

Mr. Henry – As he became successful in business area and he has wealth so he wants to give back to society under CSR (Corporate Social Responsibility).

When he meets his childhood friends Peter, Kevin, and Ben, who are farmers in a remote village.

Peter → Faces difficulty in procuring fertilizers.

Kevin → Struggles to buy seeds for farming.

Ben → Lacks access to pesticides to control pests.

After visiting his village Mr. Henry realizes this problem is not just limited to his friends, but also affects many other farmers in rural areas.

Farmers in remote villages struggle to buy agricultural products (fertilizers, seeds, pesticides) due to:

- Lack of availability in local markets.
- High dependency on intermediaries/middlemen.
- No direct access to manufacturers.

This results in reduced productivity, higher costs, and dependency on others.

Q1. Identify Business Process Model for Online Agriculture Store – (Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer)

Answer:

Goal: Enable farmers in remote areas to purchase agricultural products (fertilizers, seeds, pesticides) directly from manufacturers via an online store.

Inputs: Product details from manufacturers.

Farmers' requirements (orders).

Internet-enabled devices (mobile/web).

Resources:

APT IT Solutions team which includes PM, BA, Developers, Testers, DB Admin, Network Admin

Technology: Java platform, database, servers.

Budget: 2 Crores INR.

Activities: 1. Manufacturers upload product details. 2. Farmers browse & search products.

3. Farmers place orders. 4. Payment & delivery processing. 5. Customer support & feedback.

Outputs:

Ordered products delivered to farmers.

Reports for manufacturers on sales.

Value :

Easy access to agricultural inputs.

Reduced dependency on middlemen.

Cost and time savings.

Q. 2. SWOT Analysis

Strength	Weakness
• CSR funding (financially supported by Mr. Henry strong businessman). • Direct farmer-to-manufacturer communication. • APT IT Solutions has a skilled technical team.	• Farmers may lack digital literacy. • Internet access might be limited in remote areas. • Logistics challenges in rural delivery.
• Expansion to other regions/countries. • Add more product categories (tools, machinery). • Strengthen farmer-manufacturer trust & partnerships.	• Competition from other e-commerce platforms. • Cybersecurity risks in online payments. • Resistance to change from traditional buying habits.
Opportunities	Threats

Q.3 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: Servers, hosting infrastructure, delivery tracking system.

 Software: Java platform, database (SQL/Oracle), payment gateway integration.

 Trained Resources: Skilled Java developers, testers, BA, DB & Network admins.

 Budget: 2 Crores INR (CSR funded, sufficient for development & maintenance).

 Timeframe: 18 months duration (reasonable for phased development).

 Conclusion: Feasible – team and resources are available, budget approved.

Q.4 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

AS-IS (Current State):

 Farmers buy from local shops (limited availability).

 Dependent on middlemen.

 Delays in procuring seeds/fertilizers/pesticides.

TO-BE (Future State):

 Farmers directly buy online from manufacturers.

 Reduced dependency on middlemen.

 Faster delivery and wider product access.

Gap Identified:

Lack of online marketplace for farmers → solved through proposed application.

Q.5 List down different risk factors that may be involved (BA Risks And process/Project Risks)

Business Risks:

- Farmers' lack of digital knowledge.
- Low adoption rate due to resistance to change from traditional to online
- Delivery/logistics issues may arise

Project Risks:

- Budget overrun if scope creeps.
- Delay in meeting deadling of 18-month timeline.
- Conflict between SMEs and IT team on methodology.
- Technical risks (system downtime, cyberattacks).

