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RESEARCH ARTICLE OPEN ACCESS

Information System Technology Plan for Radz Enterprises

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Abstract:

Using manual tracking and management can be very challenging, especially in this generation where everyone has access to digital devices and relies on technology for efficiency. This paper proposed the integration of an order management system into a tailoring business which provides a modern solution for enhancing management efficiency and accuracy. With this integration, tailors can reduce manual errors, improve the overall performance of the business, and provide customer satisfaction.

Furthermore, the business owner and employees have access to centralized data for better planning and decision-making.

Keywords — **tailoring, management system, design, implementation**

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I. INTRODUCTION

1.1 Background of the Company

Darnel Medalla initially worked as an OFW in Saudi Arabia, but his interest in business grew over time as he observed his brothers, who also own a tailoring shop. As he worked abroad, he also sent money to his wife to start a tailoring business. The shop was founded in 2016 and was named "Radz Enterprises", located in Panabo City, New Pandan, Prk. Carnation. Radz Enterprises gained loyal customers and was known for its consistent quality, creativeness, and good services. The enterprise offers high-quality prints, customized clothing, accessories, etc. At the same time, ensuring both durability and quality.

1.2 Current Routines and Business Processes

1.2.1 Current Routines

Radz Enterprises employees start their work at 8 AM. Log in for the day shift. Employees have one hour to prepare and eat their breakfast; after that, by 9 AM, they start to check their sewing machines and other tools like scissors, measuring tapes, needles, and most importantly, the fabrics. They work on their task to assist customers and help the customer with their layout and to finish the recent tasks that are pending and with their billings. After that afternoon strike, the employees eat and enjoy their lunch. After 30 minutes have passed, workers continue their day shift and finish the pending task and cater to the new orders received. Tailors sometimes encounter some problems. Customers must place a 50% down payment, and when they pick up their order, they must be able to pay their balance. After a long

day, the clock turned to 4 PM, and employees took a short break from work. They accompanied themselves with snacks after a 15-minute short break, and they resumed their work till evening came from 6:30 PM to 7 PM. Workers treat themselves to dinner to relax after a long day of work. After they finish dinner, some employees finish their tasks or dispose of some of the items, and others prepare the finished product. Others slowly pack their things, and by 9 PM, the Rad's Tailoring shop is closed.

Table 1. Event Tables of Rads

Start time	End Time	Task	Duration
8:00AM	8:15AM	Log in for day shift	15MINS
8:15AM	9:00AM	Breakfast	45MINS
9:00AM	12:00PM	Do tasks	3HRS
12:00PM	12:30PM	Lunch Break	30MINS
12:30PM	4:00PM	Resume of work	3HRS AND 30MINS
4:00PM	4:15PM	Break Time	15MINS
4:15PM	6:30PM	Resume of work	1HR AND 45MINS
6:30PM	7:00PM	Dinner	30MINS
7:00PM	8:00PM	Finishing tasks	1HR
8:00PM	9:00PM	Out	1HR

Table 1 shows the daily events and tasks performed by the employees of RADS Enterprises

1.2.2 Business Process

1.2.2 Business Process

The shop is open starting from 8:00 AM to 9:00 PM Monday to Friday. Throughout the day, the shop entertains clients' inquiries, discussing the pricing, styles, fabric, and designs. Customers are assisted by the tailors to help them with the designs, but they can also provide their own. The designs and measurements are carefully customized by the tailors, ensuring a good quality product and service. The tailors make sure that their product is well made before releasing it to the customers. Rad's tailoring shop is known for the consistency of its products, reliable enough to gain loyal customers.

1.3 Problem Found

- Difficulty of monitoring the orders. The current manual tracking and management make it difficult to accurately track orders, leading to delays, wrong orders, miscommunication, and other potential risks.
- No centralized system. For customer payments (50% down payment, balance upon pickup/delivery).
- No automated inventory management leading to shortages or excess.

1.4 Goal and Objectives

1.4.1 General Objective

The researchers aim to improve the efficiency of the business by implementing an Order and Production Management System (OPMS) with integrated POS capabilities to transform Rad's Enterprises' operations.

1.4.2 Specific Objectives

The specific objective of this study is to enhance the business process and routines of the store. The researcher aims to

- To create an OPMS that tracks each customer's order, deposit, and payment in real-time in order to avoid mistakes in daily accounting.
- To integrate a point-of-sale (POS) module with StyleAssist 3D visualization for accurate design approvals and streamlined billing.

