ONLINE AGRICULTURE STORE

1. **Q 1:** BPM- Identify Business Process Model for Online Agriculture Store –(Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer)

 **Answer:**
Goal: Develop a user-friendly online agriculture product store that connects farmers and manufacturers, enables farmers in remote areas to procure fertilizers, seeds, and pesticides conveniently, browse and order products, and receive doorstep delivery, enhancing farming efficiency and productivity.

Inputs:

* Farmer Requirements: Farmers like Peter, Kevin, and Ben provide information on what they need (fertilizers, seeds, pesticides) based on their farming practices and needs.
* Product Data from Manufacturers: Manufacturers provide detailed data about their Product catalogs, including descriptions, prices, availability, specifications (fertilizers, seeds, pesticides), delivery options from suppliers.
* Platform Development and Technology Requirements: Requirements gathered from stakeholders (Mr. Henry, Mr. Pandu, Mr. Dooku, and APT IT Solutions team) to ensure the platform which is developed serves the purpose. Application development tools, hosting environment, and payment integration services.
* Budget and Timeline: INR 2 crores and 18 months.

Resources:

* Human Resources:
	+ The development team is led by Project Manager Mr. Vandanam and comprises the following members:
		- Developers: Ms. Juhi, Mr. Teyson, Ms. Lucie, Mr. Tucker, and Mr. Bravo
		- Testers: Mr. Jason and Ms. Alekya
		- Infrastructure Support:
			* Network Administrator: Mr. Mike
			* Database Administrator: Mr. John
	+ Business Analysts:Myself, ensuring business requirements align with technical feasibility and user needs.
	+ Stakeholders: Mr. Henry, Mr. Pandu, Mr. Dooku, and representatives from the farming community.
* Technology:
	+ Online Web and Mobile Application: The Java-based tech stack through which transactions and interactions occur.
	+ Database Infrastructure: To store and manage product details, user profiles, transaction records, etc.
	+ Payment Gateway: To facilitate secure transactions between farmers and manufacturers.
	+ Delivery Partner Integration: API Integration with Logistics Providers to enable seamless order fulfillment by connecting the platform with delivery partners' systems.
* Financial Resources: A budget of INR 2 Crores allocated for platform development and maintenance.

Outputs:

* Operational Application: User-friendly web and mobile application for farmers and manufacturers.
* Product Availability: The online platform makes available a wide variety of agricultural products (fertilizers, seeds, pesticides) to farmers.
* Successful Transactions: Once farmers place orders, the successful transaction and order processing system result in the delivery of products to the farmer’s doorstep.
* Delivery Integration: Tracking and managing product shipments.
* Feedback Loop: Farmers can provide feedback on the products, service quality, and platform functionality, which will be used for continuous improvement.

Activities:

* Requirement Gathering: As the Business Analyst, I will lead discussions with stakeholders (farmers, project team) to gather detailed business and functional requirements. This includes understanding user needs, pain points, and defining the user stories.
* Design & Development:
	+ Define user flows and wireframes for intuitive UX/UI.
	+ Backend Development of the infrastructure for managing inventory, orders, payments, and user data is created.
* Testing and Validation: Perform functional and non-functional testing (usability, performance, security).
* Launch & Support:
	+ Roll out the platform to target regions.
	+ Provide training to farmers on using the platform.
	+ Set up customer support for issue resolution.

Value created to the end Customer:

* Accessibility: Farmers can procure fertilizers, seeds, and pesticides conveniently, overcoming logistical challenges.
* Successful Transactions: Once farmers place orders, the successful transaction and order processing system result in the delivery of products to the farmer’s doorstep.
* Cost-Effectiveness: Eliminates middlemen, reducing costs for farmers.
* Transparency: Direct interaction with manufacturers builds trust in product quality and pricing.
* Informed Decisions: The online platform allows farmers to compare products, read reviews, and make informed purchasing decisions based on their specific farming needs.
1. **Q2:** SWOT: Mr Karthik is doing SWOT analysis before he accepts this project. What Aspects he Should consider as Strengths, as Weaknesses, as Opportunity and as Threats.

**Answer:**
Strengths:
* Talent Pool Availability: The team comprises experienced members like Ms. Juhi (Senior Java Developer) and other skilled developers, testers, and administrators. Expertise in Java-based technologies, suitable for the project's requirements.
* Defined Budget and Timeline: A clear budget of INR 2 crores and an 18-month timeline provide a structured framework for planning and resource allocation.
* Established Reputation: Winning the project through Mr. Karthik's connections showcase trust in APT IT SOLUTIONS’ capabilities.
* Technical Expertise: APT IT Solutions may have prior experience with potential expertise in developing generic web and mobile applications(*logical assumption that the company has the technical capacity and a skilled talent pool to handle application development efficiently.*)

Weakness:

* Complex Stakeholder Management: Involvement of multiple stakeholders (SOONY committee, farmers, manufacturers) may lead to conflicting requirements. Dependency on non-technical stakeholders (farmers) to define key requirements.
* Domain Expertise: If APT IT Solutions lacks prior experience in agriculture-related applications, domain expertise might be limited.
* Lack of robust strategies for addressing intermittent or poor connectivity in rural areas.
* Farmers in remote areas might have limited familiarity with technology, requiring additional training and support resources.

