COMP1787:

REQUIREMENTS MANAGEMENT

Name: Tran Duy Hung

Class: TCS2307

ID: 001358096/GCS210483

Table of Contents

Section A: Executive Summary

A1. Case Study Introduction:

Green Groceries, a leading organic grocery company, is launching an online platform to expand its reach and offer sustainable products. Teaming up with System Concepts, renowned for Agile software development, Aim is to innovate and meet modern consumer demands.

A2. Overview of Agile Methodology:

Agile methodology revolutionizes software development, prioritizing adaptability, and collaboration. It breaks projects into smaller phases, allowing teams to deliver value gradually and adjust quickly to feedback and evolving needs.

Comparison of characteristics between the Agile model with RAD model:

Contrary to Agile's adaptability and collaboration focus, the Rapid Application Development (RAD) model prioritizes rapid prototyping and iterative development. RAD aims to deliver software swiftly through rapid prototyping to gather early feedback, albeit with a more structured approach compared to Agile, potentially placing less emphasis on collaboration.

Agile model	RAD model
In the Agile model, the focus is on systematic development of incremental features at the end of each iteration rather than creating prototypes.	The core principle of RAD revolves around creating rapid, rough prototypes, later refined into high-quality code.
Agile projects logically decompose solutions into features that are incrementally developed and delivered.	RAD developers prioritize building all application features initially with a "quick and dirty" approach, gradually enhancing the code over time.
Agile teams demonstrate completed work to the customer only after each iteration.	Unlike Agile, RAD teams present customers with screen mocks and prototypes, often simplified, such as table lookups instead of actual computations.

Comparison of characteristics between the Agile model with Spiral model:

The Spiral model blends characteristics of traditional waterfall and iterative approaches, featuring iterative cycles covering planning, risk analysis, engineering, and customer evaluation phases. With a focus on risk management and adaptable iteration, it suits projects with high uncertainty or complexity. However, compared to Agile, it might entail longer development cycles and less emphasis on incremental delivery and continuous feedback.

Agile model	Spiral model
The Agile model's central tenet is to attain agility by eliminating pointless tasks that squander time and energy.	Risk management is the Spiral model's central tenet.
Client interaction is increased via the Agile methodology, which emphasizes delivering an increment to the client after each Time-box.	The spiral approach primarily addresses several types of unforeseen hazards, however it involves less customer involvement.
Large projects that are simple to break down into manageable chunks that can be developed gradually over the course of each iteration are a good fit for the agile methodology.	Projects that are vulnerable to a variety of risks that are hard to predict at the outset are good candidates for the Spiral model.

Key Principles of Agile:

1. **Customer Collaboration Over Contract Negotiation:** Agile prioritizes close collaboration with customers throughout the development process, ensuring that the final product meets their needs and expectations.
2. **Responding to Change Over Following a Plan:** Agile recognizes the inevitability of change in software development and embraces it as an opportunity to deliver greater value. Teams remain flexible and responsive, adapting their plans and priorities based on evolving requirements and market dynamics.
3. **Delivering Working Software Incrementally:** Agile emphasizes delivering functional software in short iterations, enabling early validation and feedback from stakeholders.

This iterative approach accelerates the delivery of value to customers and mitigates the risk of project failure.

4. **Empowering Cross-Functional Teams:** Agile teams are self-organizing and cross-functional, comprising individuals with diverse skills and expertise. This structure promotes collaboration, innovation, and shared ownership of project outcomes.

A2.1 Pros and Cons of Agile:

Advantages:

- **Flexibility:** Even in later stages of development, products can quickly adapt to changing market needs thanks to the flexibility of agile approaches, which excel at accommodating changes throughout the development cycle.
- **Stakeholder Engagement:** By ensuring that the project remains in line with corporate goals and customer expectations, ongoing feedback loops and the active participation of stakeholders promote a collaborative atmosphere.
- **Incremental release:** Agile's iterative methodology enables the release of functional software in manageable chunks, accelerating the time to market and enabling early feature validation.
- **Enhanced Transparency:** Agile methodologies encourage transparency by means of consistent correspondence, furnishing stakeholders with information on project advancement and enabling cooperative decision-making procedures.

