Recapp: A Web-Based Client's Healthcare Record and Appointment Management System For Bale Angeleño

Trixie May S. Sison, Jay-ar G. Anunciacion, Stephanie L. Lopez, Joshua G. Ocampo
College of Computer Studies
Angeles University Foundation
Angeles City, Philippines
sison.trixiemay@auf.edu.ph, anunciacion.jay-ar@auf.edu.ph, lopez.stephanie@auf.edu.ph, ocampo.joshuag@auf.edu.ph

Dr. Daisy S. Yap
Faculty of College of Computer Studies
Angeles University Foundation
Angeles City, Philippines
daisy.yap@auf.edu.ph

Abstract

Recapp is a web-based client's healthcare record and appointment management system developed by the researchers to improve the record keeping and appointment setting of Angeles City Primary HIV Care Clinic (Bale Angeleño). The system aims to serve an improved web-based client's healthcare record and appointment management system for efficiency and provision of quality healthcare service. Design Thinking was the methodology used in developing the system. Moreover, PHP language with Laravel Framework, phpMyAdmin for database management, HTML5, CSS3 with Tailwind Framework, JavaScript, ReactJS, and Node.js. were used to develop the system. For security, the SSL Certification, Data Encryption, and File Encryption were embedded to the system. The Bale Angeleño's health staffs were able to work efficiently as the record keeping and appointment setting was improved sufficiently fulfilling the health staff's requirements.

Keywords
Record keeping, Appointment setting, Healthcare service, HIV.

1. Introduction
In modern technology today, the efficiency of clients' digital record has become effective. This transition has resulted in a greater functionality of medical services as well as the opportunity for new methods to enhance research quality improvement programs and client service. The manual process of collecting data affects the services in loss of productivity.

To find ways in securing the confidentiality and upgrading the sorting of HIV clients' healthcare records in more convenient way in Angeles City Primary HIV Care Clinic (Bale Angeleño), an electronic data storage management system is necessary and should be developed. This will be significant to both health staff and client in the hub as it will allow them to remotely access the health information of the client whether before the client will go to the health facility or whenever the health staff needs to read the health information of the client. The facility can also strengthen the security and accessibility of data. Furthermore, the appointment setting will include in the proposed system to address the problem of having disorganized set up as well as the report which indicates the total number of counts each case that are catered and their results. The health staff will then be able to track and monitor the effectiveness of their response regarding the cases of HIV, Syphilis, Hepatitis B, and Hepatitis C. This modernization of technology has increased the development and enhanced the connection between medical practitioner and patient, and enabled medical practitioner to integrate in promoting practices and knowledge for the continuous improvement of healthcare delivery and wellbeing (Omolara et al. 2020).

The continuous growth rate of technology usage in the medical field involves a reassessment of client safety and data security concerns to ensure that guidelines, application, and processes for managing health data account for the flaws in these system applications. Improvements in digital records could result in large liabilities to the country's medical care system.

1.1 Objectives

The study aimed to develop a web-based healthcare record and appointment management system for clients in Bale Angeleño that will help to strengthen the accessibility, efficiency, and security of client's healthcare record. The research aims to achieve the following specific objectives:

1. To develop a module that will add client's information in the system that will ensure correct client's data.
2. To develop a module that will make the clients' test results per category and medicine reports readily available for Bale Angeleño's health staffs.
3. To develop a module that includes appointment setting feature for the clients of Bale Angeleño.
4. To develop a web application that is more secure.

2. Literature Review

Electronic Health Record System

Health institutions have been continuously using technology-based for storing data of patient's healthcare medical records. One of the crucial problems that the electronic health record framework faces is security concerns (Omolara et al. 2020). Majority of the health institution has an impact on storing the records of their patients. It is that even utilizing technology-based applications including simple spreadsheets and other text editing software and traditional practices such as record log book or paper, take into consideration the privacy and confidentiality of the data. The personal health information of patients, serves as the majority content of Electronic Health Record (de Carvalho Junior 2020). These data, including medical records and personal information kept should only be accessible for health professionals and patients. Healthcare medical records must be manipulated and used for necessary and reading of medical practitioner. To attain this, systematized storage of data is much needed to stabilize the security, accuracy, and accessibility of data. Potential benefit of electronic health record system is the effective and efficient delivery of healthcare service towards the patient through assisting accurate, up-to-date, and detailed necessary information that stores in a secure system (Ngusie et al. 2022). Moreover, the effectiveness and precision of pharmaceutical recommendations and prescriptions. Despite of trials facing the modernization involving lack of human proficiency and source of finance, most studies have shown how feasible it could be. Since the framework allows doctors to have constant access to patient medical data, it has the potential to improve the quality of medical services (Kalayou et al. 2021).