 Opportunities:

* CSR Initiative: The project aligns with SOONY’s CSR initiatives, aligning with a socially impactful cause, potentially improving APT IT Solutions’ reputation and branding.
* The project could position APT IT Solutions as a leader in developing rural-focused technology solutions.
* Growing demand for digital transformation in agriculture provides opportunities for future projects in precision farming, supply chain digitization, etc.
* Scaling Possibilities: The application could be extended to include e-learning for farmers, analytics for manufacturers, or integration with government agricultural schemes.

 Threats:

* Adoption Challenges: Farmers in remote areas may lack access to stable internet connections or smartphones. Low technological literacy among farmers may delay adoption.
* Logistical Risks: Ensuring timely delivery to remote areas may depend on third-party logistics, increasing the risk of customer dissatisfaction.
* Scope Creep: Stakeholders may introduce additional requirements mid-project, straining resources and timeline.
1. **Q3:** Feasibility Study: Mr Karthik is trying to do feasibility study on doing this project in Technology (Java), Please help him with points (HW SW Trained Resources Budget Time frame) to consider in feasibility Study.

**Answer:**

* Hardware Requirements:
	+ Servers: Determine the hosting setup required for the project, such as on-premises servers or cloud-based solutions. Evaluate the need for scalable hosting options to handle varying user traffic.
	+ Networking: Assess the infrastructure needed to ensure reliable communication between the platform and users, including secured connections for data exchange.
	+ Devices: Identify the range of devices (smartphones, tablets, desktops) used by end-users (farmers and manufacturers) and ensure compatibility.
* Software Requirements:
	+ E-commerce Platform: Choose a suitable e-commerce platform that supports agricultural products and provides features like product listings, shopping cart, payment gateways, integration with delivery partners’ application and inventory management.
	+ Development Frameworks: Use Java-based frameworks like Spring Boot and Hibernate to build scalable and maintainable applications.
	+ Security: Incorporate measures to ensure secure user authentication, data encryption, and protection against cyber threats.
	+ Provide a simple system for administrators to update product details, images, and pricing regularly.
* Trained Resources:
	+ Technical Team: Ensure developers are proficient in Java, web technologies, and database management. Testers should be capable of performing functional, integration, and performance testing of the application.
	+ Train customer support representatives to assist users (especially farmers) in using the platform effectively
	+ Training: Conduct internal or external training sessions for team members who may need to familiarize themselves with specific tools or domain knowledge.
* Budget:
	+ Development Costs:
		- Hardware and Hosting
		- Software Tools and licenses
		- Human Resources allocation for development, testing, and support teams.
	+ Maintenance Costs:
		- Annual cloud hosting fees
		- Regular Update and Support
	+ Marketing and outreach activities post-launch

#### Time Frame:

* + Development Timeline:
		- Requirements Gathering and Design: 2-3 months.
		- Development:
			* Back-end APIs and Database (Spring Boot): 6 months.
			* Front-end UI/UX: 4 months (overlapping with back-end).
		- Testing: 3 months (unit, integration, performance testing).
		- Deployment and UAT: 2 months.
		- Total Development Duration: ~15 months.
	+ **Launch and Growth**:
		- 3 months for initial feedback, adoption by farmers, and optimization based on feedback.
1. **Q4:** Gap Analysis: Mr Karthik must submit Gap Analysis to Mr Henry to convince to initiate this project. What points (compare AS-IS existing process with TO-BE future Process) to showcase in the GAP Analysis.

 **Answer:** AS-IS Process

* Farmers rely on local suppliers or intermediaries to procure agricultural products such as fertilizers, seeds, and pesticides. These suppliers often have limited stock, leading to delays and suboptimal product quality.
* Farmers have no direct communication with manufacturers, making it difficult to verify product authenticity.
* There is no centralized repository of product information; farmers rely solely on the knowledge or suggestions of local dealers, which may be incomplete or biased.
* Manufacturers have limited access to farmers in remote locations due to a fragmented supply chain, reducing their ability to expand market reach or gather feedback.
* The overall process is inefficient, time-consuming, and expensive for both farmers and manufacturers, with minimal trust or transparency in transactions.

