**Feasibility Analysis**

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The feasibility analysis aims to determine whether the proposed system can be developed and successfully implemented by assessing its technical, economic, and operational aspects. It ensures the project is practical, cost-effective, and suitable for the company’s needs.

**Technical Feasibility**

To determine if the student developers and the company have the necessary technology, resources, and skills to build and use the proposed system.

**Development Side (Students)**

1. **Skills and Knowledge**

The student developers possess the following programming skills and knowledge:

* **Web Development**: HTML, CSS, JavaScript, and PHP programming
* **Framework Experience:** CodeIgniter framework development
* **Database Management:** MySQL database design and implementation
* **Version Control:** Git and GitHub for collaborative development and project management
* **Systems Development:** Web-based information management systems
* **API Development:** Web API integration and development experience
* **Academic Foundation:** Systems Analysis and Design coursework knowledge

1. **Tools and Platforms**

The following programming languages, frameworks, and tools will be used:

* **Backend Framework:** CodeIgniter 4 PHP Framework
* **Programming Languages:** PHP, HTML5, Bootstrap, JavaScript
* **Database:** MySQL
* **Development Environment:** Visual Studio Code
* **Version Control:** Git with GitHub
* **Local Development Server:** XAMPP
* **Database Management:** phpMyAdmin
* **Web Browser:** Chrome for testing and development

1. **Resources Available**

The students have access to the following required resources:

* **Hardware:** Personal computers/laptops for each team member
* **Software:** Free development tools (VS Code, XAMPP, Git, web browsers)
* **Internet Access:** Reliable internet connection for research, collaboration, and GitHub repository management
* **University Resources:** Computer laboratory access with installed development software
* **Cloud Platform:** GitHub for repository hosting and team collaboration
* **Academic Support:** Instructor guidance and peer collaboration within the 4-member development team

**Client Side (Company)**

1. **Existing Hardware/Software**

SnackCorner currently has the following hardware and software:

* **Basic Computing Equipment:** Standard desktop computer or laptop for business operations
* **Storage Systems:** Physical shelving and storage areas for inventory
* **Paper-based Systems:** Manual record books, receipts, and inventory logs
* **Basic Office Supplies:** Calculators, pens, and filing systems
* **Internet Connection:** Basic broadband internet access for business operations
* **Mobile Devices:** Smartphones or tablets that can be used for system access

1. **Readiness to Adopt System**

The company demonstrates strong readiness to adopt the proposed system:

* **Problem Recognition:** SnackCorner has clearly identified inefficiencies in their current paper-based system and actively seeks digital solutions
* **Business Motivation:** The owner understands the benefits of automated inventory and sales management for business growth
* **Collaborative Approach:** The company is willing to work with student developers and provide necessary business information
* **Staff Technical Skills:** Basic computer literacy among employees, with willingness to learn new digital processes
* **Change Management:** Small business size allows for easier implementation and staff training
* **Support System:** Owner commitment to transition from manual to digital operations

1. **Ease of Use**

The proposed system will be highly accessible for non-technical employees:

* **Intuitive Web Interface:** Simple, user-friendly design using familiar web browser navigation
* **Minimal Training Required:** Basic point-and-click operations similar to common websites
* **Clear Visual Design:** Clean layout with obvious buttons, forms, and navigation menus
* **Simple Workflows:** Straightforward processes for recording sales and checking inventory
* **Error Prevention:** Built-in validation and confirmation messages to prevent mistakes
* **Mobile-Responsive:** System accessible on smartphones and tablets for convenience
* **Local Language Support:** Interface can be designed with familiar terminology for the local business context
* **Quick Learning Curve:** Staff can become proficient within days of basic training

**Economic Feasibility**

Costs and benefits are considered to determine if the proposed system is financially reasonable for the student developers and the company.

**Development Side (Students)**

* 1. **Estimated Development Costs**

The following expenses are anticipated for the student developers:

* **Transportation Costs:** ₱200-400 for multiple site visits to SnackCorner in Barangay Labangal, General Santos City for requirements gathering, system testing, and implementation
* **Documentation and Printing:** ₱200-500 for project documentation, system manuals, user guides, and final report printing
* **Internet and Data:** ₱200-400 for additional internet usage during development, research, and collaboration
* **Deployment Hosting:** ₱0-1,000 (optional cloud hosting for demonstration purposes, if local deployment is insufficient)
* **Miscellaneous Supplies:** ₱200-300 for USB drives, storage devices, and other development materials
* **Total Estimated Cost:** ₱1,200-3,000 per team (₱300-750 per student)

**b. Funding Source**

The project will be funded through the following sources:

* **Self-Funding:** Primary funding source - students will share development costs equally among the 4 team members
* **Academic Support:** University provides access to computer laboratories, software licenses, and internet connectivity at no additional cost
* **Minimal External Support:** No external funding required due to low-cost development approach
* **Shared Resources:** Team members will pool resources for transportation and documentation costs
* **In-Kind Contributions:** Students contribute their time, skills, and personal equipment (laptops, internet) as part of the academic project

**c. Cost Minimization**

The students plan to keep costs extremely low through the following strategies:

* **Free Development Tools:** Using Visual Studio Code, XAMPP, Git, and other open-source development software
* **Open-Source Framework:** CodeIgniter 4 framework and MySQL database require no licensing fees
* **Free Hosting Platforms:** GitHub for code repository and potential GitHub Pages or free hosting services for demonstration
* **Local Deployment:** Implementing system on company's existing hardware to avoid cloud hosting costs
* **Team Collaboration:** Sharing transportation costs and coordinating group visits to minimize individual expenses
* **Digital Documentation:** Primarily using digital formats and minimal printing only for final submissions
* **Reusable Components:** Leveraging existing code knowledge from previous projects to reduce development time and effort

**Client Side (Company)**

1. **Implementation Costs**

The following expenses may be required for SnackCorner:

* **Internet Connection:** ₱500-700 monthly (stable broadband connection for reliable system access)
* Printer/Receipt Printer: ₱400-600 (for printing sales reports and receipts, if not already available)
* Backup Storage: ₱200-300 (external hard drive or USB for data backup)
* System Maintenance: ₱200-500 monthly (basic technical support and system updates)

1. **Return on Investment (ROI)**

SnackCorner will experience significant benefits that far exceed the implementation costs:

**Time Savings:**

* **Daily Operations:** 1-2 hours saved daily from automated sales recording instead of manual paper logs
* **Inventory Management:** Real-time stock tracking eliminates weekly manual counting sessions
* **Report Generation:** Monthly sales reports generated instantly instead of spending hours calculating from paper records
* **Reorder Process:** Automated low-stock alerts prevent time spent checking shelves manually

**Cost Reduction:**

* **Paper and Supplies:** ₱300-500 monthly savings on notebooks, pens, and receipt books
* **Error Prevention:** Reduced losses from calculation mistakes and inventory miscounts
* **Labor Efficiency:** Staff can serve more customers instead of doing paperwork during peak hours

**Business Growth Benefits:**

* **Better Decision Making:** Sales data helps identify best-selling products and optimal stock levels
* **Customer Service:** Faster checkout process and accurate product availability information
* **Inventory Optimization:** Prevents overstocking of slow-moving items and stockouts of popular products
* **Professional Image:** Digital receipts and organized system improve customer confidence

**Operational Efficiency:**

* **Reduced Human Error:** Automated calculations eliminate math mistakes in sales totals
* **Better Stock Control:** Expiration date tracking reduces waste from expired products
* **Data Security:** Digital backup prevents loss of sales records due to damaged or lost paper logs
* **Scalability:** System can handle business growth without proportional increase in administrative work

**Quantified ROI:**

* **Monthly Implementation Costs:** ₱700-1,200
* **Monthly Savings:** ₱1,300-2,500 (time savings + error prevention + supply costs)
* **Net Monthly Benefit:** ₱600-1,300
* **Annual ROI:** 150-300% return on investment

**Payback Period:** 3-6 months Long-term Benefits: Improved business management capabilities that support sustainable growth and better customer service in the competitive snack food market.

**Operational Feasibility**

To assess whether the proposed system will work smoothly within the company’s day-to-day operations and if the users can use it effectively.

**Development Side (Students)**

1. **Understanding the Requirements**

The student developers will gather and understand SnackCorner's needs using the Waterfall approach:

**Sequential Requirements Phase:**

* **Complete Requirements Gathering:** Thorough documentation of ALL business needs before proceeding to design phase
* **Stakeholder Sign-off:** Formal approval from SnackCorner owner on finalized requirements document
* **No Scope Creep:** Well-defined, stable requirements that won't change during development
* **Comprehensive Analysis:** Detailed study of current manual processes to ensure complete system coverage

**Structured Documentation Process:**

* **Requirements Specification Document:** Formal documentation of all functional and non-functional requirements
* **Business Process Mapping:** Complete workflow analysis before system design begins
* **Use Case Documentation:** Detailed scenarios covering all possible system interactions
* **Acceptance Criteria:** Clear, measurable criteria for system completion and approval

**Waterfall Validation:**

* **Phase Gate Reviews:** Formal review and approval before moving from requirements to design phase
* **Stakeholder Approval:** Written confirmation that requirements meet all business needs
* **No Backtracking:** Requirements are locked once approved, ensuring stable development foundation