Personal Health Records of People with HIV

People who identify as People Living with HIV (PLHIV) may perceive discrimination from a variety of people, including intimate partners, family, coworkers, medical professionals, and strangers. Stigmatization sentiments of healthcare workers could cause misunderstandings between patients and doctors and, eventually, poor treatment compliance (Senyurek et al. 2021). A social process experience known as health-related stigma is defined by isolation, rejection, shame, or degradation and is driven on by actual or anticipated negative social judgments about an individual or group. It covers both implicit bias, ideas, and values as well as stigmatization sentiments, behavior, and policy (Turan et al. 2019). HIV-confirmed individuals who are not yet knowledgeable in keeping and monitoring their personal health records are vulnerable in this kind of conflict. With that, the medical practitioner should strengthen the strategy and practices in maintaining the data confidentiality of HIV patients including communicating about facts in securing the patients regarding their health record.

Another case, the HIV-confirmed people and individuals who intend to undergo tests for HIV are timid of exposing themselves to their relatives and peers. Patients in the different HIV clinics are hesitant to proceed with the test because they have seen someone they know in the same clinic. This case is adherent to the personal character of the patient, due to some factors of being discriminated and intolerance. The capability to identify as well as respond to patients' effects and react in a patient-centered manner to reduce their negative sentiments is termed as clinician empathy, and it is very essential in increasing patient needs and satisfaction, medication compliance, and clinical results in a variety of clinical settings (Park et al. 2019).

Health Management Information System

Managing data in a health institution is crucial and must regularly monitored as patients are entrusting their data with them. Data can be used for personal identity of the patient and basis of patient's medical history which can be useful for treatment and other medical instructions and prescription from the physician. Therefore, assessing, and working on the delivery of medical care services, accurate and reliable health data is essential (Nwankwo et al. 2018).

Collecting data, processing, and backing up should have efficiency and proper security. When data exposed to risk of exposure and duplication means it has a poor management quality. A health management information system's concept of data management is an organization that produces data that is timely, accurate, concise, clear, and satisfies the demands of the clients. For the provision of medical treatment and management of services, significant, exact, quantitative, and subjective data must be collected and used as soon as possible (Nwankwo et al. 2018).

Challenges in Big Data Management

The inappropriate management of data can lead to inaccurate data which can affect the identity of the owner and unproductivity of service. According to Suman et al. (2020), the introduction of big data formats implies the necessity of analyzing and utilizing them in order to get insightful business knowledge. If support for an unstructured data type is required, traditional platforms cannot completely fulfill the business's analytical objectives.

Electronic Storage Data Management System has been developed to provide systematized and secure data storage for an institution to give efficiency and effective monitoring of data that will benefit the institution and its clients.

Patient's Record-Keeping

Patients' records provide history of early treatment processes and are also used as a means of communication amongst clinical specialists in order to advance with the management of patients. To effectively serve and treat their patients, clinical professionals must assure that their records are complete and accurate. Clinical experts at clinics must record a wide variety of data in patients' records, which leads to increased responsibility for them and compromises accurate measurements for record-keeping (Mutshatsi et al. 2018).

Data Privacy and Security

Privacy is the cornerstone of big data security. Effectiveness is critical since big data security and protection need a great deal of organization traffic. If cybercrime hackers' endeavor to get to or alter delicate information, the worth of the big data might be lost.