 TO-BE Process

* Farmers access an online platform where they can browse and purchase a wide range of agricultural products directly from manufacturers. This ensures product authenticity, quality, and availability at competitive prices.
* The platform facilitates direct communication between farmers and manufacturers, allowing farmers to get accurate recommendations and resolve queries efficiently.
* Integrated logistics solutions ensure doorstep delivery of products to remote areas, reducing transportation burdens and costs for farmers.
* Manufacturers gain direct access to farmers, eliminating intermediaries and expanding their market reach while improving product feedback loops.
* The new process is streamlined, cost-effective, and trustworthy, significantly improving efficiency for both farmers and manufacturers.
1. **Q5:** List down different risk factors that may be involved (BA Risks And process/Project Risks)

**Answer:**Business Analyst (BA) Risks

* Requirements Gathering Risks: Farmers and manufacturers may struggle to articulate their needs, leading to gaps in requirement documentation.
* Key stakeholders (Peter, Kevin, Ben, manufacturers) may not be readily available for discussions or requirement validation.
* Scope Creep: Additional features or functionality may be requested mid-project, leading to deviations from the original scope.
* Conflicting requirements: Different stakeholders may have conflicting needs or expectations, complicating prioritization.
* Miscommunication between the BA and stakeholders can lead to misunderstandings about project objectives.
* The lack of domain knowledge in agriculture, leading to incomplete or incorrect requirements which may result in misaligned deliverables.
* Limited End-User Insights: Difficulty in empathizing with farmers' day-to-day challenges due to a lack of direct exposure.

 Process/Project Risks

* Connectivity Issues: Farmers in remote areas may face unstable internet connections, affecting their ability to use the platform.
* Scalability Challenges: The system may fail to handle increasing traffic as more farmers and manufacturers onboard.
* Team members may lack experience with technologies like Spring Boot, Hibernate, or e-commerce systems.
* Key team members leaving the project could delay development and impact quality.
* Dependencies on external stakeholders, such as manufacturers, could cause delays in gathering product information.
* Cost overruns: Unexpected expenses, such as additional training or software licenses, could exceed the budget.
* Lowe User Adoption: Farmers may resist using the platform due to lack of trust in digital systems or unfamiliarity with technology.
* Logistics Failure: Third-party delivery partners may fail to meet service-level agreements, causing delays in product delivery.
* Manufacturers may not be willing to participate actively on the platform, limiting product variety.
* Compliance Issues Ensuring adherence to local agricultural and e-commerce regulations might involve unexpected legal hurdles.
1. **Q6:** Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers

**Answer:**Decision-Makers

* Mr. Henry: Final decision-maker for project vision, high-level objectives, and post-launch success metrics.
* Mr. Pandu: Decision-maker for budgetary approvals and financial feasibility.
* Mr. Dooku: Decision-maker for operational coordination and approval of deliverables.

Influencers

* Peter, Kevin, Ben: As farmers and target end-users, they influence the platform’s features and usability.
* Mr. Karthik: Influences technical execution and resource allocation within APT IT Solutions.
* Development Team (Ms. Juhi, Java Developers, and Technical Admins): Influence the feasibility of requirements and technical solutions.

| Task/Activity | Mr. Henry | Mr. Pandu | Mr. Dooku | Peter, Kevin, Ben | Mr. Karthik | Mr. Vandanam | Development Team | Testers | Network/DB Admin |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Define Project Vision | A | C  | R | I | C | I | - | - | - |
| Budget Approval | C | A | R | I | C | I | - | - | - |
| Requirement Gathering | R | I | C | A | I | R | I | - | - |
| Solution Design | I | I | C | I | R | A | C | - | C |
| Development  | I | I | I | I | C | R | A | - | I |
| Testing & QA | I | I | I | I | I | C | R | A | I |
| Deployment  | I | I | R | I | C | A | I | - | R |
| Training & Support | I | I | R | A | C | R | I | I | I |
| Post-Launch Feedback | I | I | I | A | C | R | I | I | I |

1. **Q7:** Help Mr Karthik to prepare a business case document

**Answer:**

* **Executive Summary:** This project proposes the development of an Online Agriculture Store to address these issues. By leveraging technology, the platform will enable farmers to connect directly with manufacturers, ensuring access to high-quality agricultural products with reliable delivery services. This initiative aligns with SOONY’s CSR objectives, aiming to create a transformative impact on the agricultural supply chain and empower rural farmers.
* **Business Problem:**Farmers in remote areas face the following challenges:
	+ Limited access to quality agricultural products due to geographical constraints.
	+ Lack of direct communication with manufacturers for product guidance.
	+ Minimal transparency in procurement and financial transactions.
	+ Logistical inefficiencies in obtaining farming inputs, leading to delays and increased costs.

These challenges negatively affect productivity, increase operational difficulties, and limit scalability for both farmers and manufacturers.