Q.6 Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers

R / A / C / I	Name of the Resource	Designation	Details
Responsible	Business Analyst (You)	BA	Email: ba@aptitsolutions.com Ph: 9876543210 9AM–6PM IST
	Java Devs (Juhi, Teyson, Lucie, Tucker, Bravo)	Developers	Email: dev@aptitsolutions.com Ph: 9876543210 9AM–6PM IST
	John	DB Admin	Email: john@aptitsolutions.com Ph: 9876543210 9AM–6PM IST
	Mike	Network Admin	Email: mike@aptitsolutions.com Ph: 9876543210 9AM–6PM IST
	Jason & Alekya	Testers	Email: ga@aptitsolutions.com Ph: 9876543210 9AM–6PM IST
Accountable	Mr. Henry	Business Sponsor	Email: henry@soony.com Ph: 9876543210 9AM–1PM IST
	Mr. Pandu	Financial Head	Email: pandu@soony.com Ph: 9876543210 9AM–1PM IST
	Mr. Karthik	Delivery Head	Email: karthik@aptitsolutions.com Ph: 9876543210 9AM–1PM IST
	Mr. Vandanam	Project Manager	Email: pm@aptitsolutions.com Ph: 9876543210 9AM–6PM IST
Consulted	Mr. Dooku	Project Coordinator	Email: dooku@soony.com Ph: 9876543210 9AM–1PM IST
	Peter, Kevin, Ben	Farmers (End Users)	Email: farmers@village.com Ph: 9876543210 9AM–12PM IST
Informed	All SMEs	Subject Matter Experts	Email: sme@soony.com Ph: 9876543210 9AM–6PM IST
	CSR Committee	Sponsor Team	Email: csr@soony.com Ph: 9876543210 9AM–6PM IST

Legend

- R (Responsible): Does the work to complete the task.
- A (Accountable): Ultimately answerable, final decision-making authority.
- C (Consulted): Provides input, expertise, or feedback.
- I (Informed): Needs to be kept updated.

Analysis:

- Mr. Henry is Accountable for vision, requirements, and final approval.
- Mr. Pandu is Accountable for budget approval.
- Mr. Karthik is Accountable for delivery from vendor side.
- PM (Vandanam) is Responsible & Accountable for execution.
- BA (You) is Responsible for requirements, analysis, and stakeholder alignment.
- Developers, Testers, DB, NW Admin are Responsible in their respective technical areas.
- Farmers are Consulted during requirements and UAT, and Responsible for training/adoption.

Q.7 Help Mr Karthik to prepare a business case document

Problem: Farmers lack access to agricultural inputs in remote areas.

Solution: Develop an online agriculture store (Web + Mobile).

Benefits:

Farmers: Easy, timely access.

Manufacturers: Wider market reach.

CSR: Social impact.

Costs: 2 Crores INR budget.

Risks: Adoption, logistics, technical risks.

Timeline: 18 months.

Recommendation: Proceed with the project using V-Model.

Q.8 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:

Four main approaches to Software Development Life Cycle (SDLC)

1. Sequential (Waterfall Model)

Nature: Linear and step-by-step.

How it works: One phase (like requirements, design, development, testing, deployment) must be fully completed before moving to the next.

Best for: Projects with very clear and fixed requirements.

Pros: Simple, well-documented, easy to manage.

Cons: Rigid; changes are difficult once a phase is completed.

2. Iterative

Nature: Cyclic – development is done in repeated versions (iterations).

How it works: Build a basic version → review → refine → repeat until the final system is ready.

Best for: When requirements are partially known or may evolve.

Pros: Issues are identified early, improvements can be added gradually.

Cons: Can take more time and cost if iterations are many.

3. Evolutionary

Nature: Progressive – the system evolves with changing needs.

How it works: Starts with core functionality → delivers usable modules → refines and expands as requirements become clearer.

Best for: Projects where customer needs are unclear in the beginning.

Pros: Early delivery of working components, user feedback shapes the system.

Cons: Scope creep possible; needs close coordination with stakeholders.

4. Agile

Nature: Flexible, adaptive, and customer-focused.

How it works: Breaks the project into small increments (sprints). Continuous customer involvement, daily collaboration, and quick adjustments are encouraged.

Best for: Dynamic environments with changing requirements.

Pros: High flexibility, customer satisfaction, continuous improvement.

Cons: Requires skilled team and active customer involvement; documentation may be lighter.

Q. 9 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: For the Online Agriculture Products Store, I would choose the **V-Model** over Waterfall. While both are sequential models, the V-Model ensures that every development stage is validated with a corresponding testing phase. This is critical because farmers' requirements are clear and must be thoroughly verified before deployment. The fixed budget, CSR initiative, and need for high-quality delivery make the V-Model more suitable. It reduces the risk of late defect detection (a drawback of Waterfall) and provides better confidence to stakeholders like Mr. Henry and the SMEs.