- To create an inventory auto notification for fabrics, threads, and tools so that production delays are lowered.
- To implement a shift-based task assignment system synchronized with Rad's work schedule (8 AM–9 PM, including breaks) to optimize employee productivity.

1.5 Organizational Structure

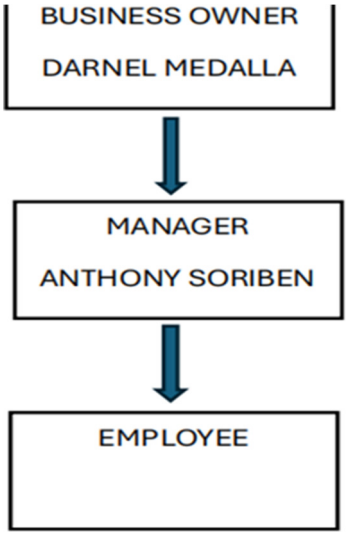


Figure 1: *Organizational Structure of Radz Enterprises*

1.7 Stakeholders

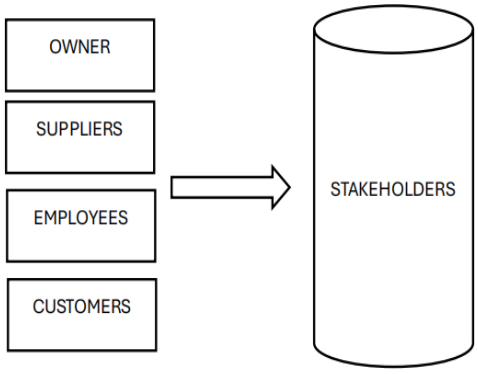


Figure 2: *Stakeholders of Radz Enterprises*

2. PROPOSED INFORMATION SYSTEM

The researchers proposed the upgrading of the Hardware and implementing order monitoring to improve the efficiency of the business processing and the tracking of all the orders

2.1 Name of IS

The Order and Production Management System (OPMS) in TailorTrack ERP serves as the central nervous system for Rad's Enterprises, with an embedded Point-of-Sale (POS) module that seamlessly handles financial transactions while maintaining focus on production management. When an order comes in, POS will collect the first 50% down payment and immediately convert it into a work order that goes directly to production scheduling. The OPMS tracks each order's journey through all stages - from fabric selection (using barcode scanning) to workstation assignment - while the POS module simultaneously manages payment balances and receipts. Because of this, business operations are not interrupted by payments, as the system reconciles them with achieved milestones. The production-focused features remain robust, including:

Real-time progress monitoring via Defended Inc.'s wireless framework, AI-generated cutting patterns that reduce fabric waste by 20%, and cloud-based dashboards that give managers complete visibility into both shop floor operations and financial performance through a unified interface.

2.1.1 Review of Related Literature

The initial production management systems were meticulously controlled and updated manually, which caused delays in communication and affected the speed and quality of managerial decision-making. Later, the integration of Enterprise Resource Planning (ERP) systems, designed to unify essential business functions, and Manufacturing Execution Systems (MES), which align more with the factory-based vertically oriented structure, marked an important change. Standards for real-time data sales integration were achieved, enabling instantaneous changes and optimizations throughout manufacturing workflows, which allowed for improved flexibility and speed of adaptation to rapidly changing market requirements. In OPMS, a critical feature is the integration of order management, where total automation reduces lead times by aligning customer demand to the production schedule [3]. OPMS links production