* **Proposed Solution:**Develop an Online Agriculture Store, a web and mobile platform, to:
	+ Connect farmers directly with manufacturers, eliminating intermediaries.
	+ Provide a centralized marketplace for fertilizers, seeds, and pesticides.
	+ Offer a secure payment gateway and transaction history for transparency.
	+ Ensure doorstep delivery through integrated logistics.
	+ Include customer support for product guidance and grievance resolution.
	+ Enable product comparison features to help farmers make informed purchasing decisions.
* **Objectives:**
	+ Facilitate access to affordable, high-quality agricultural inputs for farmers.
	+ Improve transparency and efficiency in the agricultural supply chain.
	+ Empower manufacturers to expand their market reach to underserved areas.
	+ Create a scalable and replicable model for rural agricultural upliftment.
* **Key Benefits:**
	+ Farmers:
		- Easy access to a wide range of agricultural products.
		- Access to detailed product information, including usage instructions and reviews, for better decision-making.
		- Improved trust through transparent transactions and reliable delivery.
	+ Manufacturers:
		- Direct sales channel to reach farmers in remote areas.
		- Enhanced customer insights through feedback mechanisms for better product development.
		- Increased brand visibility and reputation among rural customers.
	+ SOONY:
		- Aligns with CSR objectives to create social and economic value.
		- Enhances the organization's reputation as a driver of rural development.
		- Builds a scalable model that can potentially be replicated in other regions or sectors.
	+ APT IT Solutions:
		- Opens opportunities to venture into the AgriTech domain, a rapidly growing industry.
		- Demonstrates expertise in delivering impactful technology solutions.
		- Strengthens portfolio with a socially impactful and scalable project.
* **Project Scope**
	+ In-Scope:
		- Development of a web and mobile application for farmers and manufacturers.
		- Integration of payment gateways and logistics solutions to ensure secure transactions and reliable delivery.
		- Training sessions for farmers and manufacturers to familiarize them with the platform.
		- Inclusion of a product comparison feature to enable farmers to evaluate and select the most suitable products.
		- Post-launch support to gather feedback and make iterative improvements.
	+ Out Scope:
		- On-ground logistics execution, including warehousing and transportation, which will be handled by third-party vendors.
		- Government policy integration or partnerships in the initial phase of the project.
		- Development of marketing campaigns or advertisements on behalf of manufacturers.
		- Development of features unrelated to the core functionalities of the platform, such as advanced analytics or farm management tools.
* **Financial Analysis**
	+ Estimated Budget: INR 2 Crores
	+ Cost Breakdown:
		- Application development (software tools, team salaries, infrastructure).
		- Training and onboarding for end-users.
		- Marketing and promotion to farmers and manufacturers.
		- Maintenance and support post-launch.
	+ Expected ROI:
		- Social ROI: Improved livelihoods of farmers through affordable and accessible products.
		- Business ROI: Improved market penetration for manufacturers and repeat projects for APT IT Solutions.
* **Risks and Mitigation**

| **Risk** | **Mitigation** |
| --- | --- |
| Low adoption by farmers | Conduct awareness campaigns and provide training on platform usage. |
| Connectivity issues in remote areas | Design a lightweight app with offline functionalities that sync when online. |
| Scope creep due to evolving requirements | Define clear project boundaries and prioritize features with stakeholder input. |
| Security vulnerabilities | Implement robust security measures, including encryption and regular audits. |

* **Project Plan and Timeline**
	+ Phase 1: Requirement Gathering & Analysis (2 months):
		- Conduct stakeholder interviews.
		- Document detailed requirements and use cases
	+ Phase 2: Design and Development (7 months):
		- Build front-end and back-end components.
		- Integrate payment gateway and logistics APIs.
	+ Phase 3: Testing (3 months):
		- Conduct functional, integration, and user acceptance testing.
	+ Phase 4: Deployment and Training (2 months):
		- Launch the platform in pilot regions.
		- Train farmers and manufacturers on platform usage.
	+ Phase 5: Post-Launch Support and Optimization (4 months):
		- Gather feedback and make iterative improvements.
* **Stakeholder Analysis**
	+ Decision-Makers:
		- Mr. Henry (Project Sponsor)
		- Mr. Pandu (Financial Head)
		- Mr. Dooku (Project Coordinator)
	+ Influencers:
		- Peter, Kevin, and Ben (Farmers)
		- Manufacturers (Product Suppliers)
	+ Execution Team:
		- APT IT Solutions (Development, Testing, Deployment)
1. **Q8:** The Committee of Mr. Henry , Mr Pandu , and Mr Dooku and Mr Karthik are having a discussion on Project Development Approach. Mr Karthik explained to Mr. Henry about SDLC. And four methodologies like Sequential Iterative Evolutionary and Agile. Please share your thoughts and clarity on Methodologies

