Overview of the Practicum Engagement

Company Background

PETROENERGY RESOURCES CORPORATION

PetroEnergy Resources Corporation (PERC) is a Philippine-based energy company with diversified operations in both renewable and conventional energy sectors. Through its various subsidiaries, PetroEnergy plays a key role in the country's power generation landscape, with investments in geothermal, solar, and wind energy projects. The company actively contributes to the nation’s energy security while also promoting sustainable development.

What sets PetroEnergy apart is its dual commitment to business performance and environmental and social responsibility. This is evident in the company’s strong emphasis on Environmental, Social, and Governance (ESG) practices and Corporate Social Responsibility (CSR) initiatives. These programs are implemented across various project sites and reflect the company’s vision of inclusive growth and long-term sustainability.

As PetroEnergy’s initiatives expanded, particularly in the areas of sustainability reporting and community engagement, so did its need for improved data management. Each subsidiary collects and submits data independently, which has led to inconsistencies and inefficiencies in reporting. Addressing these challenges became a central focus of the practicum engagement, especially in the development of tools and systems that improve data integration, standardization, and accessibility for the entire organization.

Nature of Assignments or Tasks Given

During the internship, the development team was assigned to build a platform that enables the insertion, management, and analytics generation of ESG-related data submitted by PetroEnergy’s various subsidiaries. As part of this broader initiative, the student was specifically responsible for designing and implementing the

Economic Repository and Dashboard module, which served as a core component for capturing and visualizing the company's economic data.

The practicum arrangement followed a hybrid setup, where the student worked remotely from Monday to Wednesday and Friday, and reported onsite every Thursday. Regular development team meetings were held from Tuesday to Thursday each week, where interns presented their weekly progress and received constructive feedback from the practicum supervisor and key company stakeholders. These sessions provided both technical guidance and valuable insight into aligning development outputs with organizational needs.

The students' primary responsibilities included data gathering, full-stack software development, system deployment, and documentation. Additionally, the student was tasked with implementing the system's authentication mechanisms, including token logic and security protocols to protect both frontend routes and backend API endpoints.

The student utilized a modern technology stack composed of FastAPI for the backend, React.js and Vite for the frontend framework, Material UI for streamlined and responsive component styling, and PostgreSQL as the relational database. This stack allowed for the creation of a modular, scalable, and maintainable web application.

Throughout the practicum, the student maintained close coordination with the supervisor and regularly incorporated feedback to ensure that the outputs met the expectations of end-users. In the later phases of the internship, the student collaborated with the host company's IT team to coordinate the internal deployment of the system, ensuring that both frontend and backend services were properly hosted and accessible across the organization's internal network.

Total Hours Rendered

Over the course of the internship, the student rendered a total of 392 hours, distributed across four development phases. The first phase involved project setup and data familiarization, totaling 72 hours. This was followed by 112 hours spent on data modeling and system design, where key technical plans and visual prototypes were developed. The bulk of the internship, 152 hours, was dedicated to system development and implementation, including feature coding, integration, and testing. The remaining 56 hours were allocated to documentation and training, which included preparing guides, coordinating turnover, and supporting user orientation.

Table 1.0
Summary of Hours Rendered

Phase	**Week(s)**	**Hours**
Phase 1: Setup & Familiarization	Weeks 1–2	72 hrs
Phase 2: Data Modeling & Design	Weeks 3–5	112 hrs
Phase 3: Development & Implementation	Weeks 6–9	152 hrs
Phase 4: Documentation & Training	Weeks 10–11	56 hrs
Total		392 hrs

Presentation of Output

The following sections present a comprehensive analysis of the key system components developed for the PetroDash application, focusing on the user interface implementations and their underlying functionality. Each component discussion examines the technical architecture, user interaction patterns, data management capabilities, and integration points within the broader system ecosystem. The screenshots and accompanying descriptions demonstrate the practical application of these components in real-world scenarios, highlighting their role in facilitating efficient data visualization, management, and analysis for PetroEnergy stakeholders.

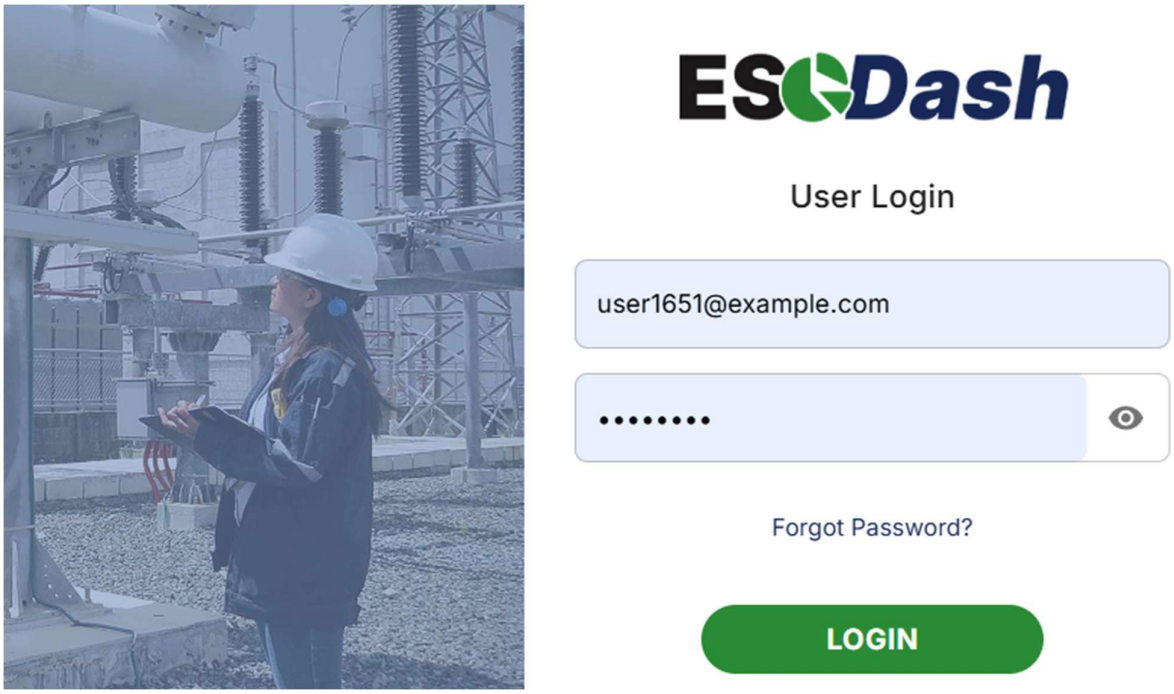


Figure 1. Login Modal

The login page serves as the primary authentication gateway for the PetroDash system, built with React and Material-UI components. The component implements secure user authentication with comprehensive input validation, password visibility toggle, and real-time error handling during the login process. Upon successful authentication, users are automatically redirected to the main dashboard while the system initializes activity tracking for session management. The page integrates with the application's dual-token authentication system that enforces both 24-hour absolute expiration and 1-hour inactivity timeouts for enhanced security.

