**question no BPM - 1- Identify business process model for online agriculture store-(Goal, inputs,resouces,outputs,activities,value created to the customer)**

**Answer** -

Business process model for an online agriculture store to facilitate farmers to buy agriculture products through online web and mobile application

1. Goal : main purpose to buld this online store is to facilitate farmers to buy agriculture use products like fertilizers,seeds,pestisides from anywhere through internet connectivity .

2. Input :

* e-commerce platform(webside /mobile application)
* supplier paternership (seeds ,fertilizers,pesticides,machinery,etc.)
* logistics and delivery network
* payment getway

customer database and market demand insights.

3.Resources :

* human resources : techincal staff like IT Team,customer support (customer care executives)markating team, satff for logistics.
* technology : E-commerce platform,computers for processing information other devices for storing information, wired and wireless data connections,etc
* Financial resources: investment in procurement, digital markating , and transportation.
* physical resources: werehouses,delivery vehicles,pakaging material

4. Output:

* Online agriculture platform for all the agriculture products
* Delivery of the product at any remote place also ,and timely delivery
* Customer satisfaction through best quality products so they can chose from the mulple options.

5. Activities:

* Supplier and inventary management : maintaining inventary and stock management
* online platform development and maintenance : building a user friendly e-commerce webside and mobile application
* order processing and fulfillment : receiving online orders,pakaging and dispatching products for delivery.
* payment and transaction management: secure payment processing through multiple payment options
* customer support services: handling inquires and complaints and product recommendation
* markating and customer acquisiton: digital markating strategies like sicial media ads and promotions.
* Logistics and delivery management : ensure timely deliver through patnership with logistics providers

6. value created to the end customer:

* convenience:easy acess to wide range of agriculture products online
* time saving: vithout visiting store physically they can order online
* cost efficient:competative pricing and discount offers
* product availability : availability of all high quality and certified products

reliable delivery : hassle-free and timely doorstep delivery.

this business process model ensures that the online agriculture store operates efficiently while maximizing value of the customers .

**Question 2 SWOT -Mr kartik is doing SWOT analysis before he accepts this project .what aspects he should consider as strength , as weaknesses , as opportunity and as threats.**

**Answer:**

1 Strength :

* wide market reach : online platform enables access to farmers across different regions.
* convenience and accessibilty :farmers can order anything eliminating the need to visit physical stores.
* lower operational cost: no need of multiple physical stores
* variety of products -wide range of agriculture products
* digital paymets : sequre payment options for customer trust

2 weaknesses :

* lack of digital literacy among farmers, they may not be having knowlege of online platforms
* delivery challenges in rural areas ,may have poor infrastructure affecting timely delivery
* supply chain management : ensuring stock availability and managing perishable items can be difficult.
* trust on online products : farmers may hesitate buying online product due to quality issues and fraud concerns
* high initial investment: building and e-commerse platform is costly

3 opportunities-

* growing adoption of digital platforms in agriculture
* increase in smartphone and internet usage
* expansion into additional services
* demant for organic produts and sustainable farming techniques is increasing

4 Threats :

* compitation from allready established online agriculture platforms
* Regulatory andcompliance issues '
* government policies on sale of pesticides, seeds certification
* seasonal demand variability : sales may fluctuate due to seasonal farming cycles
* cyber sequrity risks: online fraud risks .

by addressing these SWOT factors mr kartik can make an informed desicion about launching the online agriculture store

**Question 3 Feasibility study - mr kartik 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:**

Mr kartik should consider the following aspects in his feasibility study before proceeding with the projet.

1 Hardware(HW)Requirements :

Servers :

* cloud-based(AWS,Azure or google cloud)or on-premise(dedicated servers)
* minimum configuration

Network Infrastructure:

* High -speed internet for hosting and development team
* load balance for handling peak traffic

user device compitaility

* ensure platform runs smoothly on desktops, mobile device and tablets

Data storage:

Back up and recovery setup

2 software(SW) Requirement :

* java-based framework :spring boot,javaserver faces(JSF),or java FX for UI
* HTML,CSS Java script
* backend development: java with spring boot for API and and business logic
* Database management :customer data and transactions
* Sequrity and authentication :encryption for secure transaction
* payment gateway integration: Razorpay,paypal or other loacal payment solutions
* testing tools

