Online Agriculture Products Store

Mr. Henry, after being successful as a businessman and has become one of the wealthiest persons in the city. Now, Mr. Henry wants to help others to fulfil their dreams. One day, Mr. Henry went to meet his childhood friends Peter, Kevin and Ben. They live in a remote village and do farming. Mr. Henry asked his friends if they are facing any difficulties in their day-to-day work.

Peter told Mr. Henry that he is facing difficulties in procuring fertilizers which are very important for farm. Kevin said that he is also facing the same problem in-case of buying seeds for farming certain crops. Ben raised his concern on lack of pesticides which could help in greatly reducing pests in crops.

After listening to all his friends' problems, Mr. Henry thought that this is a crucial problem faced not only by his friends but also by so many other farmers. So, Mr. Henry decided to make an online agriculture product store to facilitate remote area farmers to buy agriculture products. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly with each other.

The main purpose to build this online store is to facilitate farmers to buy seeds, pesticides, and fertilizers from anywhere through internet connectivity. Since new users are involved, Application should be user friendly.

This new application should be able to accept the product (fertilizers, seeds, pesticides) details from the manufacturers and should be able to display them to the Farmers. Farmers will browse through these products and select the products what they need and request to buy them and deliver them to farmers location.

Mr. Henry has given this project through his Company SOONY. In SOONY Company, Mr Pandu is Financial Head and Mr Dooku is Project Coordinator. Mr. Henry , Mr Pandu , and Mr Dooku formed one Committee and gave this project to APT IT SOLUTIONS company for Budget 2 Crores INR and 18 months Duration under CSR initiative. Peter, Kevin and Ben are helping the Committee and can be considered as Stakeholders share requirements for the Project.

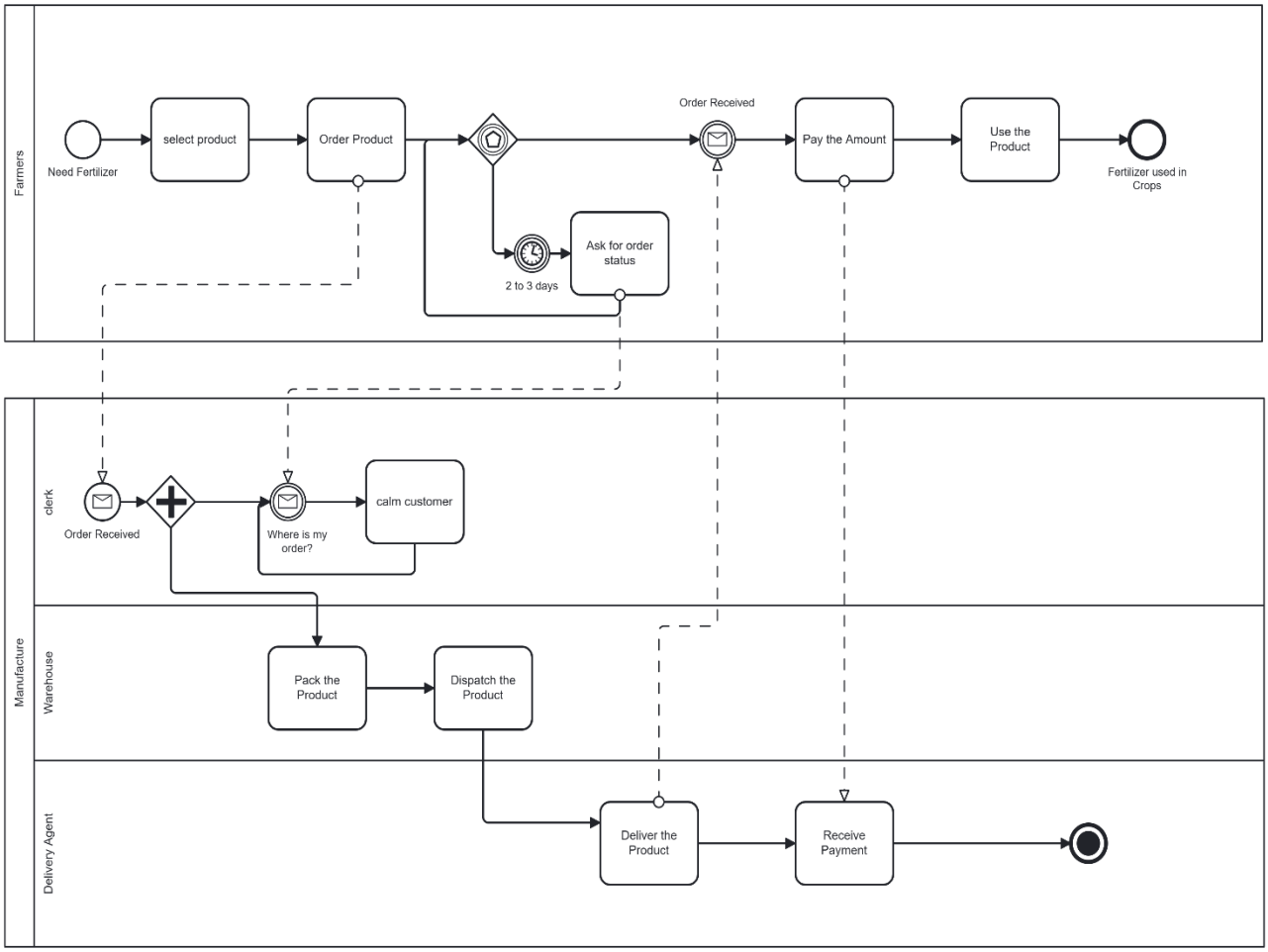
Mr Karthik is the Delivery Head in APT IT SOLUTIONS company and he reached out to Mr Henry through his connects and Bagged this project. APT IT SOLUTIONS company have Talent pool Available for this Project. Mr Vandanam is project Manager, Ms. Juhi is Senior Java Developer, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo are Java Developers. Network Admin is Mr Mike and DB Admin is John. Mr Jason and Ms Alekya are the Tester. And you joined this team as a BA.