order assigning paired with batch sizing control dynamic disturbance compensators for job shop style to improve backlogged performance by orders, work in process inventories, and optimal timeliness for completing jobs [19]. Cloud-based solutions further enhance this by guaranteeing effortless updates spanning across entire supply chain networks [4]. Another key element is dynamic production planning. AI-powered algorithms optimize workflows considering factors like machine and personnel availabilities as well as material shortage [5]. Improvement of just-in-time (JIT) manufacturing has also been enhanced through the application of reinforced learning techniques, allowing for more flexible and efficient production cycles [6]. Advanced OPMS provides real-time production data, allowing immediate intervention in order execution and production scheduling [20]. Real-time OPMS has a significant positive impact on inventory and warehouse management through loT-enabled tracking systems that reduce stockouts and overstocking [7]. The use of blockchain technology is aimed at enhancing transparency for the purposes of inventory audits, guaranteeing the integrity of data within the supply chains [8]. Furthermore, the control of quality in real-time, together with maintenance anticipation, is central to the reduction of defects and downtimes. Operational effectiveness is improved when AI models analyze sensor data for early detection of anomalies alongside failure forecasting by maintenance algorithms are done before the event [9], [10]. Moreover, these systems incorporate analytics conducted in the field alongside strategies geared towards achievement. They capitalize on the ever-increasing availability of data generated by industrial processes and production activities. The advantages of real-time OPMS are well documented, such as decreased lead times, improved resource allocation, greater customer satisfaction because of improved delivery estimates, and fewer complaints [11-[13]. On the other hand, the data security concerns of cloud-based structures, high costs for small and medium enterprises (SMEs), and integration issues with older modular ERP systems pose the greatest challenges [8], [9], [14]. Upcoming developments in real-time OPMS include using a digital twin for real-time production simulation, edge computing, and artificial intelligence for faster-than-requirement response manufacturing [15]-[17]. Overall, OPMS provides timely information and adaptive controls to assist decision-making, risk management, and operational efficiency in sophisticated manufacturing systems, thereby enabling these functions [18], [21]. Looking through the eyes of a student researcher, it is evident that real-time OPMS marks a new era in the integration of manufacturing and supply chain systems. Software systems that allow decision-making based on data, in a short time, are highly transformative. Although there are clear problems with costs and security, the continuous progress in AI, IoT, and cloud computing is opening useful solutions. Going forward, it's important to make sure these potent tools are available to smaller organizations and to build strong security systems to help them stick around and be recognized by more people.

2.1.2 System Functionality

Order and Production Management Systems (OPMS)

- It digitizes order intake with 50% auto-deposits
- It tracks orders in real-time from measurement to delivery
- It prevents stockouts with barcode-scanned fabric alerts
- It auto-reorders supplies when inventory is low
- It reduces fabric waste by 20% via AI cutting patterns
- It monitors sewing progress with IoT sensors
- It enforces deposit/balance payments automatically
- It generates POS receipts tied to each order
- It provides daily profit/loss reports
- It shows live dashboards of order backlogs

2.1.3 System Architecture

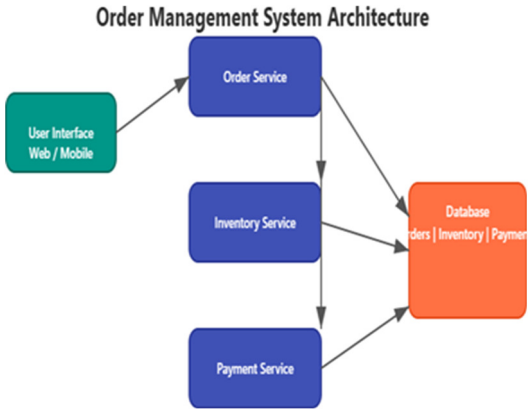


Figure 3. *System Architecture of Radz Enterprises*

2.2.4 Cost Structure

Table 2. Cost Structure

Cost Description	Cost
Operational Cost	₱30,000
Maintenance Cost	₱20,000
Total Cost:	**₱ 50,000**

3. PROPOSED IT INFRASTRUCTURE AND PEOPLEWARE

The researchers want to improve the efficiency and productivity of the business and its employees to make business management flexible and organized. To achieve this, the researchers introduce the Order and Production Management System (OPMS).

3.1 Proposed Computer Hardware

The hardware infrastructure is integrated with fast-growing technologies to make business operations function smoothly. A business is considered operationally robust with adequate hardware.

Table 3. Computer Hardware

Computer Hardware	Specification	Unit Cost	Quantity	Total Cost
Computer set	Intel core i5-12400	₱8,000	2	₱16,000
	4TB SSD	₱6,000	2	₱12,000
	NVidia GeForce RTX 2060	₱17,500	2	₱35,000
Overall Cost: ₱63,000				

3.2 Proposed Operating System Platforms

The operating system is the most critical software that runs on a computer. It manages the computer's memory and processes, as well as all of its software and hardware

Table 4. Operating System

OS Platform	Specification	Unit Cost	Quantity	Total Cost
Windows 11		₱5,000	2	₱5,000
Overall Cost: ₱ 5,000				

3.3 Proposed Enterprise Software Applications

The operating system is the most critical software that runs on a computer. It manages the computer's memory and processes, as well as all of its software and hardware.