3. Trained resources (human resources needed)

* project manager
* java developers
* frontend developers
* database administrator
* QA testers
* customer support team

4. Budget estimation

**category Estimated cost**

server and hosting $5000-10,000/year

development $50,000-1,00,000/year

security and compliance $5000-10,000

marketing and promotions $10,000-20,000

miscellaneous (legal,support etc) $5,000-10,000

total estimated budget $75,000-150,000

5 Time frame

**Phase**

requirement analysis and fessibility study - 2-3 weeks

UI/UX Design and wireframing - 3-4 weeks

backend and database development - 8-12 weeks

frontend development - 6-8 weeks

testing and QA - 4-6 weeks

deployment and sequrity audit - 3-4 weeks

markating and launch - 2-3 weeks

total estimated time - 6-8 months

conclusion

the project is technically feasible with java based technologies ,provided the budget and timeline align with mr kartik's business goals

He should ensure proper allocation of resource

Trained staff and manage development.

**Question 4 Gap analysis**

**mr kartik 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:**

* customer accessibity and convenience

aspects -

1 product availability

AS-IS - farmers rely on physical stores , leading to stock limitation

TO-BE(future process)- online store offers wide range of agriculture products

Gap analysis- limited product choices in physical stores

2 Store accessibilty -

AS-IS - customer travel long distance to buy product

TO-BE - Customer can order from anywhere and anytime

gap analysis - farmers saving the time of travelling

3 Operating hours

AS-IS- limited business hours

TO-BE- 24/7 online services available

Gap analysis - missed sales opportunity after business hours

* Supply chain and inventary management

1 Stock management

AS-IS - manual traking

TO-BE- Automated traking and inventary management

2 Supplier coordination

AS-IS- No centralized supply chain network

TO-BE- Direct patnership with multiple suppliers from multiple locations

Gap analysis- Consistant product supply

3 Order processing

AS-IS- orders handled manually

TO-BE- Automated order proessing system

Gap analysis - Slow order processing

* Cost /pricing efficiency

1 pricing model

AS-IS- multiple middlmen increases prices

TO-BE - direct supplier to customer reduces pricing of product

Gap analysis - high product cost due to intermrdiaries

2 Payment method

AS-IS- Mostly cash transactions which are risky and inconvinient

TO-BE-Secure online payments with multiple gateway with discount and offers depents on payment solution

Gap analysis - farmers face cash constraints

* Logistics and delivery

1 product delivery-

AS-IS- Farmers should arrange their own transportation

TO-BE- Product will get delivered doorstep with standardized and timely delivery

Gap analysis- extra transportation cost to farmers

2 return and replacement-

AS-IS- difficult need to visit the store again

TO-BE- Easy online return and refund process

Gap analysis- Customer hesitate to buy due to return problems

3 Customer support

AS-IS- no dedicated customer service available

TO-BE- 24/7 customer support available

**Question 5 - Risk analysis- List down different risk factors that may be involved (BA risk and process/project risks)**

**Answer:**

Risk Analysis for Online Agriculture Store Project

Mr. Karthik should consider Business Analysis (BA) Risks and Process/Project Risks before initiating the online agriculture store project.

1. Business Analysis (BA) Risks: These risks relate to business feasibility, market dynamics, and stakeholder expectations.

A. Market & Customer Risks

 • Low Digital Adoption: Farmers may not be comfortable using online platforms.

 • Market Competition: Large e-commerce platforms (Amazon, Flipkart) may enter the segment.

 • Price Sensitivity: Farmers may prefer traditional stores due to bargaining flexibility.

 • Trust & Reliability Issues: Customers may hesitate to buy due to online fraud concerns.

 • Seasonal Demand Fluctuations: Sales volume may vary based on agricultural cycles.

B. Financial & Economic Risks

 • High Initial Investment: Development, logistics, and marketing costs may exceed estimates.

 • Payment Failures & Fraud: Risk of non-payment, failed transactions, or chargebacks.

 C. Supplier & Inventory Risks

 • Unreliable Suppliers: Delayed deliveries or inconsistent product quality can damage reputation.

 • Stock Shortages: Difficulty in managing demand for high-selling items.