Drawbacks:

- **Difficulty Adapting to Change:** Agile methodology is meant to welcome change, however handling rapid modifications can be difficult and could result in scope creep or unstable projects if not handled well.
- **Resource Intensiveness:** Agile approaches necessitate active engagement and cooperation from stakeholders and team members, which can be resource-intensive, especially when dealing with bigger projects.
- **Dependency on Team Dynamics:** Good team cohesion, communication, and collaboration are critical to the success of Agile projects. Ineffective team dynamics can slow project

progress and have a negative impact on outcomes, which emphasizes how important cooperation and team cohesion are.

A2.2 Justification for Adopting Agile:

Green Groceries has chosen to use Agile methodologies to address the characteristic challenges and complexities of developing an online platform. By partnering with System Concepts and leveraging Agile principles such as Scrum and DSDM Atern, Green Groceries aims to:

- **Enhance Flexibility and Adaptability:** Agile methodologies offer the flexibility to provide changing requirements and market conditions, ensuring that the online platform remains aligned with customer needs and preferences.
- **Foster Stakeholder Collaboration:** Agile practices, such as regular sprint reviews and stakeholder engagement, facilitate open communication and collaboration, enabling Green Groceries to incorporate valuable feedback and insights throughout the development process.
- **Accelerate Time-to-Market:** Agile's iterative approach enables Green Groceries to deliver increasing value to customers more rapidly, allowing for early market validation and feedback.
- **Ensure Quality and Sustainability:** By emphasizing continuous testing, integration, and improvement, Agile methodologies enable Green Groceries to deliver a high-quality online platform that aligns with its commitment to sustainability and excellence.

Conclusion:

In conclusion, Green Groceries views Agile as a critical enabler that will help it in its endeavor to build a cutting-edge online platform. Green Groceries hopes to accelerate its digital transformation while providing a customer-focused solution that increases accessibility to sustainable products by embracing Agile concepts and practices. Green Groceries aims to become a leader in the online grocery sector by utilizing Agile's transformative power in navigating the complicated world of current software development through its partnership with System Concepts.

Section B: High level requirements analysis and MoSCoW prioritization

B1. Identify Requirements are not High-level Requirement

B1.1 Identify requirements that are not High-level Requirement, giving your reasons for this.

These requirements are not directly tied to the development and operation of the website.

- **Maintain at least 20 office plants**: While this may contribute to a positive work environment, it's not directly related to the functionality or performance of the website. It's more about office culture and environment.
- **Organize a virtual celebration on the website for the CEO's birthday**: Similarly, organizing a virtual celebration is more of a cultural or social initiative rather than a core website functionality. It could potentially involve website features, but it's not a primary requirement for the website's operation.
- **The company should adopt pet-friendly policies**: This is a broader company policy regarding the workplace environment and inclusivity. While it could indirectly impact employee satisfaction and potentially attract certain types of employees, it's not directly related to website functionality.
- **The development team should participate in a team-building event every quarter**: Again, this is more about company culture and team dynamics rather than website functionality. While fostering a positive work environment is important, it's not a requirement for the website itself.

These requirements are important for the overall functioning and culture of the company but are not directly affecting the development of the website.

B1.2 Updated the list of high-level functional requirements that are required for building the system.