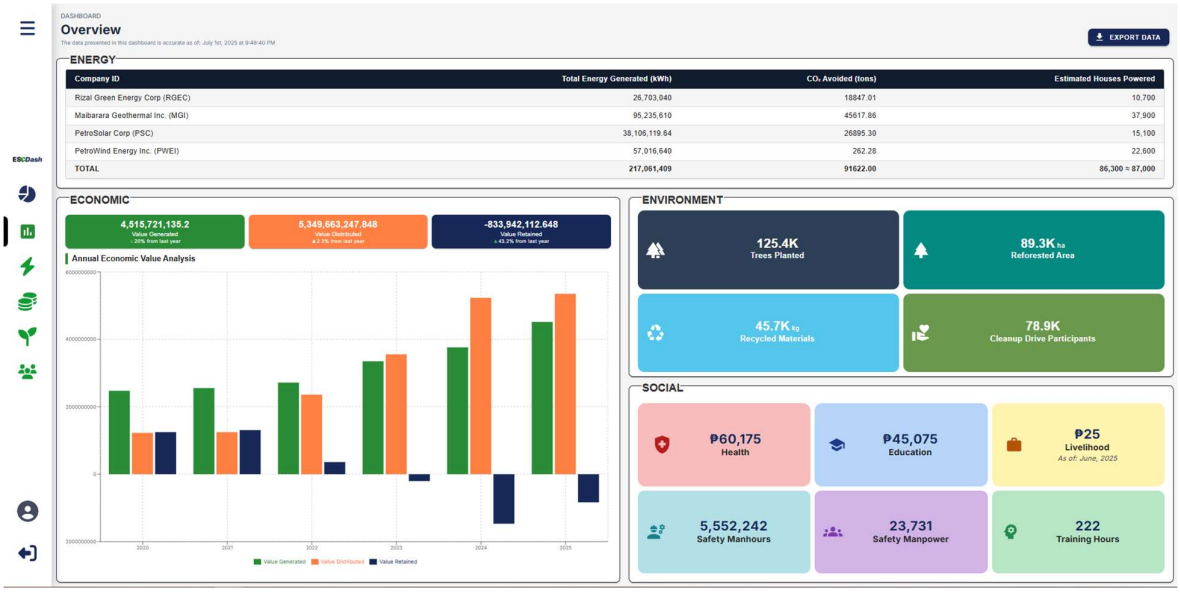


Figure 2. Overall Dashboard

The Overall Dashboard serves as the main landing page that provides a comprehensive view of all key performance areas within the PetroDash system, including Energy, Economic, Environment, and Social metrics. The dashboard is designed as a read-only overview interface that displays the most current data across all modules without any filtering capabilities, ensuring users get an immediate snapshot of organizational performance. The layout features a responsive grid system that adapts to different screen sizes, with sections for energy consumption tables, economic KPI cards with year-over-year growth indicators, environmental overview widgets, and social impact metrics from HR and community investment modules. The dashboard includes PDF export functionality for comprehensive reporting and uses real-time data fetching to display the latest available metrics from each integrated module.

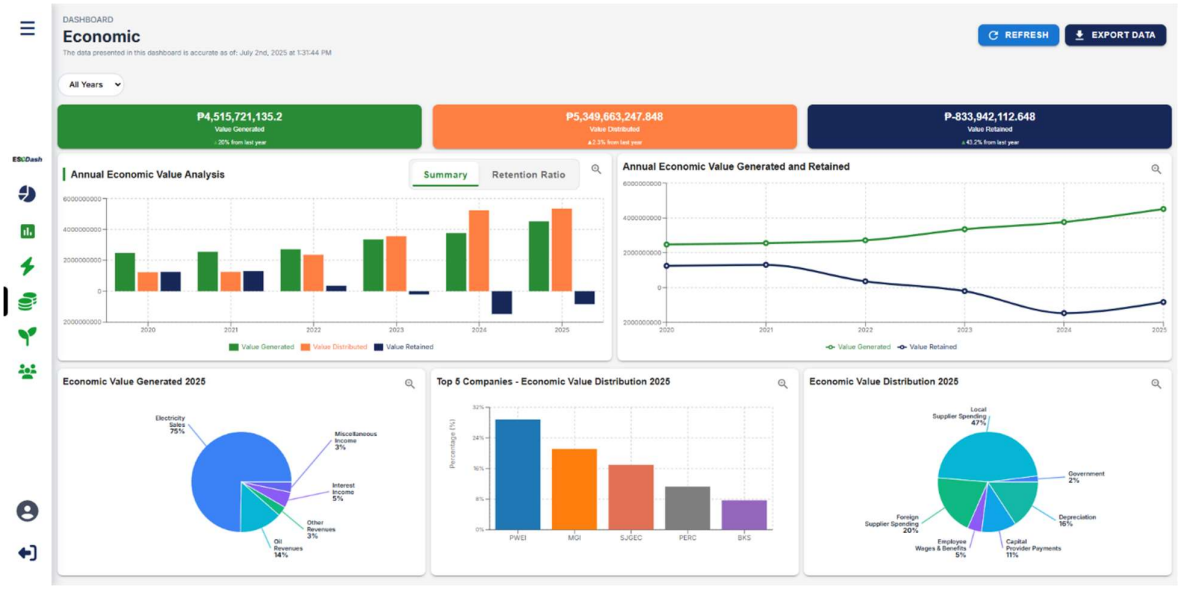


Figure 3. Economic Dashboard

The Economic Dashboard provides detailed financial analytics with interactive data exploration capabilities, including basic year filtering for historical analysis. The dashboard features comprehensive visualization tools including tabbed chart views, line charts for trend analysis, pie charts for distribution breakdowns, and bar charts for company comparisons. Advanced functionality includes zoom modal capabilities for detailed chart inspection and PDF export features for comprehensive reporting. The interface displays three primary KPI cards showing Value Generated, Value Distributed, and Value Retained with year-over-year growth calculations and trend indicators.