 • Logistics Challenges: Rural delivery delays due to poor road infrastructure.

2. Process & Project Risks

A. Technology Risks

 • Platform Downtime: Server crashes can disrupt operations and lose customers.

 • Cybersecurity Threats: Hacking, data breaches, and payment fraud risks.

 • Scalability Issues: System performance may degrade with increasing users and orders.

 • Integration Challenges: Difficulty in integrating payment gateways, logistics, and CRM systems.

B. Development & Resource Risks

 • Skill Gaps in Development Team: Lack of expertise in Java, database management, or security.

 • Project Delays: Scope creep, unclear requirements, or technical roadblocks can delay launch.

 • Cost Overruns: Budget may exceed initial estimates due to unforeseen expenses.

 • Third-Party Dependency Risks: Issues with external service providers (cloud hosting, logistics partners).

C. Operational Risks

 • Order Fulfillment Errors: Mistakes in processing orders, shipping, or packaging.

 • Returns & Refund Challenges: High return rates could lead to operational losses.

 • Customer Support Bottlenecks: Insufficient staff to handle queries and complaints.

**Question 6 – Stakeholder Analysis (RACI Matrix)-Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers.**

**Answer:**

takeholder Analysis – RACI Matrix for Online Agriculture Store

A RACI Matrix helps identify the key stakeholders, their roles, and responsibilities in the project. It categorizes stakeholders as:

 • R (Responsible): Those who perform the work.

 • A (Accountable): The decision-makers who approve tasks.

 • C (Consulted): Those who provide input and expertise.

 • I (Informed): Those who need updates but are not actively involved in decision-making.

Key Stakeholders & RACI Matrix

Stakeholder Categories & Influence

 1. Decision-Makers (High Authority, High Influence)

 • Mr. Henry (Investor/Business Owner) – Final approval of funding, pricing, and strategic decisions.

 • Mr. Karthik (Project Manager) – Oversees execution, resource allocation, and delivery.

 2. Influencers (Provide Insights & Recommendations)

 • Farmers (End Users) – Their needs and feedback shape the platform features.

 • Suppliers & Manufacturers – Their pricing and stock availability impact business operations.

 • Technology Team (Developers, QA, DevOps) – Responsible for ensuring platform stability.

 • Marketing & Sales Team – Influences business growth through promotional strategies.

 3. Operational Stakeholders (Execution & Support)

 • Logistics & Delivery Partners – Ensures smooth product fulfillment.

 • Customer Support Team – Provides assistance and retains customers.

 • Finance & Legal Team – Ensures compliance with regulations and manages payments.

**Question 7- Business case document - Help Mr kartik to prepare a business case document**

**Answer -** Business Case Document for an Online Agriculture Store

Prepared for: Mr. Karthik

Prepared by: [Pradnya Doiphode ]

Date: [march 2025]

1. Executive Summary

This business case presents an opportunity to launch an online agriculture store, enabling farmers and agribusinesses to purchase essential agricultural products conveniently. The platform will provide a wide range of products, including seeds, fertilizers, pesticides, farm equipment, and livestock feed, with a focus on affordability, accessibility, and reliable delivery.

2. Business Problem & Opportunity

Current Challenges in Agricultural Supply Chain:

 • Limited access to quality agricultural products in rural areas

 • High costs due to middlemen and multiple distribution layers

 • Lack of price transparency and product comparisons

 • Farmers facing difficulties in finding reliable suppliers Opportunity:

An e-commerce platform tailored for agriculture can address these gaps by:

 • Connecting farmers directly to trusted suppliers

 • Offering competitive prices and discounts

 • Providing doorstep delivery, reducing travel and logistics costs

 • Leveraging data-driven insights to optimize demand and supply

3. Business Objectives

 1. Enhance Accessibility: Provide farmers with an easy-to-use online platform for purchasing agricultural inputs.

 2. Increase Efficiency: Streamline procurement and delivery through automated processes.

 3. Improve Pricing & Transparency: Enable direct purchases from suppliers, eliminating unnecessary markups.

 4. Expand Market Reach: Cater to both rural and urban farming communities.

 5. Ensure Customer Satisfaction: Offer reliable products, timely delivery, and excellent customer support.

4. Scope of the Project

In-Scope:

✅ E-commerce website and mobile app development

✅ Product listings from multiple agricultural suppliers

✅ Integration with secure payment gateways

✅ Logistics and last-mile delivery solutions

✅ Customer service and feedback management

✅ Marketing campaigns targeting farmers

Out-of-Scope:

❌ Own manufacturing of agricultural products

❌ Physical retail stores

5. Key Stakeholders

 • Business Owner (Mr. Karthik) – Strategic decision-making, investments

 • Suppliers (Seed/Fertilizer/Pesticide Companies) – Provide products for listing

 • IT & Development Team – Build and maintain the e-commerce platform

 • Logistics Partners – Handle delivery and order fulfillment

 • Marketing Team – Promote the platform to farmers

 • Customers (Farmers & Agri-businesses) – End-users purchasing products

6. Financial Considerations

Expense Category Estimated Cost (INR/USD)

Platform Development (Website & App) ₹5,00,000 ($6,000)

Inventory & Supplier Integration ₹3,00,000 ($3,600)

Marketing & Advertising ₹2,00,000 ($2,400)

Logistics & Delivery Setup ₹4,00,000 ($4,800)

Customer Support & Operations ₹1,50,000 ($1,800)

Total Estimated Investment ₹15,50,000 ($18,600)

Revenue Streams:

 • Product sales commissions (5-10% per transaction)

 • Subscription plans for premium supplier listings

 • Advertising from agricultural brands

7. Risk Analysis & Mitigation

Risk, Impact and Mitigation Strategy :

* Risk -Low Adoption by Farmers

Impact- High

Mitigation Strategy - Conduct awareness campaigns & offer discounts

* Risk - Supplier Unavailability

Impact - Medium

Mitigation Strategy - Partner with multiple suppliers for redundancy

* Risk - Logistics Delays

Impact - High

Mitigation Strategy - Use multiple delivery partners & optimize routes

* Risk - Payment Failures

Impact - Medium

Mitigation Strategy - Integrate multiple secure payment options

* Risk - Regulatory Issues

Impact - Low

Mitigation Strategy - Ensure compliance with agricultural & e-commerce laws

8. Implementation Plan & Timeline

Phase ,Tasks and Timeline

* Phase 1: Planning

Task - Market research, business model finalization

Timeline - Month 1

* Phase 2: Platform Development

Task - Website & app development, supplier onboarding

Timeline - Month 2-3

* Phase 3: Testing & Pilot Launch

Task - Beta testing with selected farmers

Timeline - Month 4

* Phase 4: Full Launch

Task - Official platform launch, marketing campaigns

Timeline - Month 5

Phase 5: Expansion and scaling

Task : Partner with more suppliers,optimize operation

Timeline - Ongoing

9. Conclusion & Recommendation

The online agriculture store presents a viable business opportunity with significant potential to revolutionize agricultural supply chains by making high-quality inputs more accessible and affordable for farmers. With a well-executed implementation strategy, this platform can increase efficiency, generate sustainable revenue, and create long-term value for farmers and suppliers alike.

Recommendation: Proceed with Phase 1 (Planning) and secure initial funding for development and marketing.

**Question 8 – Four SDLC Methodologies - The committee of mr Henry, mr pandu and mr dooku and mr kartik are having a discussion on project development approach**

**mr. kartik explained to mr. henry about SDLC, and four methodologies like sequential iterative evolutionary and agile. please share your thoughts and clarity on methodologies.**

**Answer :**

Project Development Approaches – SDLC Methodologies

Mr. Karthik introduced Software Development Life Cycle (SDLC) to Mr. Henry, which is the structured process for developing, deploying, and maintaining software systems. There are four key methodologies under SDLC:

1. Sequential Methodology (Waterfall Model)

 • Approach: Follows a linear and structured progression where each phase (Requirement → Design → Development → Testing → Deployment) must be completed before moving to the next.

 • Best For: Well-defined projects with clear requirements and minimal changes.

 • Pros: Easy to manage, structured approach, suitable for projects with fixed scope.

 • Cons: Rigid; difficult to accommodate changes; late-stage issues are costly to fix.

Example: Developing an online agriculture store where requirements are fixed, and no frequent changes are expected.