Table 5. Enterprise Software Applications

Enterprise Software	Specification	Unit Cost	Quantity	Total Cost
Excel		₱3,000	2	₱6,000
Outlook		FREE		
Teams		FREE		
OneDrive		FREE		
SharePoint		3,500		₱7,000
OneNote		FREE		

Access		3,000		
Publisher		3,000		
Adobe Photoshop		4,500		₱10,000
Overall Cost: ₱23,000				

3.4 Proposed Network & Telecommunications

LANs are usually used to connect computers and devices within a small geographical area, such as office, they assist with sharing of resources such as files, Internet connection, printers, and connected devices.

Table 8. Network & Telecommunications

Local Area Network	It is commonly used for faster communication and connectivity.	₱4,000	1	₱4,000
		₱		₱
Overall Cost: ₱4,000				

3.5 Proposed Internet Platforms

E-Commerce is the buying and selling of goods or services via the Internet, and the transfer of money and data to complete the sales.

Table 9. Internet Platform

Proposed Internet Platforms	Specification	Unit Cost	Quantity	Total Cost
E-commerce	Allows customers of Radz Enterprises online	FREE	1	FREE
Overall Cost: FREE				

3.6 Prototype

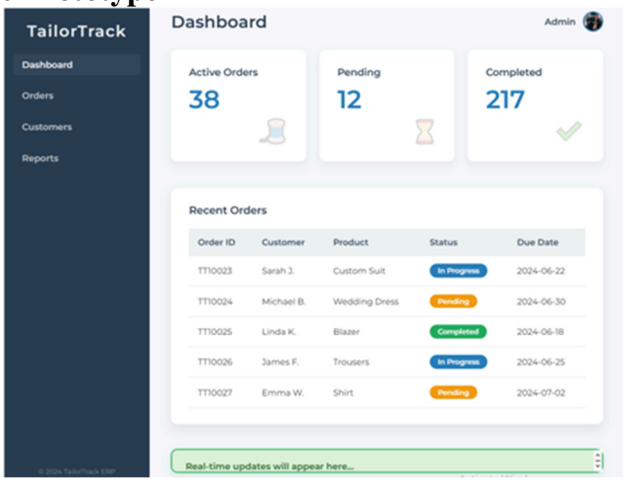


Figure 4: *Prototype for Radz Enterprises*

4. CONCLUSION AND RECOMMENDATION

4.1 Conclusions

Based on the findings of this study, the Radz Enterprises should implement an Order and Production Management System (OPMS) in order to improve the overall performance and maximize the capabilities of the business, enhancing the business workflow.

Upgrading with IT-based systems helps the business keep up and meet the customer demands and maintain the advantage in the market.

4.2 Recommendations

This study recommends that enhancing business processes and expanding productivity requires IT infrastructure and Information systems. The following are the researcher's suggestions for the Rad's Enterprises:

- To explore future trends
- Using cloud-based systems
- To strengthen the production monitoring.
- To acquire the best Network and Telecommunication for the firm.
- Implement a feedback mechanism.

These recommendations are some of the best ways for the efficiency and effectiveness of the company.

REFERENCES

[1] V. Kumar and N. Suresh, Production and Operations Management, 2nd ed. New Delhi: New Age International, 2016.

[2] D. Zuehlke, "SmartFactory—Towards a factory-of-things," Annu. Rev. Control, vol. 34, no. 1, pp.

129–138, 2015.

[3] B. Li, L. Zhang, and S. Wang, "Real-time order tracking in smart manufacturing systems," IEEE

Trans. Ind. Informat., vol. 15, no. 6, pp. 3565–3574, 2019.

[4] A. Gunasekaran, T. Papadopoulos, and D. Dubey, "Cloud computing and supply chain management: A

critical review," Int. J. Prod. Res., vol. 55, no. 15, pp. 4439–4463, 2017.

[5] D. Mourtzis, E. Vlachou, and N. Milas, "Dynamic scheduling in the era of cloud manufacturing," J.

Manuf. Syst., vol. 60, pp. 1–12, 2021.