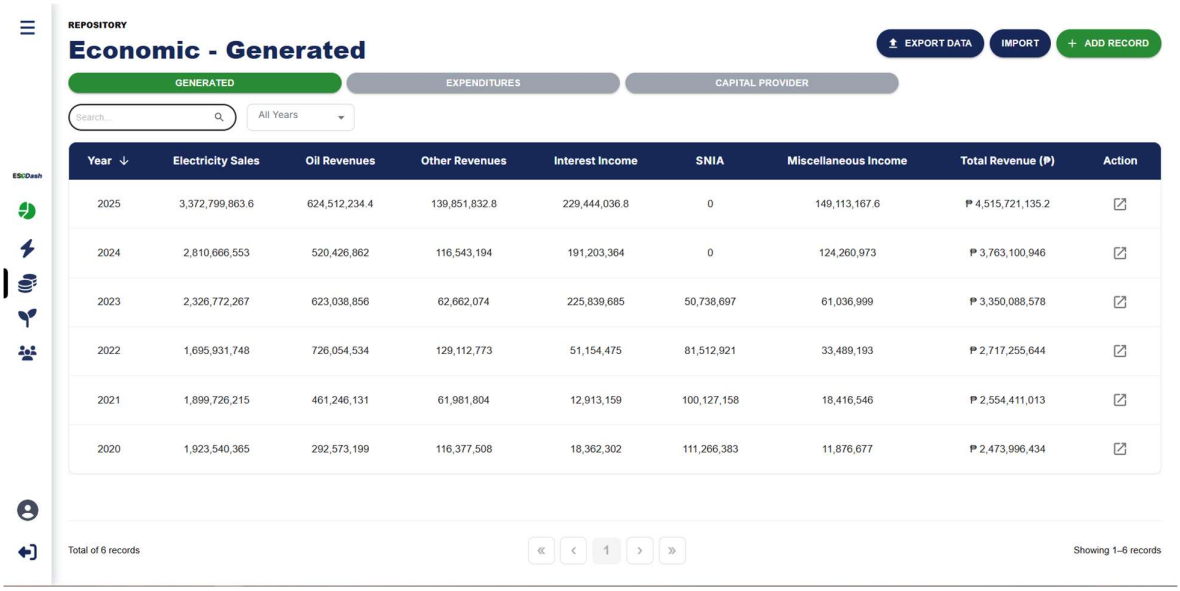


Figure 4. Value Generated Repository

The Value Generated Repository manages financial revenue data across multiple categories including electricity sales, oil revenues, and other income streams for economic analysis. The interface provides comprehensive data management capabilities with tabular display of yearly revenue breakdowns, allowing users to view detailed financial metrics such as total revenue calculations and miscellaneous income tracking. The repository includes role-based access controls where users with R03 permissions can add, import, and edit records, while R04 and R05 users have read-only access. Data filtering is available by year with search functionality across all revenue categories, and the system supports both manual data entry through modal forms and bulk import capabilities via CSV files.

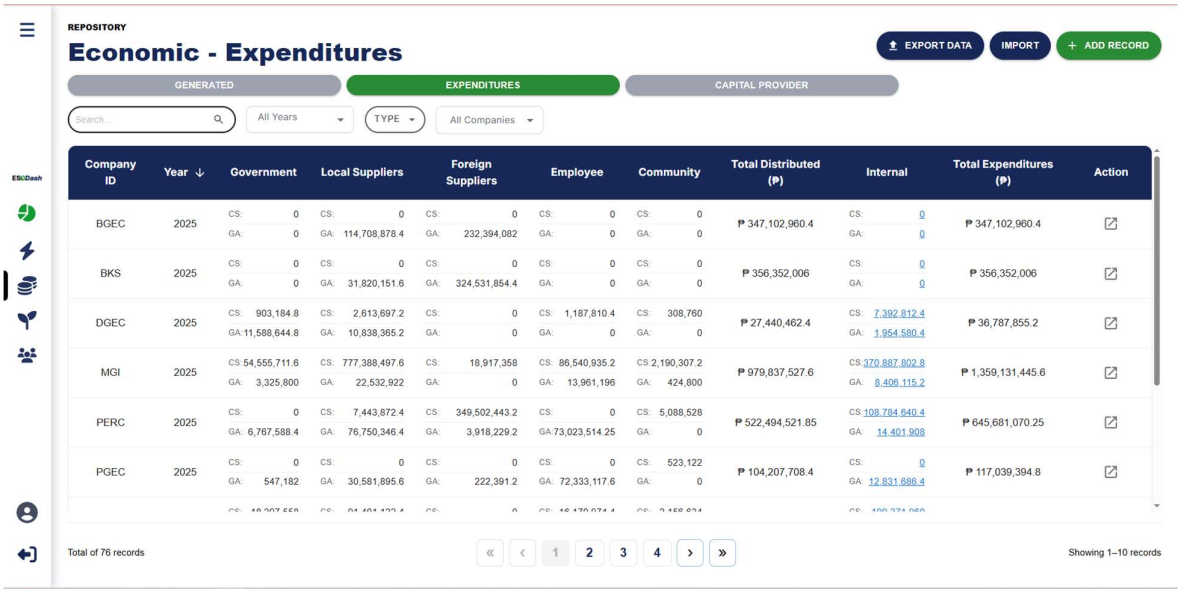


Figure 5. Expenditures Repository

The Expenditures Repository tracks organizational spending across multiple categories including government payments, supplier spending, employee costs, and community investments. The repository features a complex data structure that groups expenditures by company and year, displaying multiple expenditure types in a single row with detailed breakdowns for government, local suppliers, foreign suppliers, employee costs, and community investments. Advanced functionality includes an internal accounting breakdown modal that shows depreciation, depletion, and other internal costs when users click on the internal column values. The interface supports multi-level filtering by year, expenditure type, and company, with specialized data processing that aggregates and groups related expenditure records for comprehensive financial tracking.