2. Iterative Methodology

 • Approach: The system is developed in repetitive cycles (iterations), refining the product after each phase.

 • Best For: Projects where requirements evolve, but a structured approach is still needed.

 • Pros: Faster feedback, lower risk, early detection of issues.

 • Cons: Requires good planning and continuous refinement, may extend timelines.

Example: Building an e-commerce store in small releases, improving product features in each cycle based on customer feedback.

3. Evolutionary Methodology (Prototyping & Spiral Model)

 • Approach: Focuses on continuous evolution of the system based on frequent user feedback.

 • Best For: High-risk projects where requirements are uncertain or need frequent validation.

 • Pros: Customer involvement, risk mitigation, better adaptability.

 • Cons: Requires more effort for changes, complexity in managing iterations.

Example: Developing an AI-powered recommendation system for farmers, where feedback from early users helps refine the algorithm.

4. Agile Methodology (Scrum, Kanban, etc.)

 • Approach: A flexible, collaborative approach that delivers working software in short, incremental cycles (sprints).

 • Best For: Projects requiring fast delivery, continuous improvement, and high adaptability.

 • Pros: Highly flexible, customer-focused, faster time-to-market.

 • Cons: Requires constant communication, may lead to scope creep.

Example: Developing a farm management mobile app, where features are added and refined based on user needs every few weeks.

Final Thoughts:

 • If requirements are fixed, use Sequential (Waterfall).

 • If requirements may change gradually, use Iterative.

 • If continuous feedback is critical, use Evolutionary.

 • If fast delivery & flexibility are needed, use Agile.

**Question 9 - Waterfall RUP Spiral and Scrum Models - They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your understanding on these models.**

**When the APT IT SOLUTIONS company got the project to make this online agriculture product store, there is a difference of opinion between a couple of SMEs and the project team regarding which methodology would be more suitable for this project. SMEs are stressing on using the V model and the project team is leaning more onto the side of waterfall model. As a business analyst, which methodology do you think would be better for this project?**

**Answer :**

Understanding SDLC Models: Waterfall, RUP, Spiral, and Scrum

1. Waterfall Model (Sequential)

 • Approach: Follows a linear, step-by-step process where each phase must be completed before moving to the next.

 • Best For: Well-defined, fixed scope projects with minimal expected changes.

 • Pros: Simple, easy to manage, structured documentation.

 • Cons: No flexibility, late detection of issues, costly to fix errors in later stages.

Example: Developing a government agricultural portal with clear, predefined requirements.

2. Rational Unified Process (RUP) Model (Iterative)

 • Approach: Phased and iterative approach, dividing development into Inception, Elaboration, Construction, and Transition.

 • Best For: Complex projects requiring multiple iterations and stakeholder involvement.

 • Pros: Risk-driven, flexible, allows changes during development.

 • Cons: Requires skilled resources and strong management.

Example: Large-scale farm management software requiring continuous refinements.

3. Spiral Model (Risk-Driven)

 • Approach: Combines iterative development with risk management, emphasizing early risk assessment and prototyping.

 • Best For: High-risk, large projects with evolving requirements.

 • Pros: Reduces risk, allows for prototyping, accommodates changes.

 • Cons: Costly, complex to manage, requires constant evaluation.

Example: AI-based smart agriculture systems where continuous risk assessment is required.

4. Scrum Model (Agile)

 • Approach: Uses sprints (2-4 weeks) to deliver small, working versions of the product in an iterative and flexible manner.

 • Best For: Dynamic projects where requirements frequently change based on customer feedback.

 • Pros: High adaptability, quick releases, better stakeholder collaboration.

 • Cons: Requires constant customer involvement, risk of scope creep.

Example: Developing an agricultural marketplace app with frequent feature updates.

Choosing Between V-Model and Waterfall for APT IT SOLUTIONS

SMEs’ Preference: V-Model

 • Approach: An extension of Waterfall, where each development phase has a corresponding testing phase (Validation & Verification).

 • Best For: Projects requiring strict testing after each phase, especially for critical systems.

 • Pros: High-quality deliverables due to early defect detection.

 • Cons: Rigid, difficult to accommodate changes, longer development time.