With the fast advancement of technology, the internet, and the effective use of computers, massive amounts of data are acquired on a regular basis. It is difficult to keep a database secure while maintaining the privacy and confidentiality of personal records. This study focuses on numerous privacy challenges linked to clinical databases and potential solutions for protecting the privacy of patient information stored in a healthcare database from malevolent individuals. Privacy and confidentiality are two critical characteristics of healthcare databases that must be protected. A powerful protection mechanism must be designed to preserve these medical records from data loss. It is necessary to notify the patient and the client, and it is essential to offer appropriate directions. While providing privacy protection to medical records, several characteristics like equipment that gather patient medical data, printed papers, and so on should be considered. A person identifies something as private if it is personal and sensitive to them. Privacy information is described by words like personal, quietness, intrusion, lack of disturbances, and interruption. It could be related to a patient's ownership of information and control over sharing mechanisms directly or indirectly. Due to their involvement and the continuous utilization of modern technology, people are more concerned with information confidentiality. These sensitive resources should have their privacy preserved and protected (Rath and Kumar 2021).

3. Methods

Researchers imply the use of methods, strategies, and instruments to have an adequate solution for the certain problem addressed. This section presents the methods of research used, project design, population and locale, research instruments, data collection procedure and data analysis used to accomplish the study.

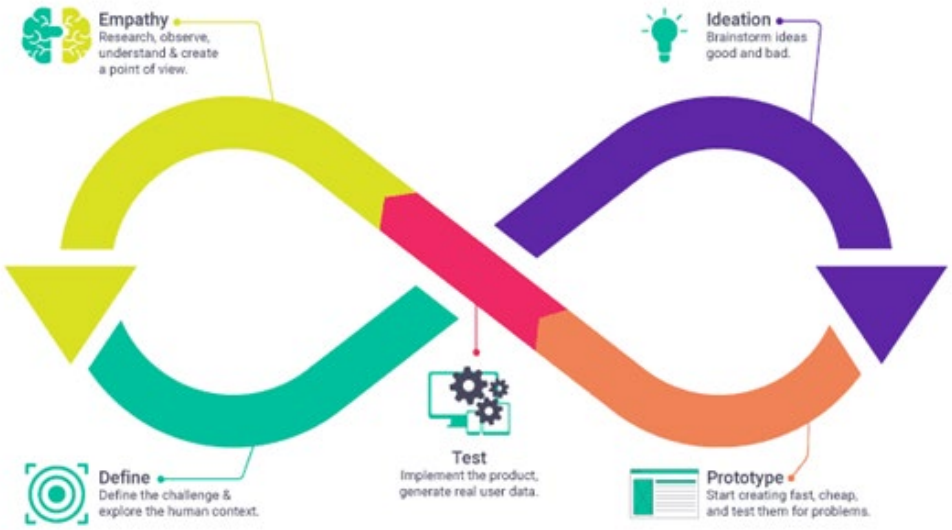

Figure 1. Design Thinking Framework

Figure 1 illustrates the Design Thinking that is one such tool; a user-centric innovative method that strives to produce and implement creative business concepts or strategies. Furthermore, it is an integrated approach to problem-solving. Generally, it aims to map the techniques and methods of designers onto organizational processes. The framework helped to bridge the gap through incorporating client needs and input all throughout the development phase. In the study, the Design Thinking Framework focused on several phases of designing a web-based client's healthcare record and appointment management system for the accessibility of clients and health staffs.

The phases of the Design Thinking Framework in this study are as follows:

Empathy - The first stage is building Empathy, which is the most important aspect is to put oneself in the position of the client. In other words, this strategy focuses on the health professional and clients.

Define - The second phase is Define, which involves making observations and asking questions to learn more about the client and the problem. To gather necessary and important data, the researchers held an interview with the health staff of Bale Angeleño, Mr. Paul Brian Simbulan. Following that, the data obtained were used to design the system.

Ideate - The third phase is Ideation, in which as many solutions to the problem as feasible were developed. The main ideation process occurs primarily throughout this stage. As a solution to the encountered problems that focus on improving health outcomes through information sharing and collaboration between client and health staffs, the researchers developed a web-based system which is the Healthcare Record and Appointment Management System.

Prototype - Prototyping, or creating a feasible representation of the best suggestion, is the fourth phase. With the proposed system, it was created to be user friendly. When it comes to prototyping, the rule of thumb is to keep things as basic as possible while still getting the functionality done.

Test - The final phase is testing, it involves the health staffs and the clients for the purpose of gathered feedback from users that were used to improve the system. The system implemented, entails testing the improved solution, assessing changes, and evaluating the scale. This could lead to more finding of needs and the process continuing. As when the solution is repeated many times, these stages remain dynamic and can be accomplished several times.