Requirements for building the system		
No.	**Requirements**	**Justification**

1.	As an Order Handling Clerk, I want to use the website to process telephone purchases, replacing the paper-based system.	This requirement focuses on the fundamental functionality needed for the system's core operations. It addresses the primary objective of transitioning from a manual process to an automated one, making it a high-level requirement.
2.	As a customer, I want to be able to change my account details to ensure my most up-to-date information is recorded.	This requirement pertains to a core feature of user account management, essential for maintaining accurate user information. It directly impacts user experience and system usability, making it a high-level requirement.
3.	As a Customer I want a choice of delivery slots so that I can arrange my diary appropriately.	Providing users with delivery slot options is a key functionality that directly affects customer satisfaction and convenience. It addresses a primary aspect of the service provided by the platform, making it a high-level requirement.
4.	As a customer, I want to be able to modify my shopping cart so that I can change my mind about what I want to buy.	Modifying the shopping cart is a fundamental aspect of e-commerce functionality, crucial for user convenience and flexibility in making purchases. It directly impacts the user's shopping experience, making it a high-level requirement.
5.	The system must be designed to handle a 30% increase in traffic during peak periods without degradation in performance.	This requirement sets a performance standard for the system, ensuring scalability and reliability during high-traffic periods. It addresses a critical aspect of system performance, making it a high-level requirement.
6.	As a customer, I want to enter separate delivery and invoice addresses so that I can receive bags when staying at a friend’s house.	Providing users with the ability to enter separate delivery and invoice addresses enhances the platform's usability and flexibility, directly impacting user experience. It addresses a primary aspect of the service provided by the platform, making it a high-level requirement.
7.	As a customer, I want to choose whether or not I am sent marketing information to avoid receiving excessive junk mail.	This requirement emphasizes user control over their communication preferences, aligning with principles of data privacy and user autonomy. It directly impacts user experience and regulatory compliance, making it a high-level requirement.

8.	All user data, including personal information and payment details, must be encrypted to ensure the highest level of security.	Security is paramount for any online platform, and this requirement ensures the protection of sensitive user information, aligning with regulatory standards and user trust expectations. It addresses a critical aspect of system security, making it a high-level requirement.
9.	Maintain consistent branding elements and design across the website to reinforce their brand identity.	Consistent branding ensures a unified user experience and reinforces the company's brand identity, contributing to brand recognition and loyalty.
10.	As a customer register an account.	User account registration is important for personalized features and streamlined transactions, representing a core function of the website. Prioritizing registration ensures a smooth flow user experience, focusing on foundational user interaction before implementing secondary marketing features.
11.	As the Chief Accountant I want to the Web site to adhere to legislation regarding VAT, so we are not hit with a hefty fine.	Compliance with VAT legislation is essential for avoiding legal penalties and maintaining financial integrity, making this requirement critical for business operations.
12.	As the Operations Director, I want to accept all forms of payment to capture the largest market possible.	Accepting multiple forms of payment enhances customer convenience and expands the customer base, supporting business growth objectives.

These requirements are crucial for creating a system that aligns with business goals and user needs. They outline essential functionalities, performance benchmarks, security measures, and compliance standards vital for system effectiveness. By meeting these requirements, the system can smoothly transition to automated processes, enhance user experience, handle increased traffic, secure sensitive data, maintain brand consistency, and support business growth. Each requirement is critical for forming the system's functionality, usability, and success.

B2. MoSCoW/Timebox rules to prioritize the requirements.

B2.1 Using Moscow rule to set priority for the requirements and justify requirements.

Must have:

- **Order Handling Clerk - Website for telephone purchases:** This is important for transitioning from manual to automated processes, streamlining operations, and improving efficiency.
- **System scalability during peak periods:** Ensuring the system can handle increased traffic without performance server downtime is essential for maintaining user satisfaction and preventing interruption when using service.
- **Customer Account Registration:** this is important for important for personalized features and streamlined transactions, representing a core function of the website.
- **Data encryption for security:** Encrypting user data is a prime method for protecting sensitive data, maintaining trust, and complying with data privacy regulations.
- **Consistent branding:** Consistency in branding across the website improves brand identity, promotes user recognition, and strengthens brand.
- **VAT legislation compliance:** Maintaining VAT legislation reduces legal risks and financial punishments, ensuring smooth business operations and financial integrity.
- **Acceptance of all forms of payment:** Offering various payment methods enhances user convenience, expands market reach, and supports business growth objectives.

Should have:

- **Account details modification:** Allowing users to update their account details ensures data accuracy and enhances user experience.
- **Choice of delivery slots:** Providing delivery slot options improves customer satisfaction and convenience, enhancing the overall user experience.
- **Shopping cart modification:** Allowing users to modify their shopping carts adds flexibility and convenience, improving the shopping experience.
- **Separate delivery and invoice addresses:** Offering separate addresses enhances user flexibility and usability, improving overall satisfaction.

Could have:

- **Control over marketing information:** Providing users with control over marketing communications respects their preferences and improves user satisfaction.

Explain how to set prioritize:

- MoSCoW prioritization categorizes requirements into Must Have, Should Have, Could Have, and Won't Have, ensuring essential features are addressed first for project success.