Q. 10 Write down the differences between waterfall model and V model.

Aspect	Waterfall Model	V-Model
Approach	Linear & sequential software development model. Each phase must be completed before moving to the next.	Extension of Waterfall where each development phase has a corresponding testing phase (Verification & Validation).
Focus	Focus is mainly on development activities. Testing comes only after coding is completed.	Equal focus on both development and testing throughout the lifecycle.
Testing	Testing is a separate phase that starts after coding (late defect detection).	Testing is planned in parallel with development phases (early defect detection).

Aspect	Waterfall Model	V-Model
Flexibility	Rigid model; changes in requirements are difficult to handle once development starts.	More structured with emphasis on quality, but still rigid in handling requirement changes.
Risk Handling	Higher risk of defects being found late in the cycle (costly to fix).	Lower risk because validation happens at each stage, ensuring issues are caught early.
Error Detection	Errors are detected only during the testing phase, which may delay delivery.	Errors can be detected at the early stages due to verification and validation mapping.
Documentation	Heavy documentation, but testing documentation comes late.	Heavy documentation, with detailed test planning created alongside requirements and design.
Best Suited For	Projects with well-defined requirements and less critical applications.	Projects with well-defined requirements where quality and reliability are critical (e.g., healthcare, banking, agriculture).
Time & Cost Impact	High cost and time impact if defects are found late.	Reduced cost and time impact due to early validation.

Q. 11 As a BA, state your reason for choosing one model for this project

As a Business Analyst, I would recommend the V-Model because it ensures early testing and validation at every stage, which is crucial for building a high-quality, error-free application for farmers. The requirements are well-defined, budget and timeline are fixed, and stakeholders are aligned towards quality. Unlike Waterfall, where testing happens only at the end, the V-Model reduces risk, avoids costly rework, and ensures the final product meets the farmers' expectations.

Q.12 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.

Phase	Start Month	Duration (Months)	Resources	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18
Requirement Gathering (RG)	1	1	BA, PM, Farmers, Mr. Henry	BA, PM																	
Requirement Analysis (RA)	2	1	BA, PM, SMEs		BA, PM																
Acceptance Test Design (ATD)	2	1	BA, Testers, Farmers (for UAT design)		BA, Testers																

Design (System & DB)	3	2	BA, PM, Developers , DB Admin		BA, PM	BA, PM														
System Test Design (STD)	3	2	Testers, BA, PM		Testers, BA	Testers, BA														
Development Module 1 (D1)	5	2	Java Developers , DB Admin				Java Developers , DB Admin	Java Developers , DB Admin												
Unit Test Exec - Module 1 (T1)	6	1	Java Devs (unit tests)					Java Devs (unit tests)												
Development Module 2 (D2)	7	2	Java Developers						Java Developers	Java Developers										
Integration Test Exec - Module 2 (T2)	8	1	Testers, Integrations Lead, NW Admin							Testers, Integrations Lead										

Development Module 3 (D3)	9	2	Java Developers, DB Admin, NW Admin									Java Developers, DB Admin	Java Developers, DB Admin							
System Test Exec - Module 3 (T3)	10	1	Testers, QA Lead										Testers, QA Lead							
Development Module 4 (D4)	11	2	Java Developers, PM											Java Developers, PM	Java Developers, PM					
Regression/Perf Test Exec - Module 4 (T4)	12	1	Testers, Performance Team												Testers, Performance Team					
User Acceptance Testing (UAT)	13	2	BA, PM, Testers, Farmers													BA, PM	BA, PM			
Deployment & Handover	15	1	PM, BA, Devs, DB Admin, NW Admin															PM, BA		

After deploy ment Support	16	3	PM, BA, Devs, Support Team																P M, BA	P M, BA	P M, BA
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Please check this Gant chart at below link:

Q. 13 Explain the difference between Fixed Bid and Billing projects

Aspect	Fixed Bid Project	Billing (Time & Material) Project
Definition	A project where the scope, cost, and timeline are fixed in advance. Vendor agrees to deliver the complete project for a pre-decided price.	A project where the client is billed based on actual time and resources used (hourly/daily rate or monthly billing).
Scope	Clearly defined at the start; changes are difficult or costly.	Flexible; scope can evolve during execution.
Budget	Fixed; no extra billing unless change requests are raised.	Variable; depends on hours/resources consumed.
Risk	Vendor bears the risk → if project takes longer, cost overruns are on the vendor.	Client bears the risk → if project scope expands, costs increase accordingly.