4. Data Collection

- **Internet Research** - To upgrade the system's whole plan, the researchers accumulated most of all necessary information and data from the Internet. Researchers chose reliable published research from different trusted websites. All sources supported the review and the development of recapp.
- **Interview** - To properly determine the system's capabilities, an interview was conducted and used for data gathering. As a result, the researchers were able to collect additional data to support the objective of the study. The information acquired benefits in the development of the system.
- **Survey** - The researchers presented a summary of the survey to the health staff. It was used to determine the capabilities of the present system.

4.1 Data Analysis

Based on the interview, the Angeles Primary HIV Clinic (Bale Angeleño) health staff discussed their experiences with the process about the current system they are using as well as recommendations for improving the system. The Bale Angeleño is currently catering services for HIV, Syphilis, Hepatitis B, Hepatitis C, and Gram Stained Smear of Urethral Discharge. HIV client's data are stored in a spreadsheet application (excel) while the Syphilis, Hepatitis B, Hepatitis C and Gram Stained Smear of Urethral Discharge client's data are stored in log books. The Bale Angeleño claimed that the current processes in the part of compiling cases reports, medicine management and setting appointment was disorganized. The Bale Angeleño also mentioned that they tend to forget some of the set appointments of the clients since they are using online social platform (facebook). Especially for the purpose of follow up consultation and retest since the duration are usually 3 to 6 months which are long enough or depending on the health staff's instruction. Furthermore, the process of compiling tests and medicine reports were also inefficient as it is done in counting manually. Thus, the researchers proposed system, it will be more organized for the record keeping of client data for Bale Angeleño with a feature of appointment setting.

Likert Scale was used to gather the ratings assessed by the respondents.

WHERE:

WM = Weighted Mean
w = Number of categories
f = Number of respondents
N = Total number of responses

Formula: $$\boldsymbol{WM} = \frac{\sum \mathbf{wf}}{\boldsymbol{N}}$$

Table 1. Likert Scale

Rate	Scale Range	Verbal Interpretation
4	3.51 – 4.00	Strongly Agree
3	2.51 – 3.50	Agree
2	1.51 – 2.50	Disagree
1	1.00 – 1.50	Strongly Disagree

The Likert scale was used by the researchers to measure the perceptions of health staff on their existing manual process to know the requirements and develop a more efficient system. A survey was conducted for ten (10) health staff of Angeles Primary HIV Clinic (Bale Angeleño) on April 21, 2022 to determine the challenges that they encounter from the current system. The survey contains ten (10) multiple-choice questions measured on a 4-point Likert Scale. The sampling technique used was Convenience Sampling as per the availability and willingness to participate of the health staffs being the respondent. The respondents were the health staff of the Bale Angeleño. Google Form Document was used for the survey and send the google form link to the 10 respondents.

The common problems that the respondents experienced with the current system is that the storing of client's records is not well-organized as well as the security. They also encounter problems in the current process of setting up an appointment since both ends (client and health staff) are easily forget the scheduled appointment. The focus suggestion they stated for the proposed system is the security, the scheduling feature, and well-organized client's data. Overall, the current system should be improved as the process and current system is not sufficient as found on the survey results.

5. Results and Discussion

The researchers have conducted a survey to the clients and health staffs of Bale Angeleño to verify the usability of the web system, bugs and errors, responsiveness and other features of the recapp system. There are total of (13) respondents, eight (8) health staffs, and five (5) over eight (8) present clients who agreed to answer the survey on November 7, 2022 in Bale Angeleño. The sampling technique used was Convenience Sampling as per the availability and willingness to participate of the clients and health staffs being the respondent.

5.1 Numerical Results

The survey questionnaire for clients consists of ten (10) questions, while there are fifteen (15) questions for the health staffs. The researchers used pie chart in each question to emphasize the tally of the collected data from the respondents and later on calculated using table. A 4-point Likert Scale was used to calculate the weighted mean and to determine the remarks to measure the functionality of recapp web system.