Prioritization involves evaluating features that are important to project success. Must Have includes critical functionalities like account registration and data protection, while Should Have encompasses enhancements such as performance improvements and shopping cart modifications. This process ensures efficient resource allocation, addressing critical needs while allowing for additional enhancements.

B2.2 Timebox rules for the high-level requirements list.

No.	Requirements	Time (Hour)	Personnel	Effort (manhour)	Prioritization
1.	Order Handling Clerk - Website for telephone purchases	60	Millie, Cheryl	120	Must have
2.	System scalability during peak periods	80	Cheryl, Peter	160	Must have
3.	Customer Account Registration	50	Millie, Anita	100	Must have
4.	Data encryption for security	70	Millie, Cheryl	140	Must have
5.	Consistent branding	60	Peter, Anita	120	Must have
6.	VAT legislation compliance	50	Cheryl, Pat	100	Must have
7.	Acceptance of all forms of payment	40	Millie, Peter	80	Must have
8.	Account details modification	50	Anita, Pat	100	Should have

9.	Choice of delivery slots	50	Cheryl, Peter	100	Should have
10.	Shopping cart modification	50	Millie, Anita	100	Should have
11.	Separate delivery and invoice addresses	50	Cheryl, Peter	100	Should have
12.	Control over marketing information	50	Cheryl, Peter	100	Could have

Optimizing Efficiency: Applying the 80-20 Rule

Also recognized as the Pareto Principle, the 80-20 rule posits that 80% of outcomes stem from 20% of causes. This principle is widely applicable across various domains, including economics, production, sales, and business growth.

Key points:

- The Pareto Principle, coined by economist Vilfredo Pareto in 1906, underscores the significant impact of a small portion of inputs on overall outcomes.
- Its applications span quality production, wealth distribution, business strategies, investment decisions, and project management.
- In a business context, it highlights the importance of focusing efforts on the most lucrative customer segments to drive most revenues.

Pareto Principal Applications		
Prioritization	**Effort (manhour)**	**Percentage**
Must have	820	62%
Should have	400	30%
Could have	100	8%

Grant Chart:

Assumption: The Development team has 5 team members each have their specialties from System concepts, each member works 6 days per week for 5 hours a day over a time of 3 months.

- **Time Effort:** 5 (members) x 5 (hour/day) x 6 (days/week) x 9(weeks) = 1350 hours
- **Total Sprints:** 3 Sprint.
- **Time box per sprints:** 1350/3 = 450 hours

Sprint 1 (30 days):

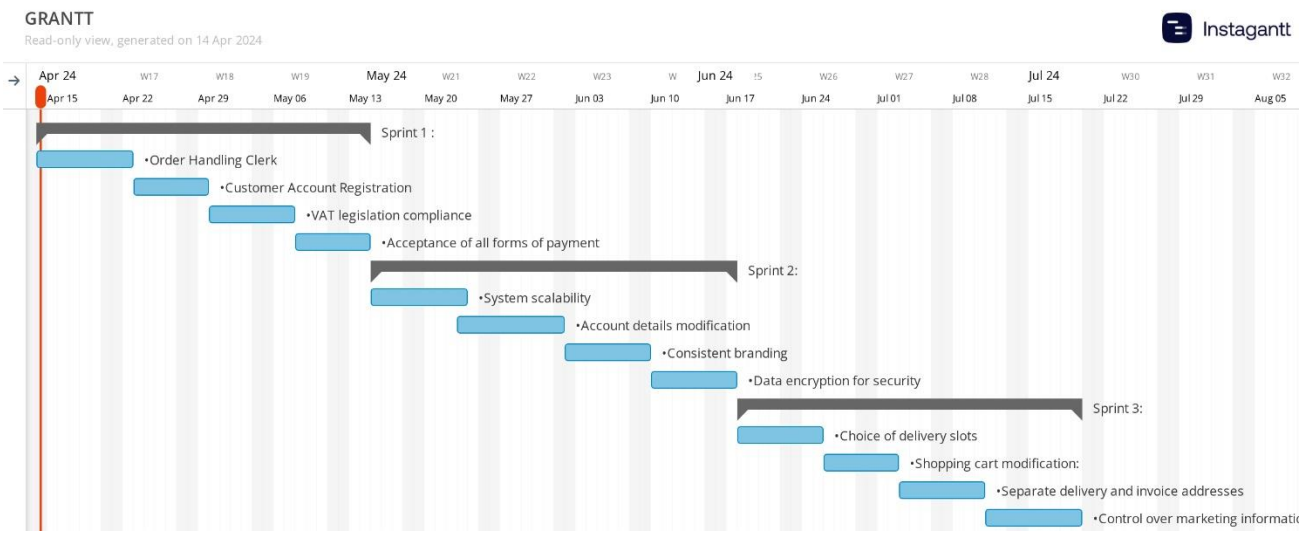
- Order Handling Clerk: 8 days
- Customer Account Registration: 7 days
- VAT legislation compliance: 8 days
- Acceptance of all forms of payment: 7 days