1. **Question 1 – BPM - 5 Marks**
   - Identify Business Process Model for Online Agriculture Store – (Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer)

   Ans: -

   BPM is the art of converting the universe of real-world business activities into visual diagrams that are universally understandable.

   Below there is BPMN diagram for our problem



Goal: - to make an online agriculture product store to facilitate remote area farmers to buy agriculture products likes (Fertilizers, seeds and pesticides)

Inputs: - Farmer information, Manufacture Information, Product details, Purchase order details and payment details

Resources: - Farmers, suppliers, and distributors are the primary sources of products for the online store.

Outputs: - A user-friendly platform for farmers to browse and purchase, product delivery to customers, order tracking and financial transactions.

Activities: - Order of customer, product management, develop and maintenance of the site/mobile application, customer service, Payment Gateway.

Value created to the end Customer: - Improve efficiency, ease of availability of the Farmer products, time saving, variety of products.

2. Question 2 – SWOT - 5 Marks

- 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.

ANS.

By keeping in mind, the below points Mr Karthik can make an informed decision about whether to accept the project and how best to approach it.

STRENGTHS:

- Experienced developers and other IT professionals available to work on the project.
- Strong financial position of company
- Mr. Henry, a successful businessman, support and who can provide valuable input and resources.

WEAKNESSES:

- The 18-month project duration may be a tight timeline to deliver a complex system.
- Lack of subject knowledge expert (insufficient knowledge of the agriculture industry).
- Budget constrain (2 Crore may not enough for the project).

OPPORTUNITY:

- New business opportunities for the company in the agriculture and rural development sectors.
- Help to improve the lives of farmers in remote areas by making it easier for them to access the products they need.
- The company could use this project as a showcase for future projects

THREATS:

- Introduction of new competitors with high budget
- Change in government policies and schemes.
- The farmers may not be willing to adopt the new technology as they may be reluctant to change and do not see utility in it. They may be reluctant to bear the cost and charges for the system due to lack of trust.

3. Question 3 – Feasibility study - 5 Marks

- 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.