**Answer:**

* **Sequential Methodology (Waterfall Model)**
	+ Description: This is a linear and structured approach where each phase (Requirements, Design, Development, Testing, Deployment) is completed in sequence. Progress flows in one direction, and the next phase begins only after the previous phase is completed.
	+ Advantages:
		- Clear structure and well-defined deliverables at each stage.
		- Easy to manage due to its straightforward nature.
		- Best suited for projects with well-defined and stable requirements.
	+ Limitations:
		- Lack of flexibility to accommodate changes once a phase is completed.
		- Late testing phase, which may result in discovering significant issues late in the process.
	+ Best Fit: Use when requirements are clear, stable, and unlikely to change, such as regulatory or compliance-driven projects.
* **Iterative Methodology**
	+ Description: Involves repeating the SDLC phases in iterations, each iteration delivering a working version of the product. Feedback from one iteration is used to refine the product in subsequent iterations.
	+ Advantages:
		- Encourages **early delivery** of a basic functional product.
		- Allows incorporation of feedback early in the development process.
		- Issues are identified and addressed in smaller iterations, reducing the risk of large-scale failures.
		- Focuses on delivering prioritized features first, ensuring critical functionality is developed and tested early.
	+ Best Fit: Ideal for projects where requirements are partially known or are expected to evolve during development.
* **Evolutionary Methodology**
	+ Description: Builds the system incrementally through successive versions, focusing on delivering the most critical features first. Each version evolves into the final system based on feedback and priority changes.
	+ Advantages:
		- Allows the most critical and high-priority features to be delivered early, enabling quicker value realization for stakeholders.
		- Adapts quickly to evolving business requirements or user feedback, ensuring the product remains relevant.
		- By developing the system in stages, risks are identified and mitigated early, reducing the likelihood of major setbacks.
	+ Limitations:
		- Requires high stakeholder involvement for frequent feedback.
		- May lead to challenges in managing dependencies between evolving components.
	+ Best Fit: Suited for projects with dynamic requirements and where early delivery of critical features is crucial.
* **Agile Methodology**
	+ Description: A flexible, team-oriented approach that delivers the product incrementally through sprints or iterations (typically 2–4 weeks long). Emphasizes collaboration, continuous feedback, and quick adaptation to changes.
	+ Advantages:
		- Highly responsive to changes in requirements, even late in development.
		- Focuses on delivering working software frequently, ensuring early value realization.
		- Encourages stakeholder collaboration and transparency throughout the project.
	+ Limitations:
		- Requires skilled teams and active stakeholder involvement.
		- Can be challenging to implement in projects with fixed budgets and timelines.
	+ Best Fit: Ideal for projects where requirements are expected to change frequently, or innovation and customer collaboration are priorities.
1. **Q9:** They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your understanding on these models.

**Answer:**

* **Waterfall Model**
	+ Description: A linear and sequential SDLC approach where phases (Requirements, Design, Implementation, Testing, Deployment, Maintenance) are completed in order. Once a phase is completed, it cannot be revisited.
	+ Strengths:
		- Simple and easy to understand.
		- Clear documentation and milestones.
		- Suitable for projects with stable, well-defined requirements.
	+ Limitations:
		- Inflexible to changes once a phase is completed.
		- Late testing phase means issues may only surface late in the process.
	+ Best Fit: Projects with fixed and well-understood requirements, such as regulatory systems or infrastructure projects.
* **Rational Unified Process (RUP)**
	+ Description: An iterative and incremental SDLC model that divides the project lifecycle into four phases: Inception, Elaboration, Construction, and Transition. Each phase involves multiple iterations, focusing on risk assessment, design, and incremental delivery.
	+ Strengths:
		- Balances structure and flexibility with iterative progress.
		- Emphasizes risk management and stakeholder involvement.
		- Focuses on delivering a working product in increments.
	+ Limitations:
		- More complex and resource-intensive compared to simpler models.
		- Can lead to delays if iterations are not effectively managed or prioritized.
	+ Best Fit: Medium-to-large projects where requirements evolve over time but require a structured approach to mitigate risks.
* **Scrum**
	+ Description: A lightweight, iterative framework under the Agile umbrella that focuses on delivering working increments of the product in short iterations called sprints (usually 2-4 weeks). Roles include Product Owner, Scrum Master, and Development Team, with ceremonies like sprint planning, daily stand-ups, sprint reviews, and retrospectives.
	+ Strengths:
		- Highly adaptive to changing requirements.
		- Delivers working software early and frequently.
		- Encourages close collaboration with stakeholders and team empowerment.
	+ Limitations:
		- Scrum relies heavily on team dynamics and effective communication. Poor collaboration among team members can hinder progress and affect deliverables.
		- If sprint goals are not well-defined or prioritized, the increments delivered may lack coherence or alignment with the overall project objectives.
		- Teams need to strictly follow Scrum practices, including timeboxing and adhering to sprint commitments. Lack of discipline can lead to scope creep or missed deadlines.
	+ Best Fit: Projects with dynamic and evolving requirements, where quick delivery and stakeholder feedback are priorities.
* **Spiral**
	+ Description: The Spiral Model is an iterative and risk-driven Software Development Life Cycle (SDLC) approach. It combines the systematic aspects of the Waterfall Model with the iterative nature of Prototyping. The development process is visualized as a spiral, with each loop representing a phase of the project.
	+ Strength:
		- Highly effective in managing and mitigating risks at every stage of the project.
		- Flexible and adaptable to evolving requirements and stakeholder feedback.
		- Delivers working prototypes in iterations, allowing for early validation and course correction.
		- Ensures customer involvement through regular reviews, reducing misalignment with expectations.
	+ Limitations:
		- The model is complex to manage, requiring expertise in risk analysis and iterative development.
		- Costly and time-intensive, making it less suitable for smaller projects.
		- Iterations can continue indefinitely without clear project milestones, risking schedule overruns.
	+ Best Fit: The Spiral Model is ideal for large, complex projects with high risks or evolving requirements, where a systematic approach to risk management and frequent stakeholder validation is critical.
1. **Q10:** Write down the differences between waterfall model and V model.