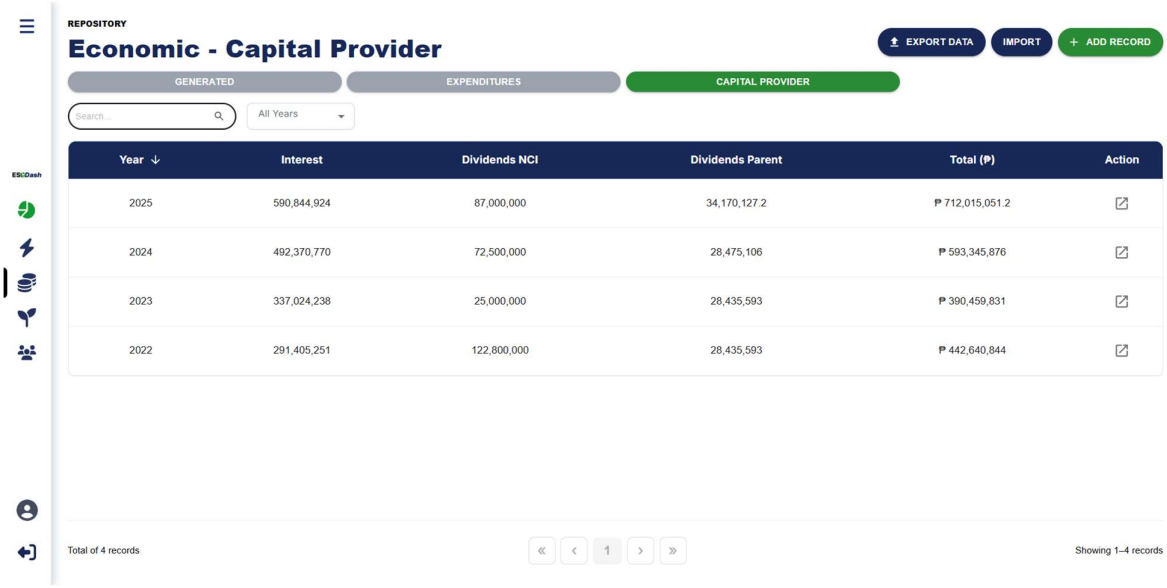


Figure 6. Capital Provider Repository

The Capital Provider Repository manages payments to capital providers including interest payments and dividend distributions to both non-controlling interests and parent companies. The repository maintains a simplified data structure focused on financial obligations to stakeholders, displaying yearly totals for different types of capital provider payments. The interface provides standard CRUD operations with role-based access controls, allowing authorized users to add new records, import bulk data, and edit existing payment information. Data filtering capabilities include year-based filtering with search functionality, and the system calculates total capital provider payments automatically based on individual payment categories.

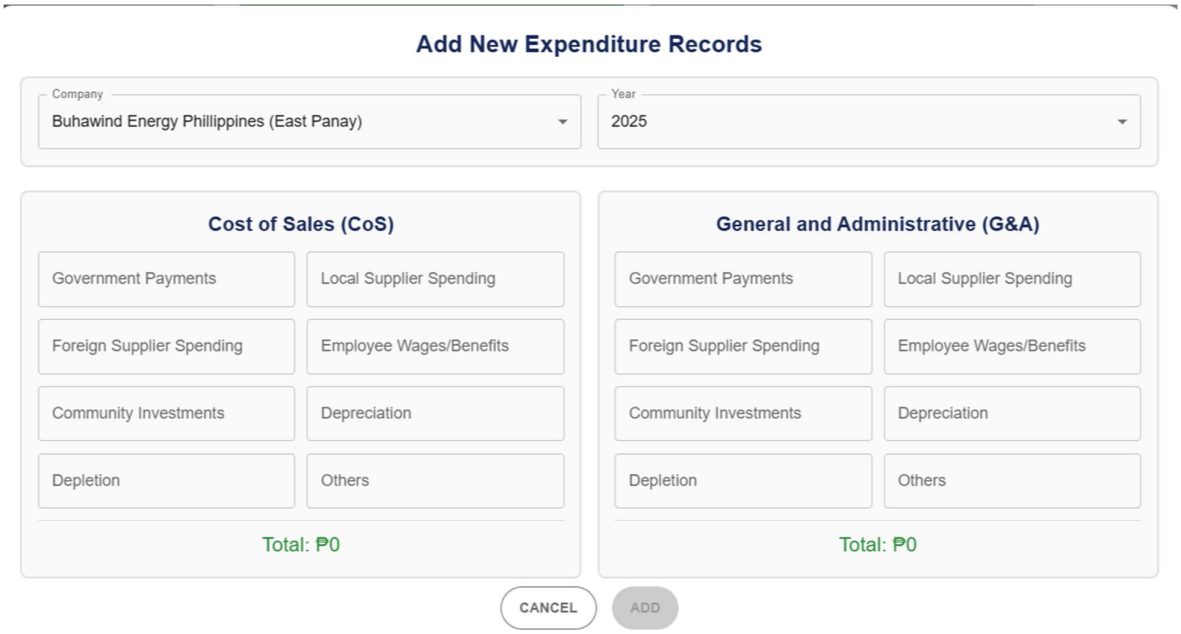


Figure 7. Add Expenditure Form

The Add Expenditure Form provides a comprehensive interface for manually entering economic expenditure data across multiple categories and expenditure types within the PetroDash system. The form features a dual-section layout that allows users to simultaneously input data for both Cost of Sales (CoS) and General & Administrative (G&A) expenditure types, with each section containing eight expenditure categories including government payments, supplier spending, employee costs, community investments, and internal accounting items. Real-time total calculations are displayed for each expenditure type, and the form includes company and year selection dropdowns with validation to ensure data integrity before submission. The form implements role-based access controls and provides immediate feedback through success and error messages, with similar add functionality being available across all repository tabs including Value Generated and Capital Provider Payment sections.

Figure 8. Import Expenditures

The Import Expenditure Modal enables bulk data import capabilities through Excel file uploads, streamlining the process of adding large volumes of expenditure data to the system. The modal provides a downloadable Excel template that defines the expected column structure including Year, Company ID, Type ID, and all expenditure categories, ensuring users can format their data correctly before import. Advanced validation features check file format compatibility, process uploaded data for errors, and provide detailed feedback on validation issues or successful import statistics. The import process includes comprehensive error handling with specific error messages displayed in dialog boxes, and the system maintains data integrity by rejecting entire imports if validation errors are detected. This bulk import functionality is consistently available across all repository sections, providing the same streamlined data entry capabilities for Value Generated and Capital Provider Payment data as well.

Synthesis of the Practicum Engagement

Learnings

During this practicum, I acquired substantial technical and soft skills that have prepared me for professional growth in the industry. Technically, I developed proficiency in full-stack software development using a modern technology stack: FastAPI for backend development, React.js with Vite for frontend framework, Material UI for responsive UI components, and PostgreSQL for relational database management. I gained experience in secure system design by implementing authentication mechanisms, including token logic and security protocols to protect API endpoints and frontend routes. Working with data modeling, system deployment, and documentation further enhanced my understanding of end-to-end project lifecycle management. On the soft skills front, I improved my communication and teamwork abilities through regular development team meetings, progress presentations, and active collaboration with supervisors and IT personnel. These engagements cultivated my problem-solving skills and adaptability in a hybrid remote-onsite work setup.

Realizations

This practicum enlightened me about industry practices on aligning software development outputs with organizational needs, especially in a corporate environment emphasizing sustainability and data-driven decision-making. I realized the importance of iterative development and continuous feedback incorporation to meet end-user expectations and ensure project relevance. The hybrid work arrangement taught me time management and self-discipline, essential for remote productivity. Furthermore, engaging with PetroEnergy highlighted the critical role technology plays in streamlining ESG-related reporting and data management across diverse subsidiaries, amplifying the impact of digital tools in enhancing operational efficiency and sustainability practices.

Conclusion

Overall, the practicum engagement was a highly valuable experience that bridged academic knowledge with real-world application. It provided me with hands-on exposure to software development cycles, from setup and design to deployment and training, totaling 392 hours of focused effort across four phases. This exposure has equipped me with the technical competencies, professional demeanor, and practical

insights necessary for my future career in software engineering and development. The learnings and realizations gained instilled confidence and readiness to contribute effectively in dynamic workplace environments, ensuring that I am well-prepared for upcoming professional challenges.