  ANS: Mr. Karthik should consider in his feasibility study for undertaking the project in Java technology:

  1. **Hardware (HW)**
     - **Current Infrastructure**: Assess existing servers, storage, and network equipment to determine if they meet the project's requirements.
     - **Scalability**: Ensure the hardware can scale up as the project grows in size and usage.
     - **Performance**: Evaluate the performance of current hardware to handle Java applications effectively.
     - **Future Expansion**: Plan for potential future hardware needs to avoid bottlenecks.
  2. **Software (SW)**
     - **Existing Software Compatibility**: Review current software systems and libraries to ensure they are
     - compatible with Java.
     - **Required Software**: Identify additional software, tools, or frameworks needed for development, testing, and deployment.
     - **Licensing Costs**: Consider the costs associated with any new software licenses.
     - **Integration**: Ensure new software can integrate smoothly with existing systems.
  3. **Trained Resources**
     - **Skill Assessment**: Evaluate the availability of personnel skilled in Java within the company.
     - **Training Needs**: Identify any gaps in skills and plan for necessary training or hiring.
     - **Resource Allocation**: Ensure enough Java developers are available to meet the project requirements.
     - **Expertise**: Verify that the team has the expertise to handle the project's complexity.

4. **Budget**
   - **Cost Analysis**: Analyse all costs related to the project, including hardware, software, and personnel.
   - **Budget Sufficiency**: Assess whether the allocated budget of 2 Crores INR is adequate.
   - **Cost Management**: Plan for managing costs to stay within budget, including any contingencies.
   - **Adjustments**: Determine how to adjust the project scope if the budget is insufficient.
5. **Time Frame**
   - **Realistic Timeline**: Evaluate if the 18-month duration is realistic given the project's scope and complexity.
   - **Potential Delays**: Identify potential obstacles or delays that could impact the timeline.
   - **Milestones**: Set clear milestones to track progress and stay on schedule.
   - **Resource Availability**: Ensure that the necessary resources are available throughout the pro duration to avoid delays.

By considering these points, Mr. Karthik can perform a comprehensive feasibility study and make informed decisions about proceeding with the project in Java technology.

4. Question 4 – Gap Analysis - 5 Marks

- 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

ANS: To prepare a comprehensive Gap Analysis for Mr. Henry, Mr. Karthik needs to compare the current state (AS-IS) of the agricultural product procurement process with the envisioned future state (TO-BE) after implementing the online agriculture product store. The goal of the Gap Analysis is to identify the deficiencies in the current system and how the proposed solution will address these gaps. Here are the key points to showcase in the Gap Analysis:

❖ **AS-IS (Existing Process)**
   - ✓ **Procurement Challenges**
   - ✓ **Fertilizers**: Difficulty in procuring due to limited local availability.
   - ✓ **Seeds:** Similar issues with availability and variety.
   - ✓ **Pesticides:** Limited access to effective pesticides.
   - ✓ **Accessibility: Farmers** in remote areas have limited access to a wide range of agricultural products. Dependence on local suppliers who may not have a wide variety of products or adequate stock.
   - ✓ **Information Availability**: Lack of comprehensive information on different products. Farmers rely on word-of-mouth or limited local advice, which may not always be reliable.
   - ✓ **Logistics:** Challenges in the transportation and timely delivery of agricultural products. High costs associated with transporting products to remote areas.
   - ✓ **Communication**: Limited direct communication between farmers and manufacturers. Farmers have to go through intermediaries, increasing costs and potentially reducing the quality of service and products.
   - ✓ **User Experience**: No digital platform for purchasing agricultural products. Farmers are not tech-savvy and may find existing e-commerce platforms difficult to use.

❖ TO-BE (Future Process)
   - ✓ **Centralized Online Platform**: A user-friendly online store where farmers can browse and purchase fertilizers, seeds, and pesticides. Detailed product descriptions, usage instructions, and reviews to help farmers make informed decisions.
   - ✓ **Enhanced Accessibility**: Access to a wider variety of agricultural products from different manufacturers. Availability of products that are not easily accessible in local markets.