**Answer:**

| **Aspect** | **Waterfall Model** | **V-Model** |
| --- | --- | --- |
| Approach | Linear and sequential process where each phase must be completed before moving to the next. | Linear process with corresponding testing for each development phase. |
| Testing Phase | Testing is performed only after the development phase is complete. | Testing is integrated into every phase, running parallel to development. |
| Flexibility | Inflexible to changes once a phase is completed. | Slightly more flexible as defects can be identified earlier due to early testing. |
| Focus | Focuses primarily on development and deliverables of each phase. | Focuses equally on development and testing for quality assurance. |
| Risk Identification | Risks are identified late, usually during the testing phase. | Risks are identified early as testing starts in parallel with requirements and design. |
| Best for Projects | Suitable for projects with well-defined and stable requirements. | Suitable for projects where high quality and rigorous testing are priorities. |
| Time to detect defects | Defects are often discovered late in the process, during the testing phase. | Defects can be detected early, reducing cost and time for fixes. |
| Stakeholder Alignment  | Minimal stakeholder involvement during the development process. | Involves stakeholders early for validation and verification. |
| Cost of Changes | High cost of changes as defects are detected late. | Lower cost of changes due to early defect identification. |

1. **Q11:** As a BA, state your reason for choosing one model for this project

**Answer:** The V-Model is better suited for this project compared to the Waterfall Model, and here’s why:

* Nature of Requirements:
	+ Why V- Model?
		- While the project requirements (e.g., product categories, payment gateways, logistics, etc.) are reasonably well-defined initially, stakeholder feedback is crucial to refine features.
		- The V-Model’s parallel testing ensures validation of requirements at every stage, reducing the likelihood of misaligned deliverables.
	+ Why not waterfall?
		- Waterfall assumes that requirements remain stable throughout the project. Given the need to cater to farmers’ usability and operational feedback, this rigidity poses a risk.
* Quality Assurance:
	+ Why V-Model?
		- This project involves critical features like payment integration and logistics, where any defects could lead to operational or financial issues. The V-Model’s emphasis on early and continuous testing ensures higher quality deliverables.
	+ Why Not Waterfall?
		- Testing occurs late in the Waterfall process, increasing the risk of identifying defects after significant effort has been spent on development.
* Stakeholder Engagement:
	+ Why V-Model?
		- Stakeholders (farmers, manufacturers, committee members) expect high-quality deliverables with features validated against their needs. The V-Model’s iterative validation keeps stakeholders involved and aligned throughout.
	+ Why Not Waterfall?
		- Limited stakeholder involvement during the development phase can lead to miscommunication or unaddressed concerns until later stages, which may impact satisfaction.
* Risk Management:
	+ Why V-Model?
		- The V-Model reduces risk by incorporating validation and verification at each stage. This is particularly important for a multi-component platform where dependencies (e.g., logistics, payments) must work seamlessly.
	+ Why Not Waterfall?
		- Waterfall’s late testing phase can result in a high cost of changes if risks materialize after development.