[6] J. Park, Y. Park, and S. Lee, "Reinforcement learning for adaptive production scheduling," IEEE

Access, vol. 10, pp. 45672–45683, 2022.

[7] F. Tao, Y. Cheng, and J. Cheng, "Digital twins and IoT for smart manufacturing," IEEE Internet

Things J., vol. 7, no. 5, pp. 4324–4334, 2020.

[8] N. Kshetri, "Blockchain and sustainable manufacturing," IT Prof., vol. 23, no. 3, pp. 35–39, 2021.

[9] J. Dalzochio et al., "Machine learning for predictive maintenance in manufacturing,"

J. Intell. Manuf.,

vol. 31, no. 4, pp. 927–944, 2020.

[10] J. Lee, F. Wu, and W. Zhao, "IoT-based predictive maintenance for smart factories," IEEE Trans. Ind.

Electron., vol. 68, no. 3, pp. 2516–2525, 2021.

[11] S. F. Wamba, A. Gunasekaran, and S. Akter, "Big data analytics in supply chain management," Prod.

Plan. Control, vol. 28, no. 11-12, pp. 877–890, 2017.

[12] P. Zheng, Z. Wang, and C. Chen, "Smart manufacturing systems for Industry 4.0," IEEE Robot.

Autom. Lett., vol. 4, no. 2, pp. 1449–1456, 2019.

[13] T. Choi, S. Wallace, and Y. Wang, "Big data analytics in operations management," Prod. Oper.

Manag., vol. 29, no. 5, pp. 1203–1217, 2020.

[14] Y. Zhang, H. Zhang, and Q. Liu, "Real-time production optimization using IoT," IEEE Trans. Autom.

Sci. Eng., vol. 15, no. 4, pp. 1785–1796, 2018.

[15] F. Tao, H. Zhang, and Y. Cheng, "Digital twin-driven smart manufacturing," IEEE/CAA J. Autom.

Sin., vol. 6, no. 1, pp. 1–12, 2019.

[16] W. Shi, J. Cao, and Q. Zhang, "Edge computing in smart manufacturing," IEEE Internet Things J.,

vol. 8, no. 5, pp. 3924–3934, 2021.

[17] J. Park, S. Lee, and Y. Kim, "AI-driven demand sensing for responsive manufacturing," IEEE Trans.

Eng. Manag., vol. 69, no. 4, pp. 1234–1245, 2022.

[18] S. Saha, R. Bandyopadhyay, and A. K. Chatterjee, "Real-time production management for

heterogeneous manufacturing systems," Int. J. Prod. Res., vol. 54, no. 8, pp. 2345–2360, 2016.

[19] P. Georgiadis and C. Michaloudis, "Real-time production planning and control in job-shop

manufacturing," J. Manuf. Syst., vol. 30, no. 3, pp. 130–143, 2015.