- ✓ **Improved Information Flow**: Comprehensive information on each product, including benefits, application methods, and best practices. Educational resources and customer support to assist farmers in product selection and use.
- ✓ **Streamlined Logistics**: Efficient logistics network to ensure timely delivery of products. Reduced transportation costs due to direct shipping from manufacturers to farmers.
- ✓ **Direct Communication**: Direct communication channels between farmers and manufacturers. Farmers can ask questions, request additional information, and provide feedback directly to producers.
- ✓ **User-Friendly Interface**: Simple and intuitive application designed specifically for farmers with varying levels of tech-savviness. Support for local languages and simplified navigation to cater to the target demographic.

Conclusion

By implementing the online agriculture product store, the significant gaps in the current process can be addressed, leading to improved accessibility, efficiency, and overall productivity for farmers. This initiative aligns with Mr. Henry's vision of helping farmers achieve their dreams and will have a positive impact on the broader agricultural community.

Mr. Karthik should present these points to Mr. Henry, highlighting the transformation from the current state to the future state and the substantial benefits that will be realized through the project.

5. **Question 5 – Risk Analysis - 10 Marks**

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

Ans

❖ **BA Risks:**

1. **Incomplete Requirement Understanding**: BA team may not fully grasp the specific needs and challenges of remote area farmers.
2. **Stakeholder Alignment**: Misalignment between Mr. Henry's vision and the expectations of Peter, Kevin, Ben, and other stakeholders.
3. **Requirement Volatility**: Stakeholders might change their requirements frequently during the project.
4. **Lack of Domain Expertise**: BA team may not have sufficient understanding of agricultural practices and needs.
5. **Communication Challenges**: Difficulty in communicating complex technical concepts to non-technical stakeholders.

❖ **Project/Process Risks:**

1. **Budget Overrun**: The project may exceed the allocated budget due to unforeseen expenses or scope changes.
2. **Timeline Delays**: Unforeseen technical challenges or resource constraints may cause project delays.
3. **Resource Availability**: Key team members may become unavailable due to unexpected circumstances.
4. **Security Concerns**: Vulnerabilities in the online platform leading to data breaches or cyberattacks.
5. **Regulatory Compliance**: Failure to comply with relevant regulations and standards in the agriculture sector.
6. **Vendor Reliability**: Dependence on third-party vendors for product delivery and support.

6. **Question 6 – Stakeholder Analysis (RACI Matrix) - 8 Marks**
   - Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers

   Ans: - Stakeholder analysis (RACI Matrix)
   - **Responsible:** The person(s) who do the work to complete the task. They are responsible for action/implementation. Responsibility can be shared.
   - **Accountable** The person who is ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those responsible. There must be only one accountable specified for each task or deliverable.
   - **Consulted (C):** The people who provide information and expertise necessary to complete the task. This is typically a two-way communication.
   - **Informed (I):** The people who are kept informed about progress and completion. This is typically a one-way communication.

Responsible (R):	Mr. Kathik (**Delivery Head**) Mr. Jitender Singh (**Project Head**) Ms. Arti (**Senior Java Developer**) Ms Reena, Mr Tejas, Mr Akash, Mr Shubham **(Java Developers**). Mr Daya **(Network Admin)** Mr. Hitesh. **(Db Admin)** Mr. Sai and Ms. Urvi (**Tester)**
Accountable (A):	Mr. Henry, Mr Pandu and Mr Dooku
Consulted (C):	Peter, Kevin and Ben.
Informed (I):	Farmers And Manufacturers of Farm **(Seeds, Fertilizers, Pesticides)**

7. **Question 7 – Business Case Document - 8 Marks**
   - Help Mr Karthik to prepare a business case document

   ANS:

Business Case Document

Project Title:

Online Agriculture Product Store

Prepared By:

Mr. Karthik, Delivery Head, APT IT SOLUTIONS

Date:

[27th April, 2025]

1. Executive Summary

The proposed project involves the creation of an online agriculture product store to facilitate remote area farmers in purchasing essential agricultural products such as fertilizers, seeds, and pesticides. This initiative took by Mr. Henry and funded by SOONY Company, aims to solve the critical problem faced by farmers in remote areas who struggle to procure these essential products. The platform will enable direct communication between farmers and manufacturing companies, ensuring timely delivery and a wider range of product options.