**12. Q12:** The Committee of Mr. Henry, Mr Pandu, and Mr Dooku discussed with Mr Karthik and finalised on the V Model approach (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT)

**Answer**

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**13. Q13:** Explain the difference between Fixed Bid and Billing projects

**Answer**

| **Aspects** | **Fixed Bid Projects** | **Billing projects** |
| --- | --- | --- |
| Definition | A project where the total cost and deliverables are agreed upon upfront and remain fixed. | A project where billing is based on the actual time spent and resources utilized. |
| Scope | Clearly defined and agreed upon at the beginning of the project. | Scope may evolve and change over the course of the project. |
| Flexibility | Low flexibility; changes to scope require renegotiation or additional agreements. | High flexibility; allows for changes in scope as the project progresses. |
| Cost Structure | Fixed price for the entire project, regardless of actual time and resources spent. | Costs vary based on hours worked, resources utilized, and expenses incurred. |
| Payment Model | Payments are typically milestone-based | Payments are periodic, based on time sheets (e.g., hourly, daily, or monthly). |
| Best Suited For | Projects with clear and stable requirements and minimal expected changes. | Projects with dynamic or evolving requirements or where scope is difficult to estimate upfront. |
| Quality Management | The vendor focuses on delivering within budget, which can sometimes lead to compromised quality. | Quality is often higher as effort and resources are allocated flexibly. |

**14. Q14:**

1. Design Timesheet of a BA: The **Design phase start date of March 8, 2025**, derived from the project timeline mentioned in the Gantt chart

| **Date** | **Activity** | **Description** | **Hours Spent**  |
| --- | --- | --- | --- |
| 08/03/25 | Requirement Review | Reviewing requirements gathered during the RG and RA phases to ensure clarity and alignment with design objectives. | 2 |
| 08/03/25 | Workflow Diagram Creation | Developing high-level workflows for core functionalities (e.g., product listings, order management). | 4 |
| 09/03/25 | Stakeholder Meeting | Meeting with stakeholders (PM, DB Admin, NW Admin) to discuss system design alignment and ensure feasibility. | 3 |
| 10/03/25 | Functional Specifications Documentation | ADrafting functional specifications, including detailed use cases for each system component. | 6 |
| 11/03/25 | Wireframe Development | Creating wireframes for user interfaces (e.g., product listing pages, shopping cart, and payment gateway). | 5 |
| 12/03/25 | Feedback Incorporation | Reviewing feedback from stakeholders and refining workflows and wireframes. | 4 |
| 13/03/25 | Use Case Scenarios | Developing detailed use case scenarios to guide the development team during implementation. | 6 |
| 14/03/25 | Validation and Review | Validating the design deliverables with the PM and technical team to ensure feasibility and alignment with requirements. | 3 |
| 15/03/25 | Handover Session with Development Team | Conducting a walkthrough session with Java developers to explain workflows, wireframes, and functional specifications. | 4 |
| 16/03/25 | Updating Documentation | Finalizing all design documents based on feedback from the walkthrough session. | 3 |

2. Development Timesheet of a BA: Dates align with the **Development Phase 1** starting on **07/04/25**, as per the project Gantt chart.

| **Date** | **Activity** | **Description** | **Hours Spent**  |
| --- | --- | --- | --- |
| 07/04/25 | Requirement Clarification | Addressing queries from developers about workflows, use cases, and functional specifications. | 3 |
| 08/04/25 | Reviewing User Stories and Tasks | Ensuring the user stories assigned to developers are aligned with requirements and priorities. | 4 |
| 10/04/25 | Meeting with Developers | Conducting a session to explain critical features (e.g., payment gateway, order tracking). | 3 |
| 14/04/25 | Change Request Discussion | Reviewing and documenting minor changes requested by stakeholders based on initial development feedback. | 4 |
| 17/04/25 | Supporting Integration Testing (Phase 1 Features) | Assisting the testing team by validating integration scenarios, ensuring requirements are met in developed components. | 5 |
| 20/04/25 | Preparing Traceability Matrix | Creating and maintaining a Requirements Traceability Matrix (RTM) to track development progress against requirements. | 4 |
| 25/04/25 | Stakeholder Feedback Analysis | Collecting and analyzing feedback from stakeholders on partially developed features and communicating with developers. | 3 |
| 28/04/25 | Documentation Updates | Updating requirement documents to reflect implemented features and deviations, if any. | 4 |
| 30/04/25 | Progress Review Meeting | Participating in the development progress review with the project manager and technical team. | 3 |
| 01/05/25 | Final Walkthrough | Conducting a walkthrough of the developed features to ensure alignment with the approved design and stakeholder expectations. | 3 |

3. Testing Timesheet of a BA : Dates aligned with **Testing Phase 1 (T1)** starting from **17/05/25** as per the project Gantt chart.

