of mental well-being.  Implement robust security measures to protect sensitive patient information and ensure compliance with privacy and confidentiality standards.  Develop an interface for psychologists that allows for the visualization and analysis of collected data, facilitating decision-making and the personalization of therapeutic interventions.  Conduct functionality and usability testing to ensure that the platform operates efficiently and meets the expectations of users and mental health professionals.  Establish a feedback system to gather opinions from users and psychologists, enabling continuous improvements to the application and adjusting its features to better meet the needs of the clinical field. |

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| **5. Metodología** |
| En el siguiente apartado deberás describir la metodología, propia de tu disciplina, que utilizarás para resolver el proyecto APT antes descrito, incluyendo las etapas y métodos de trabajo. |

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| Descripción de la Metodología |
| The identified problem is the lack of an effective tool for the continuous and accurate monitoring of patients' mental health, which would facilitate the work of psychologists. To address this issue, we will develop a mobile application and a desktop version that allow psychologists to obtain up-to-date and relevant data about their patients. We will use the Scrum methodology to ensure an agile and iterative approach, enabling constant adaptation based on user feedback and emerging needs.  **Sprint Planning:**   * Define specific tasks and objectives for the upcoming sprint. * Prioritize product backlog features and assign tasks to the team.   **Sprint Execution:**   * Work on the defined tasks, developing and testing functionalities. * Conduct daily stand-up meetings to update progress and resolve impediments.   **Sprint Review:**   * Present the product increment developed during the sprint to stakeholders. * Gather feedback and evaluate the achievement of sprint objectives. * Adjust the product backlog based on feedback and necessary changes.   **Sprint Retrospective:**   * Reflect on the sprint process and identify areas for improvement. * Implement changes to optimize the process in the next sprint. |

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| **6. Evidencias** |
| A continuación, describe qué evidencias serán evaluadas en el informe de avance y en el informe final de tu proyecto APT. Estas evidencias deben ser acordadas con tu docente. Se entenderá por evidencia los productos que se desarrollen durante el proyecto y cuyo propósito sea visibilizar o documentar cómo se ha implementado el trabajo. |

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| **Tipo de evidencia**  **(avance o final)** | **Nombre de la evidencia** | **Descripción** | **Justificación** |
|  |  | *Describe las evidencias acordadas con tu docente, siempre teniendo en mente que estas deben dar cuenta del desarrollo de tu Proyecto APT.* |  |
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| **7. Plan de Trabajo** |
| En la siguiente tabla define la planificación de tu Proyecto APT de acuerdo a lo requerido. |

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| **Plan de Trabajo Proyecto APT** | | | | | | |
| Competencia o unidades de competencias | Nombre de Actividades/Tareas | Descripción Actividades/Tareas | Recursos | Duración de la actividad | Responsable[[1]](#footnote-1) | Observaciones |
| *Nombra las competencias o unidades de competencias que se relacionan con las diferentes actividades requeridas para el desarrollo de la actividad.* | *Señale el nombre de la tarea o actividad.* | *Describe la tarea o actividad.* | *Nombra los recursos necesarios para llevar a cabo las actividades definidas.* | *Escribe la duración de actividades o tarea.* | *Escribe el nombre del integrante del equipo responsable de la actividad y tareas asociadas.* | *Escribe las dificultades o facilitadores que se podrían presentar durante la ejecución de cada una de las actividades propuestas para llevar a cabo el plan de trabajo.* |
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| **8. Carta Gantt** |
| Busca un formato de Carta Gantt que te acomode y organiza en este las actividades planificadas en el punto anterior considerando el periodo asignado para el desarrollo de tu Proyecto APT. Debes mantener la temporalidad del periodo académico en el desarrollo de las tres fases que contempla la Asignatura de Portafolio de Título. |

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| **Actividad** | **Fase 1** | | | | **Fase 2** | | | | | | | | | | | | **Fase 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** |
| *Describe actividades del punto anterior* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |
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1. En caso de que el Proyecto APT sea grupal, en esta columna deben indicar el nombre de los responsables de cada tarea o actividad. Esto posteriormente permitirá diferenciar la evaluación por cada integrante. [↑](#footnote-ref-1)