Appendices

Appendix A

Competency-Based CV

JOHN RAFAEL MENDEGORIN

Biñan Laguna, Philippines 4024 • (+63) 920 246 4984 • mendegorinraf@gmail.com
Linkedin.com/in/rafael-mendegorin/ • Github.com/ThatOneLeaf

SKILLS

- Programming Languages: JavaScript, Python, C#, SQL
- Frameworks: React, Flask, FastAPI, .NET Framework, Material-UI, Dash, WinForms
- Technologies: PostgreSQL, SQL Server, SQLAlchemy, NLTK, Plotly, Git, Postman, Figma

EXPERIENCE

Full-Stack Developer Intern | PetroEnergy Resources Corporation **May 2025 - July 2025**

- Contributed to ESGDash, an ESG monitoring platform, as part of the development team
- Gained hands-on experience with React and FastAPI while implementing features for economic metrics tracking
- Developed CRUD functionalities for economic data and generated data visualization from the data

PROJECTS

Web-Based Institutional Repository with Data Analytics and Knowledge Graph

- A comprehensive platform for Mapúa MCL researchers to gather, store, analyze, and share research data
- React, Flask, PostgreSQL, SQLAlchemy, Dash, Plotly, NLTK, Material-UI

ESG Dash

- A full-stack dashboard application for tracking and visualizing environmental, social, and governance metrics for energy companies
- React, FastAPI, PostgreSQL, Material-UI, Recharts

Procurement and Inventory System

- A Windows-based desktop application that streamlines procurement workflows with integrated email notifications and comprehensive reporting capabilitiesa
- C#, .NET Framework, WinForms, SQL Server

EDUCATION

Bachelor of Science in Computer Science **2021-2025**
Mapúa Malayan Colleges Laguna

- Software Engineering
- Introduction to Data Analytics
- Web Systems and Technologies
- Machine Learning

ADDITIONAL INFORMATION

- **Languages:** English, Tagalog
- **Certifications:** CompTIA IT Fundamentals + (2024), Learning Python for Data Analysis and Visualization (2024), Introduction to Git and Github (2025), The Complete SQL Bootcamp: Go from Zero to Hero (2022)

Appendix B

Endorsement Letter

MAPÚA MALAYAN COLLEGES LAGUNA

CCIS COLLEGE OF COMPUTER AND INFORMATION SCIENCE
MAPÚA MALAYAN COLLEGES LAGUNA

26 March 2025

ATTY. ARLAN P. PROFETA
Senior Vice President for Corporate Services, PetroEnergy
THRU: MS. VANESSA G. PERALTA
AVP for Corporate Communications and CIO, PetroEnergy
7th Floor, JMT Building, 1600 ADB Ave., Ortigas Business Center
Pasig, Metro Manila

Dear Atty. Arlan,

The BS Computer Science program of Mapúa Malayan Colleges Laguna requires their students to undergo a Practicum program for a minimum of 324 hours during the third term of our academic calendar.

We would like to request that Mr. John Rafael D. Mendegorin be permitted to have his training in your company. We believe that your company can provide the relevant exposure necessary for our students to achieve the intended learning outcomes for the BS Computer Science program. We are confident that he will be able to acquire the practical knowledge and skills expected from a Computer Science graduate which, in turn, would guarantee a continuous supply of CS professionals needed by your company.

We thank you for your favorable action and we look forward to a more meaningful linkage that is mutually beneficial to our students and your company.

With warm regards,

Jonalyn G. Ebron

JONALYN G. EBRON
BS Computer Science Program Chair
College of Computer and Information Science
Mapúa Malayan Colleges Laguna

jgberon@mcl.edu.ph
(049) 832-4076

Appendix C

Practicum Acceptance

MAPÚA MALAYAN COLLEGES LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

PRACTICUM CONFIRMATION AND ACCEPTANCE FORM

IMPORTANT INFORMATION

- STUDENTS ACCEPTED FOR PRACTICUM IN A HOST COMPANY WILL HAVE TO ACCOMPLISH THIS FORM.
- ASK THE PRACTICUM SUPERVISOR/ COMPANY REPRESENTATIVE TO FILL IN THE DETAILS OF THE TRAINING.
- SUBMIT TO THE PRACTICUM ADVISER/COORDINATOR PRIOR TO THE START OF TRAINING.

NAME OF STUDENT	JOHN RAFAEL D. MENDEGORIN	STUDENT NUMBER	2021160702
COURSE CODE	CS199F	SY/TERM ENROLLED	2024-2025 / 3rd Term

This is to certify that JOHN RAFAEL D. MENDEGORIN *(name of student-trainee)* has been accepted for practicum at PetroEnergy (7th Floor, JMT Building, Ortigas Business Center Pasig, Metro Manila *(name and address of establishment)* and will be attached to the PetroEnergy department/s for a minimum of, but not limited to 324 hours. Training will commence on April 28, 2025 and is expected to end on June 30, 2025. Attached is the list of requirements.

COMPANY REPRESENTATIVE

Signature over Printed Name	CIO
IT	vgperalta@petroenergy.com.ph
Department	Email and Contact Number/s

NOTED BY

Signature over printed name of Practicum Coordinator	4-23-2025
	Date

COPY: (1) STUDENT; (2) HOST COMPANY; (3) PRACTICUM COORDINATOR

FORM OVPAA 030B

THIS FORM IS AVAILABLE AT THE OVPAA.

MAPÚA MALAYAN COLLEGES LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

PRACTICUM CONFIRMATION AND ACCEPTANCE FORM

IMPORTANT INFORMATION

- STUDENTS ACCEPTED FOR PRACTICUM IN A HOST COMPANY WILL HAVE TO ACCOMPLISH THIS FORM.
- ASK THE PRACTICUM SUPERVISOR/ COMPANY REPRESENTATIVE TO FILL IN THE DETAILS OF THE TRAINING.
- SUBMIT TO THE PRACTICUM ADVISER/COORDINATOR PRIOR TO THE START OF TRAINING.

NAME OF STUDENT: JOHN RAFAEL D. MENDEGORIN
STUDENT NUMBER: 2021160702
COURSE CODE: CS199F
SY/TERM ENROLLED: 2024-2025 / 3rd Term

This is to certify that JOHN RAFAEL D. MENDEGORIN *(name of student-trainee)* has been accepted for practicum at PetroEnergy (7th Floor, JMT Building, Ortigas Business Center Pasig, Metro Manila *(name and address of establishment)* and will be attached to the PetroEnergy department/s for a minimum of, but not limited to 324 hours. Training will commence on April 28, 2025 and is expected to end on June 30, 2025. Attached is the list of requirements.