Sprint 2 (30 days):

- System scalability: 8 days
- Data encryption for security: 8 days
- Consistent branding: 7 days
- Account details modification: 7 days.

Sprint 3(30 days):

- Choice of delivery slots: 7 days
- Shopping cart modification: 7 days
- Separate delivery and invoice addresses: 8 days
- Control over marketing information: 8 days



Explanation:

The Gantt chart for the three sprints provides a comprehensive visual representation of the project timeline, allowing for efficient planning, scheduling, and monitoring of tasks. Each task within the sprints is represented as a bar on the chart, with its duration corresponding to its allocated time frame. Task dependencies are clearly indicated, aiding in the sequencing of activities. Resource allocation can be optimized by identifying workload distribution across the 30-day sprint periods. Progress tracking is facilitated through shading or marking completed tasks, enabling real-time monitoring and identification of any deviations from the planned schedule. As a communication tool, the Gantt chart facilitates discussions about project status, timelines, and adjustments needed to meet project goals. Additionally, it supports proactive risk management by visualizing potential scheduling conflicts, delays, or bottlenecks within each sprint, allowing for timely mitigation measures. Overall, the Gantt chart serves as a vital tool for ensuring the successful planning, execution, and delivery of the project.

Conclusion

The high-level requirements analysis and MoSCoW prioritization provide a structured approach to defining the essential functionalities and priorities for the website development project. By focusing on Must Have requirements and applying timeboxing rules, the project can efficiently allocate resources and prioritize tasks to meet critical business objectives within the specified timeframe. Detailed prioritization ensures that core functionalities are addressed first, laying the foundation for a successful website implementation.

Section C – Legal, Social, Ethical, and Professional Issues

C1. Legal, Social, Ethical, and Professional Issues for Green Groceries:

In the development of the "Green Groceries Online Platform," it's imperative to address various legal, social, ethical, and professional considerations. Let's delve into these issues and their implications for the project.

C1.1 Legal Issues:

As Green Groceries navigates into the digital realm with its online platform, it encounters a myriad of legal considerations, notably regarding data protection laws like the GDPR. Safeguarding customer data becomes paramount, requiring adherence to stringent regulations to mitigate legal risks and uphold trust.

Understanding GDPR Compliance:

The General Data Protection Regulation (GDPR) mandates robust measures to protect individuals' personal data. For Green Groceries, this entails:

- **Secure Data Handling:** Implementing secure storage and processing practices to safeguard customer information from unauthorized access or breaches.
- **Explicit Consent:** Obtaining clear and informed consent from users before collecting or processing their personal data, ensuring transparency and accountability.
- **Access and Control:** Facilitating easy access for customers to their personal data held by Green Groceries, along with mechanisms for rectification, erasure, or data portability upon request.
- **Right to Object:** Respecting individuals' right to object to the processing of their data, including any profiling activities.
- **Compliance Frameworks:** Adhering to GDPR requirements through robust policies, procedures, and training programs to ensure ongoing compliance.

By incorporating these GDPR principles into its operations, Green Groceries demonstrates its commitment to protecting customer privacy and fostering trust in its online platform. Proactive compliance not only mitigates legal risks but also enhances the brand's reputation and customer loyalty in an increasingly data-conscious landscape.