Project Team’s Preference: Waterfall Model

 • Approach: Step-by-step, linear development.

 • Best For: Projects with well-defined requirements and minimal expected changes.

 • Pros: Simpler to implement, clear documentation, easier to manage.

 • Cons: Late-stage defect detection, high cost of changes.

Business Analyst’s Recommendation: V-Model is the Better Choice

Reasons for Choosing V-Model Over Waterfall:

 1. Testing at Every Stage – Since the online agriculture store involves payments, logistics, and product management, early bug detection is crucial.

 2. Better Quality Assurance – The V-Model ensures that requirements are validated continuously, reducing deployment risks.

 3. Reduces Cost of Fixing Issues – Unlike Waterfall, where defects are detected late, the V-Model catches errors early, saving costs.

 4. Ensures a Reliable Platform for Farmers – Since agricultural businesses rely on trustworthy and smooth transactions, rigorous testing at every stage is beneficial.

Final Decision: The V-Model is more suitable than Waterfall as it ensures a more reliable and error-free agricultural e-commerce platform.

**Question-10**: **Waterfall Vs V-Model - 20 Write down the differences between waterfall model and V model**

**Answer - :**

* Aspect - Approach

Waterfall Model - Sequential, linear model where each phase must be completed before moving to the next.

V-Model - ,Similar to Waterfall but with corresponding testing (validation) at each stage of development.

* Aspect -Testing

Waterfall Model -Testing is done only after the development phase is complete

V-Model - Testing is performed parallelly with development, ensuring early defect detection.

* Aspect - Flexibility

Waterfall Model - Rigid; once a phase is completed, changes are difficult

V-Model - Less flexible but allows early issue identification, reducing major defects later.

* Aspect - Risk Management

Waterfall Model - Higher risk, as defects are found late in the process

V-Model - Lower risk, since errors are detected early in corresponding validation phases.

* Aspect - Cost of Fixing Issues

Waterfall Model - High because errors are identified late, requiring more rework

V-Model - Lower, as defects are caught early, reducing expensive fixes.

* Aspect - Development Process,

Waterfall Model - Moves in a single direction like a waterfall, without returning to previous phases.

V-Model - Each development phase has a corresponding test phase (e.g., requirement validation, design validation, etc.).

* Aspect - Project Complexity

Waterfall Model - Suitable for simple, well-defined projects.

V-Model - Suitable for complex projects requiring reliability and extensive testing.

* Aspect - Suitability

Waterfall Model - Best for small projects with fixed requirements and minimal expected changes.

V-Model - Best for critical applications where early validation and defect prevention are necessary.

* Aspect - Phases

Waterfall Model - Requirement → Design → Development → Testing → Deployment → Maintenance,

V-Model - Requirement - System Testing, Design - Integration Testing, Implementation - Unit Testing, etc.

* Aspect - Changes in Requirements

Waterfall Model - Difficult to accommodate changes once a phase is completed

V-Model - More adaptable than Waterfall, as testing at each stage provides validation for changes.

Example:

Waterfall Model - Projects,Simple websites, educational portals, internal business tools.

V-Model - 20. E-commerce platforms, banking apps, medical software, real-time systems.

**Question 11 - : Justify your choice**

**As BA, state your reason for choosing one model for this project.**

**Answer :-**

Justification for Choosing the V-Model for the Online Agriculture Store

As a Business Analyst (BA), I recommend using the V-Model for this project instead of the Waterfall Model. Here’s why:

1. High-Reliability Requirement

The online agriculture store will handle financial transactions, logistics, and customer orders. Since any failure in these areas could directly impact farmers and businesses, early defect detection is crucial. The V-Model ensures testing at every stage, preventing major system failures.

2. Early Error Detection & Cost Savings

Unlike the Waterfall Model, where issues are identified only during final testing, the V-Model detects defects in each phase (e.g., requirement validation, design validation). This helps:

✅ Reduce rework costs

✅ Fix issues before moving forward

✅ Improve product stability

3. Ensuring a Seamless Customer Experience

Farmers and agribusinesses depend on smooth transactions and accurate product availability. The V-Model’s continuous validation process ensures that:

 • Payment systems are tested early

 • Inventory and logistics modules function correctly

 • User experience is smooth

4. Compliance & Security Considerations

Since the platform will store sensitive customer and financial data, data security and regulatory compliance are critical. The V-Model’s rigorous validation ensures early compliance testing for:

✅ Secure payment processing

✅ Data protection standards (GDPR, PCI-DSS, etc.)