Table 2. Client Survey Result

Indicators	WM	Verbal Interpretation
1. The system is designed to be easy for an untrained user to use.	4.0	Strongly Agree
2. The system is responsive to use.	4.0	Strongly Agree
3. The system is free from errors.	4.0	Strongly Agree
4. The client can easily send message feedback and concern to Bale Angeleño management.	3.4	Agree
5. The system can verify client's registration through email.	3.8	Strongly Agree
6. The client can book appointment efficiently.	4.0	Strongly Agree
7. The client can easily monitor their appointment and prescribed medicine lists.	3.8	Strongly Agree
8. The system sends a real-time notification for the client's booked appointment that has been approved by the health staff.	3.6	Strongly Agree
9. The client's inputs were easily validated.	3.8	Strongly Agree
10. The system can be used on any browser-supported device.	4.0	Strongly Agree
Total Weighted Mean	**3.84**	**Strongly Agree**

The Table 1 presents the client survey result in which the system meets the requirements of the clients that it is an easy-to-use system that is responsive and free from errors. The system includes features that allow clients to easily send message feedback and concerns to the Bale Angeleño management, verify registration through email, book appointments efficiently, and monitor their appointment and prescribed medicine list. The system ensures that clients are notified in real-time when their appointment has been approved by the health staff. Additionally, the system validates all inputs to ensure accuracy and can be used on any browser-supported device.

Table 3. Health Staff Survey Result

Indicators	WM	Verbal Interpretation
1. The system is designed to be easy for an untrained user to use.	3.63	Strongly Agree
2. The system is responsive to use.	3.88	Strongly Agree
3. The system is free from errors.	3.88	Strongly Agree
4. The health staff can securely log in and out of the system.	3.88	Strongly Agree
5. The health staff can easily set schedule and confirm client appointments.	3.63	Strongly Agree
6. The health staff can track appointments, clients, and medicines.	3.63	Strongly Agree
7. The health staff can easily manage the accounts/management (Add, Edit, and Delete).	3.88	Strongly Agree
8. The health staff can easily manage the list of client record list (View, Add, Edit, and Delete).	3.88	Strongly Agree
9. The health staff can easily manage the medicine stocks list (View, Add, Edit, and Delete).	3.75	Strongly Agree
10. The health staff can download client information.	4.0	Strongly Agree
11. The health staff can only search the client's first name for security purposes.	4.0	Strongly Agree
12. The health staff can view and track the summary of client per category.	4.0	Strongly Agree
13. The health staff can easily search, sort, and filter the client records and medicines.	4.0	Strongly Agree
14. The system sends a real-time notification when a client books an appointment.	4.0	Strongly Agree
15. The health staff can track and monitor activity logs.	4.0	Strongly Agree
Total Weighted Mean	**3.9**	**Strongly Agree**

The Table 2 presents the health staff survey result in which the system meets the requirements of the clients that the system is a user-friendly web application that is satisfies its designed for health staff. With its easy-to-use and responsive interface, the system is accessible even to untrained users. The system is also developed to be error-free to ensure accurate tracking of client appointments, medicines, and schedules. Only Bale Angeleño health staffs can log in and out of the system with secure authentication. Health staff can also effectively manage client appointments, medicine stocks, and client records with multiple functionalities for adding, editing, viewing, and deleting data. Additionally, the system provides real-time notifications, search functions, and summary reports to improve productivity. Moreover, activity log allows them to monitor system performance for better management. Overall, the developed system is a valuable tool that helps health staff to manage their daily tasks effectively and efficiently.

5.2 Proposed Improvements

The proposed system, "recapp: A Web-Based Client's Healthcare Record and Appointment Management System for Bale Angeleño" is designed to give efficiency on record keeping of health staff and client's appointment setting. After it was developed, the researchers came up with the following recommendations:

- A feature that allows client to select multiple type of test in booking appointment.
- To add a feature that provides the total number of reactive clients out of the booked tested clients per.
- To show summary of detailed and complete information of diagnosed cases.

- To send SMS notification in the view of client regarding his/her next visit.

5.3 Validation

The researchers conducted several testing and interviews to reduce errors and to develop a system that maximize performance to deliver best service for clients. The tests were successful and researchers are able to address the issues. The researchers has established and came into conclusion that the majority of respondents strongly agreed with the usability of the recapp system.