COMPANY REPRESENTATIVE

CIO
Official Designation
IT
Department
vgperalta@petroenergy.com.ph
Email and Contact Number/s

NOTED BY

Signature over printed name of Practicum Coordinator
4-23-2025
Date

COPY: (1) STUDENT; (2) HOST COMPANY; (3) PRACTICUM COORDINATOR

FORM OVPAA 030B

Appendix D

Liability Waiver

MAPÚA
MALAYAN COLLEGES
LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

STUDENT TRAINING AGREEMENT AND LIABILITY WAIVER

IMPORTANT INFORMATION

- THIS FORM IS TO BE ACCOMPLISHED AND SUBMITTED BY STUDENT TRAINEE TO THE PRACTICUM ADVISER BEFORE STARTING THE PRACTICUM.
- READ AND UNDERSTAND THE PROVISIONS OF THIS AGREEMENT AND WAIVER.
- ENSURE THAT ALL SIGNATORIES SIGN THE FORM.

I, JOHN RAFAEL P. MENDEGORIN, and a student of MALAYAN COLLEGES LAGUNA (hereinafter referred to as "MCL", do hereby voluntarily undergo on-the-job training at PetroEnergy, hereinafter referred to as the **"Host Company"**, located at 7th Floor, JMT Building, Ortigas Business Center, Pasig, Metro Manila, under the following terms and conditions:

a. That the practicum training will commence on April 28, 2025 and ends on June 30, 2025 and will have to complete a minimum of 324 hours required for the on-the-job training;

b. That I shall observe proper decorum and act professionally at all times and abide by the Company's rules and regulations and comply with those imposed for the training program, otherwise, I shall be excluded from further participation;

c. That in the course of my training program, I may have access to information which may be of confidential in nature and proprietary to the Company, for which I may be required to execute a confidentiality and non-disclosure agreement as a prerequisite to my participation in the training program;

d. That the time I will spend on the training program in the completion of my on-the-job training requirements will not and should not be interpreted or construed as working hours and should be regarded as non-compensable. Provided that, the Company may, as a unilateral act of liberality or generosity on their part, provide me with meal, travel, transportation allowances, accommodations, etc.;

e. That I fully understand that notwithstanding the allowances enumerated in the preceding section which I may receive, there exists no labor-management and/or employer/employee relationship between me and the Company where I will undergo my training;

f. That I shall exercise due care and diligence in the tasks assigned to me and personally be made answerable for any and all liabilities for damage to property or injury to third person, which may be occasioned by my intentional or negligent acts during the course of my on-the-job training;

g. That I shall likewise hold the Host Company and MCL free and harmless from any and all liability and responsibility for any sickness or injury to myself and third parties and damage to property which I may sustain and/or may occur at any time during the training program, including time spent in traveling to and from any and all premises and locations where I may be required to go to as part of my training program;

h. That the Company reserves the right to discontinue my training on reasonable grounds upon written notice to MCL and myself Additionally, in the event my training program is discontinued for reasons attributable only to myself, I may be made to reimburse the Host Company for any/all the allowances, stipends, etc., which I may have received from them during and prior to the termination of my training program;

i. That in addition to my liability under section ***g*** and for the pre-termination of my training program provided for under section ***h*** hereof, I may be subjected further to disciplinary action in accordance with the school's student manual and/or be a ground for disqualification from graduation;

Signed on this 7th day of April 2025.

JOHN RAFAEL P. MENDEGORIN
Signature over printed name of **Student Trainee**

WITH OUR CONSENT:

Signature over printed name of **Parent/Guardian**
(for minors only)

NOTED BY:

Printed Name and Signature of **Practicum Adviser/ Coordinator**

Printed Name and Signature of **Host Company Representative**

COPY: (1) STUDENT; (2) HOST COMPANY; (3) PRACTICUM ADVISER; (4) PRACTICUM COORDINATOR

FORM OVPAA 030

Appendix E

Training Plan

MAPÚA MALAYAN COLLEGES LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

TRAINING PLAN

NAME	JOHN RAFAEL P. MENDEGORIN	COURSE CODE	CS199F
PROGRAM & STUDENT NO.	CS / 2021160702	COURSE TITLE	CS PRACTICUM

STUDENT OUTCOMES

CO1. Identify, analyze, and recommend solution to the computing problem being faced by the organization
CO2. Apply the different concpets in Computer Science in dealing with the problem-solving process of the organization, and
CO3. Acquire new knowledge and experience while in the organization

AREAS / PHASES OF TRAINING AND TIME ALLOTMENT

Phase 1: Project Setup and Data Familiarization (48 Hours)
Phase 2: Data Modeling and System Design (96 Hours)
Phase 3: System Development and Implementation (120 Hours)
Phase 4: Documentation and Training (60 Hours)

EVALUATION GUIDELINES & COURSE OUTCOMES

DEMONSTRATION OF SOFT SKILLS (40%)	DEMONSTRATION OF TECHNICAL SKILLS (60%)
KEY AREAS COMMUNICATION SKILLS (20%) Relate to co-trainees/supervisors terminologies and rules Recite procedures and instructions needed for the tasks Identify and describe safety signs and symbols sk critical questions related to the tasks roduce well-written regular and incident reports repares and presents reports using Information and Communication echnology (ICT) ROFESSIONAL DEPORTMENT (20%) bserves proper grooming and attire eports to work regularly on time and as necessary, even beyond prescribed orking hour :ts according to the job description given by the company illing to accept new tasks apart from the usual routine and responsibilities livers quality output on time monstrates respect for different individuals TIATIVE (+5%) lunteers to perform tasks beyond routine tasks	KEY AREAS Database Modeling and System Design (20%) • Demonstrates understanding of database normalization and relationships • Incorporates business requirements into system design effectively System Development (15%) • Writes clean, maintainable, and well-documented code • Implements core features based on project specifications • Effectively uses version control (e.g., Git) Data Analytics and Visualization (15%) • Uses data visualization tools effectively • Identifies meaningful patterns and trends from data • Communicates insights clearly through reports or dashboards Documentation (10%) • Produces clear and structured technical documentation • Ensures documentation is understandable by both technical and non-technical stakeholders Initiative (+5%) • Volunteers to perform tasks beyond routine tasks

CONFORME	CONSENT (FOR MINORS ONLY)	NOTED BY	ENDORSED BY	APPROVED BY
JOHN RAFAEL P. MENDEGORIN SIGNATURE OVER PRINTED NAME OF STUDENT / DATE	SIGNATURE OVER PRINTED NAME OF PARENT OR GUARDIAN / DATE	SIGNATURE OVER PRINTED NAME OF PRACTICUM SUPERVISOR / DATE	SIGNATURE OVER PRINTED NAME OF PRACTICUM ADVISER / DATE 04.27.25	SIGNATURE OVER PRINTED NAME OF PROGRAM CHAIR / DATE

COPY: (1) STUDENT; (2) HOST COMPANY; (3) PRACTICUM COORDINATOR

FORM OVPAA-030D
THIS FORM IS AVAILABLE AT THE OVPAA.