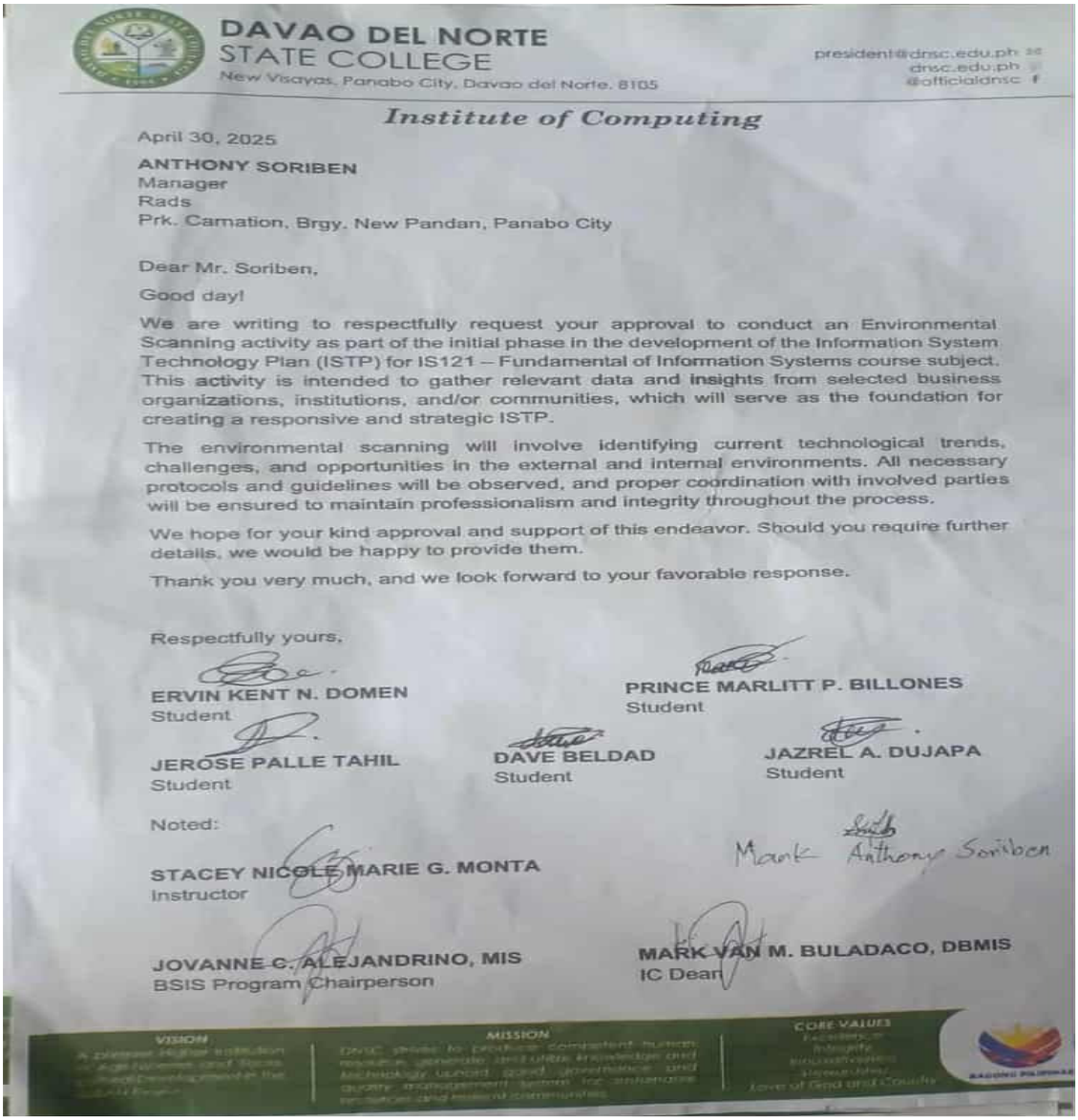
[20] M. Duttenhofer and K. Wegener, "Real-time intervention in production planning systems," Comput.

Ind. Eng., vol. 27, no. 1-4, pp. 185–188, 2017.

[21] S. Kumaraguru, K. Rachuri, and S. Lechevalier, "Real-time analytics for production performance management," IEEE Trans. Autom. Sci. Eng., vol. 11, no. 4, pp. 1027–1037, 2015.

APPENDICES

APPENDIX A
Letter of Approval



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Institute of Computing

April 30, 2025

ANTHONY SORIBEN
Manager
Rads
Prk. Carnation, Brgy. New Pandan, Panabo City

Dear Mr. Soriben,

Good day!

We are writing to respectfully request your approval to conduct an Environmental Scanning activity as part of the initial phase in the development of the Information System Technology Plan (ISTP) for IS121 – Fundamental of Information Systems course subject. This activity is intended to gather relevant data and insights from selected business organizations, institutions, and/or communities, which will serve as the foundation for creating a responsive and strategic ISTP.

The environmental scanning will involve identifying current technological trends, challenges, and opportunities in the external and internal environments. All necessary protocols and guidelines will be observed, and proper coordination with involved parties will be ensured to maintain professionalism and integrity throughout the process.

We hope for your kind approval and support of this endeavor. Should you require further details, we would be happy to provide them.

Thank you very much, and we look forward to your favorable response.