2. Business Objective

To develop a user-friendly online platform that connects farmers in remote areas with suppliers of agricultural products, improving access, reducing procurement challenges, and enhancing the overall productivity and sustainability of farming operations.

3. Problem Statement

Farmers in remote areas face significant difficulties in procuring essential agricultural inputs such as fertilizers, seeds, and pesticides. This problem leads to lower crop yields, increased costs, and overall

inefficiency in their farming operations. The current procurement process is often time-consuming, unreliable, and expensive due to the lack of direct access to manufacturers.

4. Proposed Solution

Develop an online web/mobile application that:

· Allows manufacturers to list their products (fertilizers, seeds, pesticides) with detailed information.

· Enables farmers to browse, select, and purchase these products online.

· Facilitates direct communication between farmers and manufacturers.

· Provides logistical support to ensure timely delivery of products to remote locations. · Ensures a user-friendly interface tailored to the needs and technical capabilities of farmers.

5. Project Scope

· **Product Listing:** Accept detailed product information from manufacturers.

· **User Interface:** Develop an intuitive and accessible web/mobile application.

· **Communication Tools:** Enable direct messaging and support channels between farmers and manufacturers.

· **Order Management:** Implement features for browsing, selecting, and purchasing products.

· **Logistics:** Coordinate with logistics providers to manage deliveries.

· **Training and Support:** Provide user training and ongoing support.

6. Financials

· **Budget:** INR 2 Crores

· **Duration:** 18 months

· **Funding Source:** CSR initiative by SOONY Company

8. Question 8 – Four SDLC Methodologies - 8 Marks

- 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

ANS:

Considering Mr. Henry's project to develop an online agriculture product store:

- **Sequential (Waterfall)**: May not be ideal due to the potential for evolving requirements as the farmers (end-users) provide feedback.
- **Iterative**: Offers a good balance of structure and flexibility, allowing for feedback and adjustments at each iteration.
- **Evolutionary (Prototyping/Spiral)**: Suitable if there are many unknowns and the need to build and refine prototypes based on user feedback.
- **Agile**: Highly recommended due to its flexibility, frequent releases, and strong focus on user feedback, which aligns well with the project's need to adapt to farmer and manufacturer input continuously.

9. Question 9 – Waterfall RUP Spiral and Scrum Models – 8 Marks

- They discussed models in SDLC like waterfall RUP Spiral and Scrum. You put forth you're 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?

Ans:

RUP (Rational Unified Process) Model

Description:

· RUP is an iterative and incremental model developed by Rational Software. It divides the development process into four phases: Inception, Elaboration, Construction, and Transition. Each phase has specific goals and deliverables.

Phases:

· **Inception:** Define the project scope, identify key requirements and risks.

· **Elaboration:** Refine requirements, design the architecture, address significant risks. ·

Construction: Develop and test the system.

· **Transition:** Deploy the system and ensure it meets user expectations.

Pros:

· Iterative approach allows for refinement through each phase.

· Risk-driven process with continuous risk assessment.

· Emphasis on architecture and design.

· Adaptable to changing requirements.

Cons:

· Can be complex to implement and manage.

· Requires experienced team members.

· Documentation-intensive.

Best for:

· Large-scale and complex projects where risk management and architecture are crucial.

Spiral Model

Description:

· The Spiral model combines elements of both iterative and waterfall models. It focuses on risk assessment and mitigation, using a cyclic approach to iteratively refine the project through repeated cycles (spirals).

Phases:

· **Planning:** Determine objectives, alternatives, and constraints.

· **Risk Analysis:** Identify and assess risks, develop mitigation strategies.

· **Engineering:** Develop and verify the next-level product.

· **Evaluation:** Review the results and plan the next iteration.

Pros:

· Focus on risk management.

· Iterative refinement allows for early detection and resolution of issues.

· Flexible and adaptable to changes in requirements.

Cons:

· Can be expensive and time-consuming due to extensive risk analysis.

· Requires highly skilled and experienced team members.

· Complex management and documentation.

Best for:

· Large, high-risk projects where risk assessment and management are critical.