6. Conclusion

The Angeles City Primary HIV Care Clinic (Bale Angeleño) is a public medical institution that handles confidential data of its clients. Based on the data gathered, the Bale Angeleño has been using the traditional method of storing client's records making the process tedious. Hereby, the researchers proposed a web-based client's healthcare record and appointment management system to improve the process of storing client's records and appointment setting by allowing the involved users as client to track their appointments, medications, and result based on the client's request. For health staffs, it benefits them to efficiently store the client's data and track client's appointments, total cases test results, medical history, and medications. Furthermore, the health staff can monitor the statistical reports of total appointments for both HIV & Testing and ARV/PrEP refill, total registered clients, total registered medicines, HIV & testing appointment per month, dispensed medicine per month and out of stock medicines.

The web-based client's healthcare record and appointment management system implemented for the Angeles City Primary HIV Care Clinic (Bale Angeleño) was enhanced and optimized. As a result, the developed web-based client's healthcare record and appointment management system was able to serve the Bale Angeleño's clients in more efficient way and maximum productivity as excellent service was achieved. Furthermore, the developed healthcare records management system is more suitable for clients and health staff than the traditional process of using pen and paper due to the fact that the clients and staff can track and store all client's data through the system developed. Also, it lessened the health staff encountering problems in disorganize appointment setting and storing client's records which makes the health staff work efficiently in assessing clients' records. Thus, the clients and health staff were able to manage the record keeping and appointment setting because of the developed healthcare record and appointment management system.

References

ATP Electronics, Inc., Secure your data with AES-256 encryption, 2019. https://www.atpinc.com/blog/what-is-aes-256-encryption

de Carvalho Junior, M. A., & Bandiera-Paiva, P., Strengthen Electronic Health Records System (EHR-S) Access-Control to Cope with GDPR Explicit Consent, *Journal of Medical System*, vol. 44, no. 10, 2020. https://web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=41c45c91-5c10-40b2-a449-ef995947cb19%40redis

Esther Omolara, A., Jantan, A., Abiodun, O. I., Arshad, H., Dada, K. V., & Emmanuel, E., Honeydetails: A prototype for Ensuring Patient's information privacy and thwarting electronic health record threats based on decoys, Health *Informatics Journal*, vol. 26, no. 3, pp. 2083–2104, 2020. https://doi.org/10.1177/1460458219894479, 2020.

Kalayou, M. H., Endehabtu, B. F., Guadie, H. A., Abebaw, Z., Dessie, K., Awol, S. M., Mengestie, N. D., Yeneneh, A., & Tilahun, B., Physicians' Attitude towards Electronic Medical Record Systems: An Input for Future Implementers, *BioMed research international*, pp. 5523787, 2021. https://doi.org/10.1155/2021/5523787, 2021.

Mutshatshi, T. E., Mothiba, T. M., Mamogobo, P. M., & Mbombi, M. O., Record-keeping: Challenges experienced by nurses in selected public hospitals. Curationis, vol. 41, no. 1, pp. e1–e6, 2018. https://doi.org/10.4102/curationis.v41i1.1931, 2018.

Ngusie, H. S., Kassie, S. Y., Chereka, A. A., & Enyew, E. B., Healthcare providers' readiness for electronic health record adoption: a cross-sectional study during pre-implementation phase, *BMC health services research*, vol. 22, no. 1, pp. 282, 2022. https://doi.org/10.1186/s12913-022-07688-x, 2022.

Nwankwo, B., & Sambo, M. N., Can training of health care workers improve data management practice in health management information systems: a case study of primary health care facilities in Kaduna State, *Nigeria. The Pan African medical journal*, vol. 30, pp. 289, 2018. https://doi.org/10.11604/pamj.2018.30.289.15802, 2018.

Park, J., Saha, S., Han, D., De Maesschalck, S., Moore, R., Korthuis, T., Roter, D., Knowlton, A., Woodson, T., & Beach, M. C., Emotional Communication in HIV Care: An Observational Study of Patients' Expressed Emotions and Clinician Response, *AIDS and behavior*, vol. 23, no. 10, pp. 2816–2828, 2019. https://doi.org/10.1007/s10461-019-02466-z, 2019.

Rath, D. K., & Kumar, A., Information privacy concern at individual, group, organization and Societal Level - A Literature Review. Vilakshan - XIMB Journal of Management, 2021. https://www.emerald.com/insight/content/doi/10.1108/XJM-08-2020-0096/full/html, 2021.