✅ Regulatory adherence in agriculture e-commerce

5. Handling Changing Requirements

While both Waterfall and V-Model are not as flexible as Agile, the V-Model validates requirements at each stage. This means that if any minor changes arise (e.g., adding a new payment gateway or modifying product categorization), they can be accommodated without major rework.

Conclusion: V-Model is the Best Fit

Given the business-critical nature of the online agriculture store, high testing standards, and security needs, the V-Model is the best choice. It ensures quality, reliability, and cost efficiency while reducing late-stage risks.

**Question 12 – Gantt Chart -**

**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) Mr Vandanam is mapped as a PM to this project. He studies this Project and Prepares a Gantt chart with V Model (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT) as development process and the Resources are PM, BA, Java Developers, testers, DB Admin, NW Admin**.

**Answer :**

Gantt Chart for V-Model Implementation of the Online Agriculture Store

Mr. Vandanam, as the Project Manager (PM), has structured the project timeline using the V-Model approach. Below is the Gantt chart breakdown, including phases, activities, and resource allocation.

|  |  |  |  |
| --- | --- | --- | --- |
| Phase | Task | Duration (Weeks) | Resources Assigned |
| Requirement Gathering (RG) | Collect business & technical requirements | 2 Weeks | BA, PM |
| Requirement Analysis (RA) | Validate & finalize requirements with stakeholders | 2 Weeks | BA, PM |
| Design | System architecture & database design | 3 Weeks | BA, Java Developers, DB Admin, NW Admin |
| Development 1 (D1) | Core module implementation | 3 Weeks | Java Developers, DB Admin |
| Testing 1 (T1) | Unit testing for core module | 2 Weeks | Testers |
| Development 2 (D2) | Product catalog & ordering system | 3 Weeks | Java Developers, DB Admin |
| Testing 2 (T2) | Functional testing for catalog module | 2 Weeks | Testers |
| Development 3 (D3) | Payment gateway & transaction system | 3 Weeks | Java Developers, DB Admin |
| Testing 3 (T3) | Integration testing for payment system | 2 Weeks | Testers |
| Development 4 (D4) | Logistics & delivery tracking module | 3 Weeks | Java Developers, DB Admin, NW Admin |
| Testing 4 (T4) | System testing for logistics module | 2 Weeks | Testers |
| User Acceptance Testing (UAT) | End-to-end testing with real users | 3 Weeks | BA, Testers, PM |

**Question 13 – Fixed Bid Vs Billing- Explain the difference between Fixed Bid and Billing projects.**

**Answer :**

Fixed Bid vs. Billing (Time & Material) – Key Differences

When selecting a pricing model for a project, businesses often choose between Fixed Bid and Billing (Time & Material). Here’s a detailed comparison:

* Criteria- Defintion

Fixed Bid Model - A fixed price is agreed upon before the project starts, regardless of time or effort spent.

Billing (Time & Material Model)- The client is billed based on actual time spent and resources used.

* Cost Predictability

Fixed Bid Model -High – The total cost is known upfront.

Billing -Variable – Costs depend on project duration and resource utilization.

* Flexibility in Requirements

Fixed Bid Model - Low – Scope is predefined and fixed; changes require renegotiation

Billing - High – Allows for scope changes and adjustments throughout the project.

* Risk

Fixed Bid Model - Higher for the vendor – If the project takes longer than expected, extra costs are absorbed by the service provider.

Billing - Higher for the client – Costs can exceed initial estimates if the project takes longer than planned.

* Time Estimation

Fixed Bid Model - Requires accurate estimation before starting the project.

Billing - No fixed timeline – Work continues until requirements are met.

* Resource Allocation

Fixed Bid Model - Fixed team assigned for the duration of the project.

Billing - Resources can be scaled up or down as needed.

* Client Involvement

Fixed Bid Model - Low – The client provides initial requirements, and the vendor delivers as per agreement.

Billing - High – The client is actively involved in ongoing development and decision-making.