Scrum (Agile Framework)

Description:

· Scrum is an Agile framework that emphasizes iterative progress through short, time-boxed iterations called sprints (usually 2-4 weeks). It focuses on collaboration, flexibility, and delivering functional software quickly.

Roles:

· **Product Owner:** Defines the product backlog, prioritizes features, and ensures value delivery. · **Scrum Master:** Facilitates the process, removes impediments, and ensures the team adheres to Scrum practices.

· **Development Team:** Cross-functional team that delivers the product increment.

Events:

· **Sprint Planning:** Define the sprint goal and backlog items.

· **Daily Stand-up:** Short daily meeting to discuss progress and obstacles.

· **Sprint Review:** Demonstrate the product increment and gather feedback.

· **Sprint Retrospective:** Reflect on the sprint and identify improvement areas.

Pros:

· Highly flexible and adaptive to changes.

· Continuous feedback and improvement.

· Early and frequent delivery of functional software.

· High level of collaboration and communication.

Cons:

· Requires a high level of discipline and commitment.

· Can be challenging to scale for very large projects.

· Less emphasis on comprehensive documentation.

Best for:

· Projects with rapidly changing requirements and a need for continuous user feedback and involvement.

10. Question 10 – Waterfall Vs V-Model - 5 Marks

- 20Write down the differences between waterfall model and V model.

Ans

1. **Approach:**
   · **Waterfall:** Linear and sequential.
   · **V Model:** Linear with an emphasis on corresponding testing phases.
2. **Testing:**
   · **Waterfall:** Testing phase occurs after the implementation phase.
   · **V Model:** Testing is integrated into each phase of the development cycle, with specific tests planned for each corresponding phase.
3. **Flexibility:**
   · **Waterfall:** Less flexible, changes are difficult and costly once a phase is completed.
   · **V Model:** Also less flexible, but slightly better due to early testing and validation activities.
4. **Risk Management:**
   · **Waterfall:** Higher risk of finding defects later in the process.
   · **V Model:** Lower risk due to early detection of defects through continuous testing.
5. **Documentation:**
   · **Waterfall:** Extensive documentation at each stage.
   · **V Model:** Extensive documentation, especially in verification and validation phases.
6. **Suitability:**
   · **Waterfall:** Best for projects with well-defined requirements that are unlikely to change.

· **V Model:** Best for projects where quality and thorough testing are critical, and requirements are well understood.

11. Question 11 – Justify your choice - 3 Marks

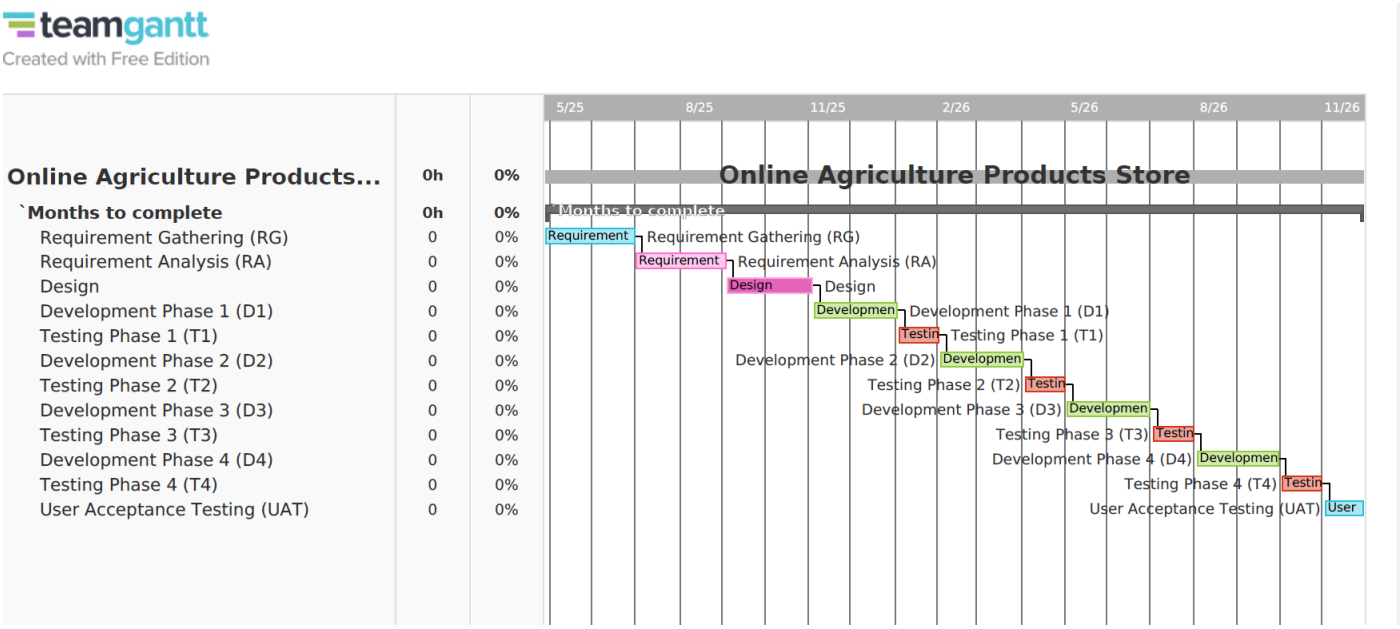
- As a BA, state your reason for choosing one model for this project