Respectfully yours,

ERVIN KENT N. DOMEN
Student

PRINCE MARLITT P. BILLONES
Student

JEROSE PALLE TAHIL
Student

DAVE BELDAD
Student

JAZREL A. DUJAPA
Student

Noted:

STACEY NICOLE MARIE G. MONTA
Instructor

Mark Anthony Soriben

JOVANNE C. ALEJANDRINO, MIS
BSIS Program Chairperson

MARK VAN M. BULADACO, DBMIS
IC Dean

VISION

MISSION

CORE VALUES

APPENDIX B
Curriculum Vitae

JAZREL DUJAPA
STUDENT

Contact

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Address
Kanari Homes, Panabo City

Education

Bachelor of Science in Information Systems

Expertise

- Communication Skills
- Sketching
- Management

Language

English
Filipino

About Me

I am a motivated and detail-oriented student currently pursuing a degree at DNSC, with a strong interest in problem-Solving. I have developed a solid academic foundation in areas such as Communication skills, and collaborative projects, and I am eager to apply my knowledge in a practical, real-world setting. I thrive in team-oriented environments, take initiative, and continuously seek opportunities to grow both personally and professionally.

Experience

2022
Panabo City
Customer Service

- Provided friendly and efficient service to customers in a high-traffic retail environment
- Worked collaboratively with team members to organize inventory and meet daily sales goals

References

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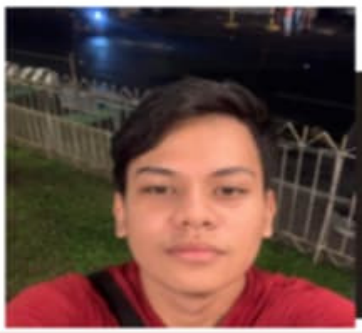

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EDUCATION

BS Information System
Davao del Norte state college
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2024-2025

SKILLS

- System Analysis
- Negotiation Skills
- Problem-Solving
- Time Management
- Presentation Skills
- Team Collaboration

LANGUAGE

English
Cebuano

Objectives

As a proactive and detail-oriented individuel, I aim to contribute to innovative solutions in business process optimization through technology. Our recent proposal for an Order and Production Management System (OPMS) for Rads Tailoring reflects my commitment to streamlining operations and enhancing productivity in small to medium-sized enterprises. Through this publication, I seek to demonstrate the practical application of system development principles in real-world settings and to support the digital transformation of traditional businesses.

WORK EXPERIENCE

March 13 - April 10
Davao Del Norte State College
Records Manager

- Maintain the integrity, reliability, and accessibility of records for decision-making, audits, and operational continuity.
- Ensure the organization meets legal and regulatory standards related to data retention, privacy, and recordkeeping.

REFERENCES

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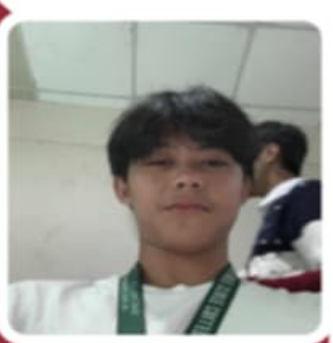

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Education

BS Information System
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Expertise

- Problem-Solving
- Time Management
- Team Collaboration
- NEGOTIATION SKILLS

Language

English

Cebuano

JEROSE P. TAHIL

Researcher

Objectives

As a proactive and detail-oriented person, I aim to create innovative ways to improve business processes using technology. Our recent proposal for an Order and Production Management System (OPMS) for Rods Tailoring shows my commitment to making operations more efficient and productive for small and medium-sized businesses. Through this work, I want to demonstrate how system development can solve real-world problems and help traditional businesses adapt to the digital age.