1. **Training & Support**

Training and support will be systematically planned within the Waterfall framework:

**Pre-planned Training Strategy:**

* **Training Phase:** Dedicated phase in the Waterfall schedule specifically for user training
* **Comprehensive Materials:** All training materials designed and created during the design phase
* **Structured Training Plan:** Sequential training modules following the Waterfall approach
* **Complete Documentation:** Full user manuals and guides prepared before system deployment

**Systematic Support Framework:**

* **Support Documentation:** Complete troubleshooting guides created during the testing phase
* **Formal Handover:** Structured knowledge transfer session as part of deployment phase
* **Post-Implementation Support:** Defined support period following successful system deployment
* **Academic Timeline Alignment:** Support schedule coordinated with course requirements and deadlines

1. **Adaptability**

While Waterfall is less flexible, the system design will accommodate operational needs:

**Built-in Flexibility:**

* **Comprehensive Design Phase:** All potential operational scenarios addressed during design to minimize post-deployment changes
* **Thorough Testing:** Complete system testing phase ensures operational issues are identified and resolved before deployment
* **Stable System Foundation:** Well-planned architecture based on CodeIgniter 4 and MySQL experience from WITMS and WebSystem-ITE311 projects

**Limited Change Management:**

* **Phase Completion:** Changes only possible within the current development phase
* **Formal Change Requests:** Any modifications require formal approval and may impact project timeline
* **Documentation Updates:** All changes formally documented to maintain Waterfall methodology integrity

**Post-Deployment Considerations:**

* **Maintenance Phase:** Separate maintenance phase after successful deployment for any critical operational adjustments
* **Future Enhancements:** Any major changes would require a new development cycle
* **System Stability:** Emphasis on getting requirements right the first time to minimize post-deployment issues

**Client Side (Company)**

1. **User Readiness**

SnackCorner staff demonstrate adequate readiness for system adoption:

**Basic Computer Literacy:**

* **Fundamental Skills:** Staff possess basic computer operation skills including keyboard and mouse navigation
* **Internet Familiarity:** Employees are comfortable using web browsers and basic online applications
* **Mobile Device Experience:** Staff regularly use smartphones, indicating adaptability to digital interfaces

**Learning Capacity:**

* **Small Team Advantage:** Limited number of employees allows for focused, personalized training
* **Motivated Workforce:** Staff understand the benefits of reducing manual paperwork and are eager to learn
* **Age Demographics:** Working-age employees with capacity to adapt to new technology

**Training Requirements:**

* **Minimal Technical Barriers:** Web-based system requires only browser navigation skills
* **Intuitive Interface:** System designed for non-technical users with simple point-and-click operations
* **Quick Learning Curve:** Basic system functions can be mastered within 2-3 training sessions

**b. Workflow Compatibility**

The proposed system seamlessly integrates with SnackCorner's current operations:

**Natural Process Integration:**

* **Sales Recording:** Digital system follows the same transaction flow as current manual process (customer selection → product recording → payment → receipt)
* **Inventory Management:** Automated stock tracking replaces manual counting without changing product handling procedures
* **Minimal Disruption:** Staff can continue serving customers while the system handles background calculations and record-keeping

**Operational Continuity:**

* Same Business Hours: System operates within existing store schedule without requiring extended hours
* Familiar Workflows: Digital processes mirror current manual procedures, reducing learning complexity
* Gradual Implementation: Waterfall methodology allows for systematic rollout without operational chaos
* Backup Procedures: Manual processes can continue as backup during initial transition period

**Enhanced Efficiency:**

* **Faster Transactions:** Digital recording speeds up customer service without changing interaction patterns
* **Real-time Updates:** Inventory automatically adjusts without interrupting sales operations
* **Automated Reporting:** Eliminates time-consuming manual report compilation while maintaining familiar report formats

**c. Management Support**

SnackCorner management demonstrates strong support for system implementation:

**Active Engagement:**

* **Problem Recognition:** Management has clearly identified inefficiencies in current paper-based system
* **Solution Seeking:** Proactive approach in working with student developers to address business challenges
* **Resource Commitment:** Willingness to invest time and resources in system training and implementation

**Long-term Vision:**

* **Business Growth Focus:** Understanding that digital systems support business expansion and improved customer service
* **Competitive Advantage:** Recognition that automated systems provide edge over competitors using manual processes
* **Investment Mindset:** Viewing system implementation as business improvement rather than unnecessary expense

**Support Indicators:**

* **Collaboration Willingness:** Agreeing to multiple site visits and requirements gathering sessions
* **Flexibility:** Accommodating student schedules and academic timeline requirements
* **Recommendation Source:** Business was recommended, indicating positive reputation for working with development projects
* **Academic Partnership:** Supportive of educational objectives while achieving business improvements