Ans

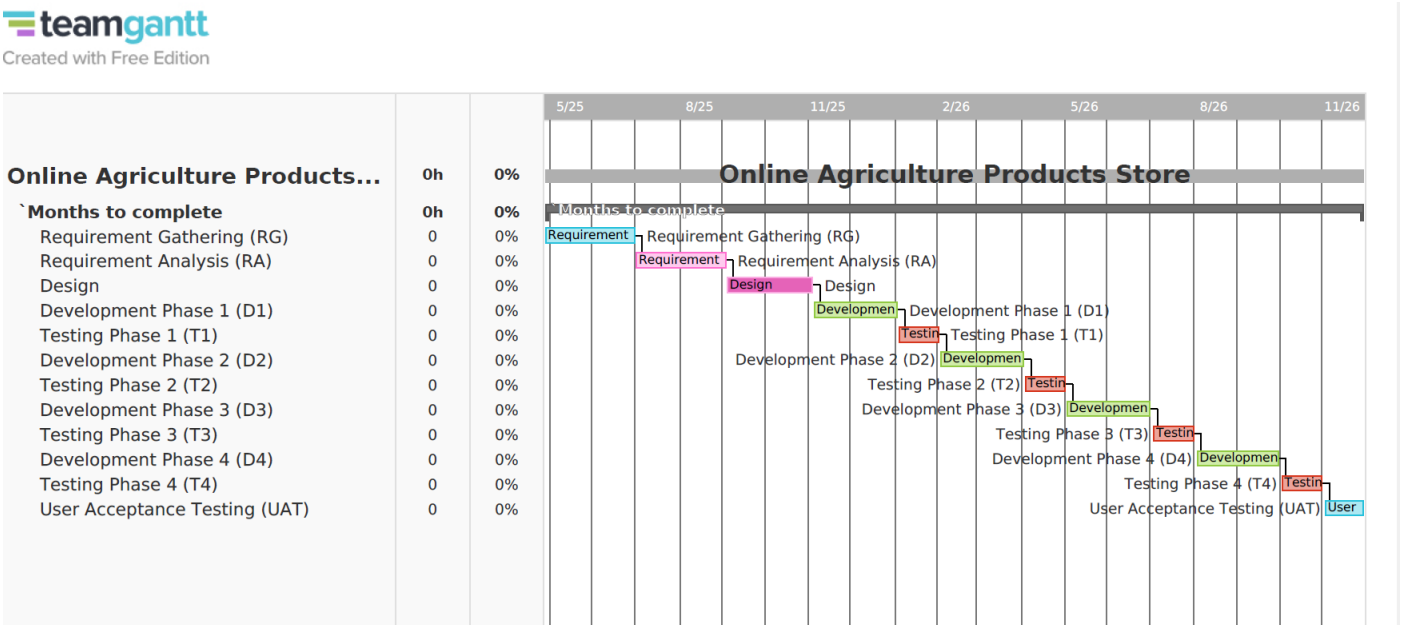
For Mr. Henry's project, developing an online agriculture product store, **AGILE-Scrum** is the most suitable approach due to its flexibility, iterative nature, and strong focus on user feedback. This methodology allows the team to adapt to changing requirements and continuously improve the product based on farmer and manufacturer input.