Appendix F

Complete Weekly Journal

MAPÚA MALAYAN COLLEGES LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

DAILY JOURNAL

IMPORTANT INFORMATION

- INCLUDE TASK ASSIGNMENTS OR MOVEMENTS, REFLECTION ON THE DAY'S NEW LEARNING, ACCOMPLISHMENT, CHALLENGES FACED AND HOW YOU RESPONDED, OBSERVATIONS AND RECOMMENDATIONS ON THE IMPROVEMENT OF SYSTEMS / OPERATION / MANAGEMENT, ETC.
- SCANNED COPIES OF THIS FORM SHALL BE SUBMITTED ON A WEEKLY BASIS THROUGH APPROVED LMS.
- HARD COPIES OF THIS FORM SHOULD BE COMPILED AS PART OF THE STUDENT'S PORTFOLIO.

DATE	April 28 - May 2, 2025	AREA ASSIGNMENT	Phase 3
TASK	Data Familiarization and Analysis	SHIFT/TIME	7:00 AM – 4:00 PM

During this week, I focused on reviewing and analyzing PetroEnergy's sustainability dataset, specifically the Econ, HR, and Envi tabs. On Day 1 (April 28), I familiarized myself with the Econ Tab, identifying key financial and procurement disclosures, including economic value generated, operating costs, and capital expenditures.

On Day 2 (April 29), I shifted my focus to the HR and Social Tabs, reviewing employee headcounts, turnover, diversity, training, and benefits data. I also examined safety records, data privacy compliance, and community-related disclosures. I noted the company's low turnover and stable employment and reflected on how the data could strengthen ESG reputation and diversity reporting.

On Day 3 (April 30), I analyzed the Envi Tab, assessing energy consumption, water usage, GHG emissions, and waste data.

On Day 4 (May 2), I revisited the Econ Tab to reinforce my understanding of financial disclosures and procurement data. I noted potential metrics that could aid in profitability analysis and supplier management.

Overall, this week laid the groundwork for the project by deepening my understanding of PetroEnergy's ESG dataset and highlighting areas that require attention for accurate data analysis moving forward.

TRAINEE'S SIGNATURE

MAPÚA MALAYAN COLLEGES LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

DAILY JOURNAL

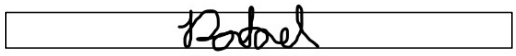
IMPORTANT INFORMATION

- INCLUDE TASK ASSIGNMENTS OR MOVEMENTS, REFLECTION ON THE DAY'S NEW LEARNING, ACCOMPLISHMENT, CHALLENGES FACED AND HOW YOU RESPONDED, OBSERVATIONS AND RECOMMENDATIONS ON THE IMPROVEMENT OF SYSTEMS / OPERATION / MANAGEMENT, ETC.
- SCANNED COPIES OF THIS FORM SHALL BE SUBMITTED ON A WEEKLY BASIS THROUGH APPROVED LMS.
- HARD COPIES OF THIS FORM SHOULD BE COMPILED AS PART OF THE STUDENT'S PORTFOLIO.

DATE	May 5 - May 9, 2025	AREA ASSIGNMENT	Phase 3
TASK	Requirements Gathering and Documentation	SHIFT/TIME	7:00 AM – 4:00 PM

This second week (May 5-9, 2025), we focused on defining the project's foundation, selecting the appropriate technologies, and outlining the data architecture for our ESG/CSR platform. On Day 1, we drafted the initial version of the project charter, capturing the project's scope, business need, milestone schedule, and overall goals, which helped align the team's efforts. On Day 2, we refined the charter and milestones to ensure that roles and responsibilities were clearly communicated and aligned with the project's objectives.

On Day 3, we researched and selected our technology stack—choosing React.js for the frontend, FastAPI for the backend, and PostgreSQL for the database—based on performance, scalability, and deployment considerations. We also conducted interviews with PetroEnergy staff to understand how they currently manage ESG and CSR data. On Day 4, we reviewed existing reports and worked closely with internal stakeholders to identify essential data points for tracking and analytics, as well as to align input frequencies with real-world reporting needs. On Day 5, we designed the overall data flow using the Medallion Architecture, defining the roles of the Bronze, Silver, and Gold layers to ensure data integrity, consistency, and readiness for analysis. Overall, the week provided a solid foundation for the project's technical and data strategy moving forward.



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MAPÚA MALAYAN COLLEGES LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

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DATE	May 13-16 2025	AREA ASSIGNMENT	Phase 3
TASK	Data Transformation and Cleaning Plan	SHIFT/TIME	7:00 AM – 4:00 PM

This week, I focused on the Data Transformation and Cleaning Plan, completing the Bronze, Silver, and Gold Layers for the economic data. On May 13 and 14, I finalized the Bronze Layer by setting up a raw staging area for all imported records. I ensured that the data was ingested as-is to maintain traceability, with table schemas mirroring the submitted file structures to allow reprocessing if needed.

On May 15, I moved to the Silver Layer, applying transformation logic, standard naming conventions, and calculated field enrichment. Each record was validated to meet business standards and analytics needs, marking a milestone where data became reliable for strategic decision-making. Finally, on May 16, I developed the Gold Layer by aggregating, grouping, and summarizing the data for dashboard visualizations and high-level reporting. This step concluded the economic data pipeline development phase, preparing the data for analysis and stakeholder reporting.

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DATE	May 19 - May 23, 2025	AREA ASSIGNMENT	Phase 3
TASK	Data Modeling and Database Design	SHIFT/TIME	7:00 AM – 4:00 PM

This 4th week (May 19–23, 2025), I focused on building key features for economic and CSR data visualizations, addressing backend logic, setting up the development environment, and refining data integrity.

On Day 1 (May 19), I implemented functions to process economic data for visualization, adding filtering capabilities to enhance user interaction and flexibility. On Day 2 (May 20), I then developed interactive visualizations for the economic data, ensuring that they are both informative and user-friendly. This work included hover effects to aid interpretation. On Day 3 (May 21), I extended the visualization functionalities to the CSR data module, applying similar filtering features to maintain consistency and usability across different sections of the project.

On Day 4 (May 22), I focused on setting up the development environment, configuring FastAPI for backend logic, React JS for the frontend interface, and PostgreSQL as the database system. This step ensured that all technical components were properly integrated and ready for subsequent development stages. Finally, on Day 5 (May 23), I concentrated on fixing calculations in the economic value distributed section, resolving rounding issues, and identifying data integrity problems that need to be addressed in future iterations.