WORK EXPERIENCE

- June 15 2022 - May 11 2025
- Labor
- Tagum Public Market

REFERENCES

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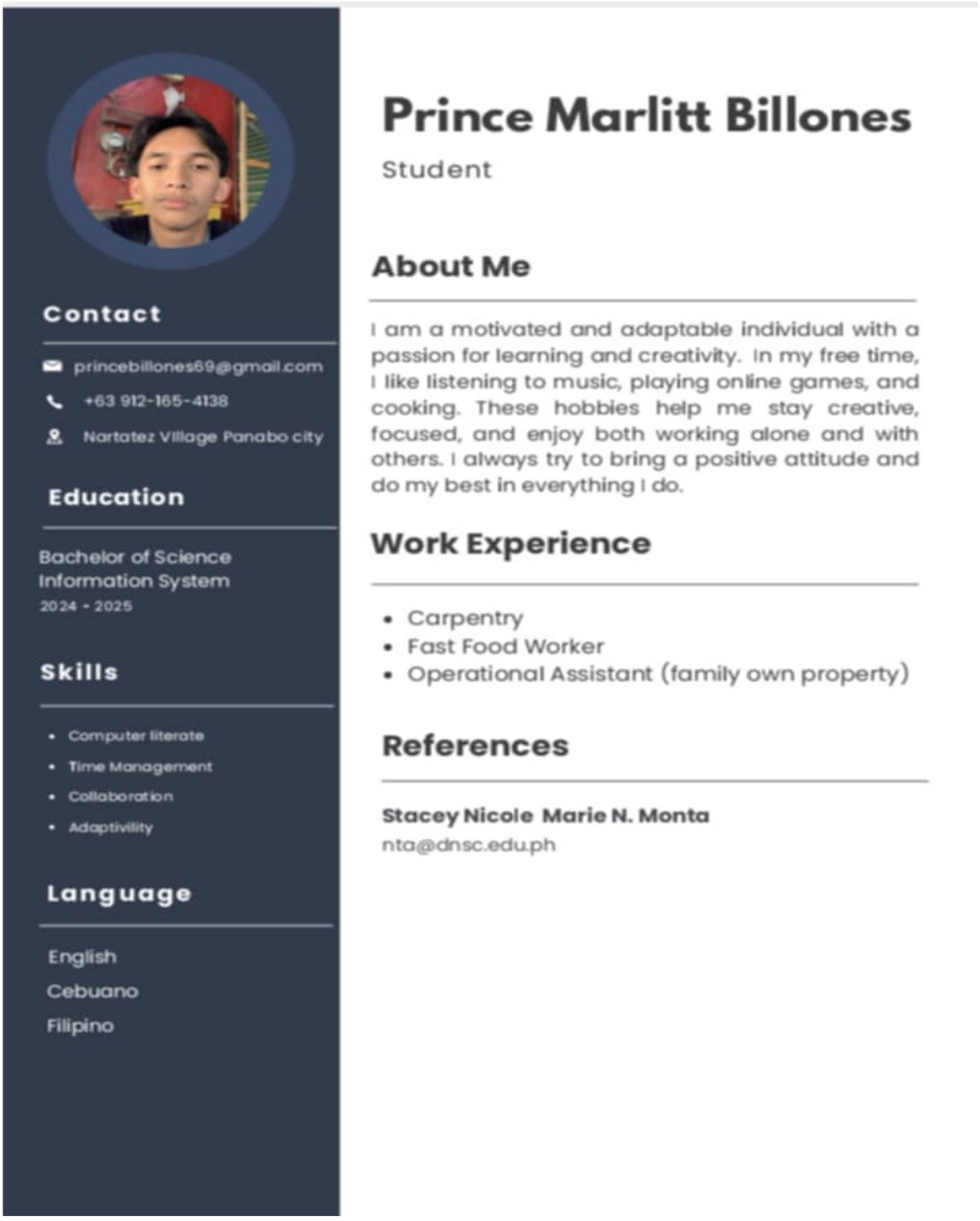

Prince Marlitt Billones

Student

About Me

I am a motivated and adaptable individual with a passion for learning and creativity. In my free time, I like listening to music, playing online games, and cooking. These hobbies help me stay creative, focused, and enjoy both working alone and with others. I always try to bring a positive attitude and do my best in everything I do.

Work Experience

- Carpentry
- Fast Food Worker
- Operational Assistant (family own property)

References

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Education

Bachelor of Science
Information System
2024 - 2025

Skills

- Computer literate
- Time Management
- Collaboration
- Adaptivility

Language

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Cebuano
Filipino

HAZEL DAVE BELDAD

Researcher

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EDUCATION

Borcelle University
BS Information System Davao del Norte state college
undergraduate
2024-2025

SKILLS

- Management Skills
- Creativity
- Digital Marketing
- Negotiation
- Critical Thinking
- Leadership

LANGUAGE

English
Cebuano

OBJECTIVES

As a proactive and detail-oriented individual, I aim to contribute to innovative solutions in business process optimization through technology. Our recent proposal for an Order and Production Management System (OPMS) for Rads Tailoring reflects my commitment to streamlining operations and enhancing productivity in small to medium-sized enterprises. Through this publication, I seek to demonstrate the practical application of system development principles in real-world settings and to support the digital transformation of traditional businesses.

WORK EXPERIENCE

Tailoring printing design