C1.2 Social Issues:

Inclusivity and accessibility are critical social considerations for the online platform. Green Groceries aims to cater to a diverse user base, including those with disabilities. System developers need to ensure that the platform is designed to accommodate users of all abilities, with features

like screen reader compatibility and alternative text for images. Promoting social inclusivity enhances user experience and aligns with the company's values of accessibility.

C1.3 Ethical Issues:

Ethical considerations extend to transparency in marketing communications and product representations. Green Groceries must ensure that its marketing materials accurately reflect its products' attributes and avoid deceptive practices such as greenwashing. Upholding ethical standards in marketing builds trust with consumers and fosters long-term relationships.

C1.4 Professional Issues:

From a professional standpoint, system developers must adhere to industry standards and best practices in web development and Agile project management. Effective collaboration, adherence to project timelines, and delivering high-quality work are essential aspects of professionalism. Maintaining open communication between Green Groceries and System Concepts' teams ensures project success and upholds professional integrity.

C1.5 Example from the Case Study:

In the case study, Green Groceries' collaboration with System Concepts exemplifies the company's commitment to addressing legal, social, ethical, and professional issues. By leveraging System Concepts' expertise in Agile methodologies and web development, Green Groceries aims to develop an online platform that aligns with legal regulations, promotes social inclusivity, upholds ethical standards, and maintains professionalism in project execution.

C2. Purpose of a Professional Body and Practical Examples:

Professional bodies, such as the British Computer Society (BCS), play a crucial role in promoting excellence, ethical conduct, and professional development within the IT industry. Let's explore the purpose of BCS and practical examples illustrating how its Code of Conduct guides its members.

C2.1 Purpose of a Professional Body:

BCS serves as a guardian of professional standards and ethics in the IT industry, advocating for the advancement of knowledge, skills, and professionalism among its members. By setting standards, providing resources, and promoting ethical behavior, BCS contributes to the growth and integrity of the IT profession.

C2.2 Practical Examples for BCS Code of Conduct:

- **Public Interest:**

Example: Green Groceries' system developers prioritize the public interest by ensuring the security and privacy of customer data on the online platform. They adhere to data protection regulations and implement robust security measures to protect user information from unauthorized access or misuse.

- **Professional Competence and Integrity:**

Example: System developers demonstrate professional competence and integrity by staying updated on technological advancements, adhering to industry best practices, and ensuring the reliability and effectiveness of the online platform through rigorous testing and quality assurance measures.

- **Duty to Relevant Authority:**

Example: System developers comply with relevant legal and regulatory authorities by obtaining necessary permits and licenses, adhering to data protection laws, and ensuring accessibility compliance to cater to users with disabilities.

- **Duty to Colleagues:**

Example: System developers collaborate effectively with colleagues, respecting their expertise and contributions to the project. By fostering a culture of teamwork and knowledge sharing, developers leverage collective expertise to overcome challenges and deliver innovative solutions for Green Groceries.

Conclusion:

In conclusion, addressing legal, social, ethical, and professional issues is essential for the success of the "Green Groceries Online Platform" project. By considering these factors and aligning with industry standards and ethical principles, system developers can contribute to the development of a robust and ethically sound online platform that meets the needs of Green Groceries and its customers. Assumptions include maintaining open communication and collaboration between Green Groceries and System Concepts' teams to address emerging challenges promptly and ensure project success.

References

- Europa.eu. (2023). *The general data protection regulation*. [online] Available at: https://www.consilium.europa.eu/en/policies/data-protection/data-protection-regulation/#:~:text=The%20GDPR%20lists%20the%20rights,his%20or%20her%20personal%20data [Accessed 17 Mar. 2024].

- Investopedia. (2024). *Examples of the 80-20 Rule (Pareto Principle) in Practice*. [online] Available at: https://www.investopedia.com/ask/answers/050115/what-are-some-reallife-examples-8020-rule-pareto-principle-practice.asp [Accessed 14 Apr. 2024].

- GfG (2018). *Software Engineering Comparison between Agile model and other models*. [online] GeeksforGeeks. Available at: https://www.geeksforgeeks.org/software-engineering-comparison-between-agile-model-and-other-models/ [Accessed 15 Apr. 2024].