12. Question 12 – Gantt Chart - 5 Marks

- 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.



13. Question 13 – Fixed Bid Vs Billing - 5 Marks

- Explain the difference between Fixed Bid and Billing projects

Ans

Fixed Bid Projects

Definition: A Fixed Bid project, also known as a Fixed Price project, involves an agreement where the service provider commits to completing the project for a set price, regardless of the actual time and resources required.

Characteristics:

1. **Fixed Scope:** The project scope, requirements, and deliverables are clearly defined and agreed upon before the project begins.
   2. **Fixed Budget:** The client pays a predetermined amount for the entire project. 3. **Fixed Timeline**: The project schedule is usually agreed upon in advance, with specific deadlines for each phase or the entire project.
4. **Risk**: The service provider bears the risk if the project takes longer or requires more resources than anticipated.
   5. **Change Control:** Any changes to the scope or requirements typically require a formal change request and may result in additional costs and time.

14. Question 14 – Preparer Timesheets of a BA in various stages of SDLC - 20 marks

- ➢ 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

Ans

Design Timesheet of a BA

Day	**Task**	**Hours**
Monday Monday	Stakeholder meetings	5
	reviewing existing documentation to identify gaps	3
Tuesday	Creating functional specifications	4
	Developing use case diagrams	3
Wednesday	Facilitating brainstorming session with project team and stakeholders	5
	Writing user stories	3
Thursday	Analysed documented requirement	5
	Follow up with stakeholders for clarification	1
Friday	Prepare and present the requirement with project team	6

➢ **Development Timesheet of a BA**

Day	Task	Hours
Monday	Clarifying Requirements with Developers	3
	Participating in Daily Stand-ups	1
	Updating requirements documentation	2
	Reviewing development progress	2
Tuesday	Facilitating requirements workshops	3
	Writing detailed specifications	3
Wednesday	Reviewing and Approving User Stories	3
	Conducting gap analysis	3

	Communicating Changes to Stakeholders	2
Thursday	Assisting with Integration Testing	3
	Documenting change requests	2
	Reviewing developer queries	3
Friday	Conducting End-of-Week Review Meeting	2
	Planning for Next Week	2

- **Testing Timesheet of a BA**

Day	Task	Hours
Monday	Reviewing Test Plans and Test Cases	3
	Participating in Daily Stand-ups	1
	Coordinating with QA Team	2
	Conducting test case reviews	2
Tuesday	Assisting with Functional Testing	3
	Documenting Defects and Issues	3
	Meeting with Development Team	2

Wednesday	Conducting user acceptance testing (uat)	3
	Reviewing test results	3
	Communicating Test Findings to Stakeholders	2
Thursday	Validating bug fixes	3
	Updating requirements documentation	2
	Preparing test reports	3
Friday	Participating in Retrospective Meetings	2
	Preparing status reports	2
	planning for next week	2

- **UAT Timesheet of a BA**

ANS

Day	**Task**	**Hours**

Monday	Preparing UAT Test Cases and Scenarios	5
	Participating in Daily Stand-ups	1
Tuesday	Documenting UAT feedback	3
	Communicating with Stakeholders	2
Wednesday	Reviewing UAT test results	3
	Resolving Issues with Development Team	3
	Updating requirements documentation	2
Thursday	Retesting and Validating Fixes	4
	Meeting with Business Users	2
Friday	Conducting UAT review meeting	3
	Obtaining sign off from stakeholders on UAT completion	3

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

ANS

Day	**Task**	**Hours**
Monday	Finalizing deployment plan	8
Tuesday	Conducting deployment dry run	4
	Communicating with stakeholders	2
Wednesday	Addressing pre-deployment issues	4
Thursday	Monitoring deployment progress	4
	Addressing post-deployment issues	3
Friday	Finalizing deployment reports	3
	Closing deployment tasks	3