Example Projects

Fixed Bid Model - Website development, fixed-scope software applications, government projects.

Billing - R&D projects, software product development, Agile-based projects.

Which Model is Better for the Online Agriculture Store?

 • Fixed Bid Model is ideal if the requirements are clearly defined and no major changes are expected.

 • Billing (Time & Material) is better if flexibility is required, as new features, integrations, or optimizations may arise based on user feedback.

**Question 14 – Preparer Timesheets of a BA in various stages of SDLC**

**➢ Design Timesheet of a BA**

**➢ Development Timesheet of a BA**

**➢ Testing Timesheet of a BA**

**➢ UAT Timesheet of a BA**

**➢ Deployment n Implementation Timesheet of a BA**

**Answer :-**

Business Analyst (BA) Timesheets for Various SDLC Stages

A Business Analyst (BA) is involved in different activities throughout the Software Development Life Cycle (SDLC). Below are sample timesheets showing daily activities for each phase.

1. Design Phase – BA Timesheet

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| --- | --- | --- | --- |
| Days  | Task | Hours spend | Comments |
| Day 1 | conduct stakeholder meeting | 3 hr | gather functional and technical requirements |
| Day 2 | Create business req document (BRD) | 4 hr | draft initial version |
| Day 3 | Review BRD with SMEs | 3 hr | collect feedback and modify requirements |
| Day 4 | work on use case & process flow diagram | 4 hr | define business workflow |
| Day 5 | Finalize functional specification document (FSD) | 4 hr | send for approval |

2. Development Phase – BA Timesheet

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| --- | --- | --- | --- |
| Days  | Task | Hours spend | Comments |
| Day 1 | support development team in clarification | 3 hr | answer queries on BRD & FSD  |
| Day 2 | update requirement changes | 3 hr | modify documents as per developer feedback |
| Day 3 | assist in database structure discussion | 2 hr | work with DB admin for data flow validation |
| Day 4 | track requirement traceability | 3 hr | ensure all requirements are mapped to development tasks |
| Day 5 | attend sprint reviews and demos | 3 hr | provide business insights on features |

3. Testing Phase – BA Timesheet

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| --- | --- | --- | --- |
| Days  | Task | Hours spend | Comments |
| Day 1 | Review test cases with QA team | 3 hr | ensure test cases align with business requirements  |
| Day 2 | conduct user story validation  | 2 hr | verify functionality meets business needs |
| Day 3 | participate in defect triage | 3 hr | help prioritize& resolve defects |
| Day 4 | assist in test data preparation | 3 hr | support testers in creating real-world scenarios |
| Day 5 | validate usiness rules in test execution | 3 hr | ensure all business scenarios are covered |

4. User Acceptance Testing (UAT) Phase – BA Timesheet

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| --- | --- | --- | --- |
| Days  | Task | Hours spend | Comments |
| Day 1 | prepare UAT scenarios and scripts  | 3 hr | align with user expectation  |
| Day 2 | conduct UAT kickoff meeting  | 2 hr | train user on testing approach |
| Day 3 | support UAT execution and issue logging | 4 hr | guide user in testing and documenting defects |
| Day 4 | verify and validate UAT feedback | 3 hr | work with dev and qa teams to resolve issues |
| Day 5 | approve UAT sign-off | 2 hr | ensure business stakeholders are satisfied |

5. Deployment & Implementation Phase – BA Timesheet

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| --- | --- | --- | --- |
| Days  | Task | Hours spend | Comments |
| Day 1 | prepare deployment checklist  | 3 hr | ensure all pre-go-live checks are complete |
| Day 2 | conduct training sessions | 4 hr | train end-user and internal teams |
| Day 3 | monitor system performance post -go-live | 3 hr | identify any immediate issues |
| Day 4 | address post-deployment feedback | 3 hr | work with teams to fix production issues |
| Day 5 | Document lessons learned | 2 hr | summarize ke insights for future projects |

Summary

 • The BA’s role is consistent across all SDLC stages, ensuring that requirements are properly implemented and validated.

 • Major activities include requirement gathering, documentation, testing support, UAT facilitation, and post-deployment monitoring.

 • Collaboration with developers, testers, and stakeholders is key in every phase.