| **Date** | **Activity** | **Description** | **Hours Spent**  |
| --- | --- | --- | --- |
| 17/05/25 | Requirement Validation with Test Cases | Reviewing test cases to ensure alignment with the documented requirements and workflows. | 3 |
| 18/05/25 | Supporting Functional Testing | Assisting testers in understanding complex scenarios (e.g., order processing, payment gateway integration). | 4 |
| 20/05/25 | Reviewing Bug Reports | Reviewing reported defects to validate if they align with the approved requirements and determining their priority. | 4 |
| 23/05/25 | Cross-Checking Requirement Coverage | Verifying that all requirements are covered in the test cases and no functionality is missed. | 3 |
| 25/05/25 | Meeting with Testers and Developers | Facilitating a triage meeting to discuss critical bugs and resolve issues between testers and developers. | 3 |
| 27/05/25 | Conducting User Scenario Testing | Testing from the perspective of end-users (e.g., farmers, manufacturers) to validate the usability and functionality of core features. | 4 |
| 29/05/25 | Coordinating with Stakeholders | Sharing testing progress with stakeholders and validating any additional expectations from the platform. | 3 |
| 31/05/25 | Retesting After Bug Fixes | Collaborating with testers to verify that fixed bugs align with the original requirements. | 4 |
| 02/06/25 | Preparing UAT Scripts | Drafting user acceptance testing (UAT) scripts based on validated requirements and business workflows. | 4 |
| 05/06/25 | Reviewing Final Testing Deliverables | Ensuring all testing deliverables (e.g., defect logs, test execution reports) are complete and align with project goals. | 3 |

4. UAT Timesheet of a BA: Dates aligned with the **UAT Phase** from **03/11/25 to 02/12/25** as per the project Gantt chart.

| **Date** | **Activity** | **Description** | **Hours Spent**  |
| --- | --- | --- | --- |
| 03/11/25 | UAT Test Case Review | Reviewing UAT test cases to ensure alignment with business requirements and workflows. | 3 |
| 04/11/25 | Preparing UAT Environment | Collaborating with testers and the technical team to ensure the UAT environment is ready and mirrors the production setup. | 4 |
| 05/11/25 | Conducting UAT Kick-Off Meeting | Hosting a meeting with stakeholders (farmers, manufacturers, committee) to explain UAT objectives, timelines, and test case execution plan. | 3 |
| 06/11/25 | Supporting UAT Execution | Assisting end-users during UAT execution by clarifying requirements and guiding them through complex workflows. | 5 |
| 09/11/25 | Defect Triage and Prioritization | Reviewing defects reported during UAT, validating against requirements, and prioritizing for resolution. | 4 |
| 12/11/25 | Coordinating Fixes | Coordinating with developers and testers to ensure timely resolution of high-priority defects identified during UAT. | 4 |
| 15/11/25 | Validating Fixed Defects | Assisting testers and stakeholders in validating fixes for resolved defects to ensure alignment with requirements. | 3 |
| 17/11/25 | Gathering Feedback | Collecting feedback from UAT participants on the overall system usability, performance, and gaps (if any). | 3 |
| 19/11/25 | Preparing UAT Summary Report | Documenting UAT results, including defect logs, resolved issues, pending issues, and overall feedback, for presentation to stakeholders. | 4 |
| 20/11/25 | UAT Sign-Off Meeting | Facilitating a final meeting with stakeholders to review UAT outcomes and obtain formal sign-off for deployment. | 4 |

5. Deployment and Implementation Timesheet of a BA: Dates aligned with the Deployment Phase starting **03/12/25** and covering critical activities until **22/12/25**.

| **Date** | **Activity** | **Description** | **Hours Spent**  |
| --- | --- | --- | --- |
| 03/12/25 | Deployment Planning  | Collaborating with the PM, developers, and stakeholders to finalize the deployment plan, timeline, and rollback procedures. | 4 |
| 04/12/25 | Reviewing Deployment checklist  | Ensuring all prerequisites (e.g., infrastructure readiness, final testing completion) are met for deployment. | 3 |
| 05/12/25 | Coordinating Deployment Activities | Acting as a point of contact during deployment, ensuring alignment between technical teams and business stakeholders. | 4 |
| 06/12/25 | Verifying Production Environment  | Validating that the production environment is functioning as expected post-deployment (e.g., checking system configurations, data integrity). | 4 |
| 08/12/25 | Supporting Initial Roll Out | Assisting early adopters (farmers, manufacturers) in using the platform and gathering immediate feedback. | 5 |
| 10/12/25 | Identifying Post-Deployment Issues | Documenting and prioritizing any issues identified during the initial rollout phase. | 3 |
| 12/12/25 | Coordinating fixes for deployment issues | Working with developers and testers to resolve post-deployment issues in the production environment. | 4 |
| 14/12/25 | End- user Training  | Conducting training sessions for end-users (farmers, manufacturers) to ensure smooth adoption of the platform. | 5 |
| 16/12/25 | Monitoring System Usage | Monitoring system performance and user activity to ensure stability and functionality during the initial production phase. | 3 |
| 20/12/25 | Preparing Deployment Closure Report | Summarizing deployment outcomes, issues resolved, and pending items in a report for the stakeholders. | 3 |
| 22/12/25 | Conducting Deployment Review Meeting | Hosting a meeting with stakeholders to review the deployment process and gather feedback for future improvements. | 4 |