Aspect	Fixed Bid Project	Billing (Time & Material) Project
Flexibility	Low flexibility; changes need formal change requests.	High flexibility; suitable for evolving or unclear requirements.
Client Involvement	Limited involvement after scope is finalized.	Continuous client involvement for scope discussions and approvals.
Best Suited For	Projects with well-defined requirements and clear deliverables (e.g., Online Agriculture Store in this case).	Projects with uncertain or evolving requirements where scope cannot be frozen early.
Example	Building a fixed-feature online store for ₹2 Crores (CSR initiative).	Hiring developers/testers on hourly basis to work on enhancements/maintenance.

Q.14 Prepare Timesheets of a BA in various stages of SDLC

Answer:

1. Design Phase Timesheet of a BA

Activity	Hours/Week (Example)	Description
Review BRD & SRS	6 hrs	Ensure requirements are properly documented.

Activity	Hours/Week (Example)	Description
Functional Specification Documentation (FSD)	10 hrs	Translate requirements into functional design.
Wireframes / UI Mockups	8 hrs	Prepare screen layouts & workflow diagrams.
Review with Stakeholders & SMEs	6 hrs	Validate design decisions with SMEs & end users.
Support Developers & Architects	4 hrs	Clarify requirement doubts during design.
Total: ~34 hrs/week		

2. Development Phase Timesheet of a BA

Activity	Hours/Week (Example)	Description
Clarify Requirements to Developers	8 hrs	Answer queries on requirements.

Activity	Hours/Week (Example)	Description
Update Requirement Traceability Matrix (RTM)	6 hrs	Map requirements to development modules.
Participate in Sprint/Module Reviews	6 hrs	Validate interim builds & features.
Change Requests Analysis	6 hrs	Assess impact of any requested changes.
Status Meetings with PM/Team	4 hrs	Track progress, resolve requirement gaps.
Total: ~30 hrs/week		

3. Testing Phase Timesheet of a BA

Activity	Hours/Week (Example)	Description
Review Test Cases (Functional/Integration)	8 hrs	Ensure test coverage for all requirements.
Validate Traceability Matrix (RTM)	6 hrs	Confirm requirements → test case mapping.
Support Testers	8 hrs	Clarify requirements & expected outcomes.
Participate in Defect Triage Meetings	6 hrs	Prioritize and resolve requirement-related defects.
Review Test Reports	4 hrs	Ensure completeness of testing cycle.
Total: ~32 hrs/week		

4. UAT (User Acceptance Testing) Timesheet of a BA

Activity	Hours/Week (Example)	Description
Prepare UAT Plan & Scenarios	6 hrs	Draft test scenarios from business perspective.
Coordinate with Farmers/SMEs	8 hrs	Ensure users are prepared for testing.
Support During UAT Execution	10 hrs	Assist end users in executing UAT.
Capture Feedback & Issues	6 hrs	Document user feedback & defects.
UAT Sign-off Preparation	4 hrs	Compile reports & get approvals.
Total: ~34 hrs/week		

5. Deployment & Implementation Timesheet of a BA

Activity	Hours/Week (Example)	Description
Prepare Training Materials / User Manuals	8 hrs	Create guides for farmers & admin users.
Conduct Training Sessions	6 hrs	Educate users & stakeholders.
Post-Go-Live Support (Hypercare)	10 hrs	Resolve initial usage issues.
Documentation Handover	4 hrs	Deliver final requirement docs to client.
Lessons Learned Session	4 hrs	Capture learnings for future projects.
Total: ~32 hrs/week		

Design Phase: Focus on requirement detailing, functional design, and wireframes.

Development Phase: Focus requirements, maintains RTM, and manages CRs.

Testing Phase: Focus requirements coverage, supports testers, and resolves defects.

UAT Phase: Coordination with end users, prepares UAT plan, and captures feedback.

Deployment Phase: Delivery of training, documentation, and post-go-live support.