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DATE	May 26 - May 30, 2025	AREA ASSIGNMENT	Phase 3
TASK	User Interface Design	SHIFT/TIME	7:00 AM – 4:00 PM

This week, I focused on prototyping and implementing the front-end and data handling features for the economic data management system. On May 26, I developed the initial dashboard prototype in Figma, which provided a clear visualization of the key metrics and trends. On May 27, I extended the Figma prototype by adding table pages for the three economic data components, ensuring a cohesive layout for future development.

On May 28, I incorporated input forms into the prototype for capturing economic data, aligning with user requirements and feedback. On May 29, I translated the designs into functional code by developing the table pages and input forms in the application and had them validated by key stakeholders to ensure usability. Finally, on May 30, I implemented import and export functions for all economic data components, enabling users to manage and migrate data efficiently.

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DATE	June 2 - 5, 2025	AREA ASSIGNMENT	Phase 3
TASK	System Development	SHIFT/TIME	7:00 AM – 4:00 PM

This week, I focused on developing and expanding the core functionalities of the economic data management system. On June 2, I added the Economic Capital Provider page, ensuring consistency in layout and navigation with the other economic sections. The next day, I implemented the function for inserting economic records using modals, allowing users to add data in a more structured and accessible manner. On June 4, I created templates for bulk insert operations across the three economic components—Value Generated, Expenditures, and Capital Providers—to streamline the process of uploading large datasets. Lastly, on June 5, I developed the edit pages for each economic section, enabling users to modify existing records directly from the interface. These implementations laid the groundwork for complete CRUD operations and improved the overall usability of the system.

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DATE	June 9 - 13, 2025	AREA ASSIGNMENT	Phase 3
TASK	System Development	SHIFT/TIME	7:00 AM – 4:00 PM

This week 7, I focused on refining the design consistency and enhancing the visual analytics of the economic data management system. On June 9, I refactored the economic pages to align with the overall interface design, ensuring uniformity across all modules. On June 10, I implemented the initial version of the economic dashboard, which served as the foundation for displaying key indicators and insights. By June 11, I added a dynamic and switchable Economic Retention Ratio chart, allowing users to view and interpret data across different economic dimensions. June 12 was a holiday, and work was paused. On June 13, I completed the week by integrating the export function into the economic dashboard, enabling users to download chart data for reporting and analysis purposes. These improvements contributed to both the system's visual coherence and its data accessibility.

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DATE	June 16 - 20, 2025	AREA ASSIGNMENT	Phase 3
TASK	System Development	SHIFT/TIME	7:00 AM – 4:00 PM

This week, I focused on improving the system's usability, security, and access control. On June 16, I modified the shared table component to support optional checkboxes, making it more adaptable since the economic pages did not require them. I also consolidated the three separate economic pages into a single page with tab-based navigation, providing a more streamlined user experience. On June 17, I implemented authentication features, including token generation, and added a reusable function to secure backend endpoints from unauthorized access.

On June 18, I extended protection to the frontend by creating a wrapper that restricts route access based on user roles. This ensured that only users with the correct permissions could access specific pages. On June 19, I updated the economic dashboard UI by integrating zoom functionalities for all charts and resizing the layout so that all visualizations fit on one screen without scrolling. Finally, on June 20, I introduced function decorators on the backend to simplify the enforcement of role-based access control across endpoints. These enhancements significantly strengthened both the security and usability of the system.

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DATE	June 23 - 27, 2025	AREA ASSIGNMENT	Phase 3
TASK	System Testing and Refinement	SHIFT/TIME	7:00 AM – 4:00 PM

This week focused on strengthening the system's reliability, security, and deployment readiness. On June 23, I implemented comprehensive backend error handling for the bulk upload feature, ensuring that users receive clear feedback when issues arise during file processing. I also made visual adjustments to parts of the economic dashboard to improve its overall presentation. On June 24, I enhanced database security by transforming user passwords to hashed formats using bcrypt as the encryption algorithm. On the same day, I collaborated with the client's IT team to deploy the frontend on a virtual machine, allowing access within the organization's network.

On June 25, we configured the hosted backend to successfully communicate with the hosted frontend, enabling the team to begin functional testing in the deployment environment. On June 26, I began revising the authentication token logic in response to client feedback, particularly to support an inactive timeout mechanism. By June 27, I had completed this enhancement by detecting user activity from the frontend, allowing the token to persist securely for up to 24 hours or expire automatically after one hour of inactivity. These updates significantly improved the system's robustness and security posture in preparation for real-world use.

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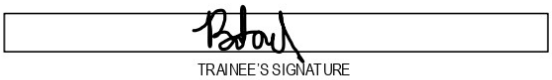
DATE	June 30 - July 4, 2025	AREA ASSIGNMENT	Phase 3
TASK	System Testing and Refinement	SHIFT/TIME	7:00 AM – 4:00 PM

This week 9, I focused on enhancing the system's usability and addressing critical issues reported during user acceptance testing. On June 30, I revised and improved the UAT test cases by incorporating images to guide users more clearly through each step. I also categorized the test cases based on user roles to streamline the testing process. On July 1, I resolved an issue where the login page would unexpectedly refresh upon entering an incorrect password, ensuring a smoother user experience. July 2 was a holiday. On July 3, I worked on adjusting the repository's layout for better responsiveness, resolved an input field issue, and added a warning prompt to notify users before overwriting existing records. Lastly, on July 4, I addressed a bug in the expenditures module that previously prevented updates under certain conditions. I also made UI improvements in the economic dashboard, such as removing unnecessary decimal places and allowing users to switch between the summary and retention ratio views even when zoomed in, in response to tester feedback.



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Appendix G

Daily Time Record

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LAGUNA

REVISION NO: 00
REVISION DATE: May 13, 2019

DAILY TIME RECORD*

NAME OF STUDENT: John Rafael P. Mendoza
NAME OF HOST COMPANY/ DEPARTMENT ASSIGNED TO: Pete Energy
MONTH: April
MONTH: May

DATE	TIME-IN	TIME-OUT	TOTAL HOURS	MGR/SPVSR INITIALS
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31				

DATE	TIME-IN	TIME-OUT	TOTAL HOURS	MGR/SPVSR INITIALS
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31				

* To be validated once a week by the Practicum Adviser/ Coordinator
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Date

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LAGUNA

REVISION NO.: 00
REVISION DATE: May 10, 2016

DAILY TIME RECORD*

NAME OF STUDENT	John Rafael D. Mendeglin
MONTH	June

NAME OF HOST COMPANY/ DEPARTMENT ASSIGNED TO	Petro Energy
MONTH	

DATE	TIME-IN	TIME-OUT	TOTAL HOURS	MGR/SPVSR INITIALS
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DATE	TIME-IN	TIME-OUT	TOTAL HOURS	MGR/SPVSR INITIALS
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