Senyurek, G., Kavas, M.V. & Ulman, Y.I., Lived experiences of people living with HIV: a descriptive qualitative analysis of their perceptions of themselves, their social spheres, healthcare professionals and the challenges they face daily, *BMC Public Health,* vol. 21, pp. 904, 2021. https://doi.org/10.1186/s12889-021-10881-y, 2021.

Šuman, S., Markovic, M. G., Poščić, P., Big Data Management Challenges, *International Journal of Advanced Trends in Computer Science and Engineering*, vol. 9, no. 1, pp. 717–723, 2020. https://doi.org/10.30534/ijatcse/2020/102912020, 2020.

Turan, J.M., Elafros, M.A., Logie, C.H. et al. Challenges and opportunities in examining and addressing intersectional stigma and health, *BMC Med 17*, 2019, https://doi.org/10.1186/s12916-018-1246-9, 2019.

Biographies

Trixie May S. Sison is a student from Angeles University Foundation currently in 4th year taking Bachelor of Science in Information Technology who has a profound interest in the intersection of technology and humanities. Her fascination with technology started at a young age when she was exposed to various gadgets. Since then, she has developed a deep understanding and appreciation for the impact of technology. One of her favorite activity is researching. She is known for her exceptional work ethic, and her ability to deliver outstanding results in any project she undertakes. Her attention to detail and ability to think critically makes her a valuable asset to any team. She is an effective and enthusiastic communicator, both verbally and in writing. She is adept at working collaboratively with her team, always ensuring that everyone is on the same page. As she approaches the end of her academic journey, she is eager to put her skills and knowledge into practice in the technology industry.

Jay-Ar G. Aunciacion is an ambitious IT student who is passionate about learning everything there is to know about technology. He is currently pursuing a degree in Information Technology and has shown an exceptional talent for coding and programming. Ever since he was young, he has been fascinated by computers and how they work. He spent countless hours tinkering with various software and hardware systems, honing his skills and knowledge in fields such as networking, cybersecurity, and web development.

Stephanie L. Lopez is pursuing a degree in Information Technology. She has a kind and gentle personality, but she's also incredibly driven and strives to achieve her goals with unwavering determination. Growing up, Stephanie always had a fascination with technology and the way it works. She was fascinated by the idea of building and creating things that could make people's lives easier, and she knew that a career in IT would be the perfect way to fulfill that dream. Despite facing some challenges along the way, Stephanie has never let anything stand in the way of her goals. She's worked hard to excel in her studies, and she's always seeking out new opportunities to learn and grow as a professional. In addition to her academic pursuits, Stephanie is also passionate about helping others. She's volunteered at local non-profit organizations and has always been a source of support for her friends and family. Looking ahead, Stephanie is excited to continue exploring the world of IT and making a positive impact in the lives of others. With her intelligence, kindness, and unrelenting drive, there's no doubt that she'll achieve great things in the years to come.

Joshua G. Ocampo is a creative and dedicated person who is presently studying on a Bachelor's degree in information technology. His love for producing aesthetically pleasing and useful ideas has led him to pursue careers as a graphic designer. In addition to his academic endeavors, Joshua has a strong work ethic and an optimistic outlook. He collaborates effectively with others and is a solid team member who is constantly willing to pick up new abilities. Joshua likes to practice his creative talents, watch TV shows and movies, and play video games when he has free time. Despite his hectic schedule, he finds time to support his family and is constantly eager to assist people in need. He finds time despite his hectic schedule to support his family and is constantly eager to assist people in need. He is a conscientious and mature young adult who has proven his dedication to his objectives by finishing a graphic design internship successfully. Overall, Joshua is a wonderful asset to any team or organization because of his optimistic attitude, work ethic, and natural skill.

Dr. Daisy S. Yap finished her degree in Bachelor of Science in Computer Science at Angeles University Foundation. She earned her Master in Information Technology at the same university. She completed her Doctor of Information

Technology at St. Linus University. She took a Professional Education Course at Systems Plus College Foundation and earned her Licensure for Professional Teacher in 2017. Currently taking Doctor of Philosophy in Education major in Educational Management also at AUF and finished 27 units. Aside from teaching, she is currently the Assistant Dean of the College of Computer Studies. With her love and passion for teaching, she is in this noble profession for more than 2 decades at Angeles University Foundation.