Case study on 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.

Q.1) BPM

Ans. As a BA I found below Business Process Model for Online Agriculture products store.

1. **Goal:** To Build online platform (Web/Mobile application) for Farmers in Remote areas to purchase fertilizers, pesticides and seeds which connect them directly to Manufactures.
2. **Inputs:**
    a. Product details from manufacturers
    b. Product availability from manufactures
    c. Product preferences from farmers
    d. Third party Payment platform
3. **Resources:**
    a. Skilled manpower to build online platform
    b. Database (Product/Manufactures details)
    c. Capital Expenditure
    d. Delivery Suppliers
4. **Outputs:**
    a. Product displaying for formers
    b. Successfully Product ordering from farmers
    c. Payment receipt
    d. Latest notifications
5. **Activities:**
    a. Manufactures provides product details which can be used for product displaying.
    b. Farmers provides basic personal details for registration on platform.
    c. Farmers browse, select and add product to cart for ordering.
    d. Farmers provides location details for product deliver.
    e. System confirms order, payment and provides details to manufacturers.
    f. Delivery team deliver order successfully to the location from order details.
    g. Platform updates order status (Track).
6. **Value added to the end customer:**
    a. Farmers can find wide range of products in single platform.
    b. With the minimum requirement such as device and internet farmers can make purchases.
    c. Time and cost saving from physical visits.

Q.2) SWOT Analysis:

Ans. Mr. Kartik should consider following aspects as SWOT Analysis for this project.

1. **Strength:**
    a. Complete new initiative in Agriculture market.
    b. Stakeholder's personal need and interest.
    c. APT SOL. has skilled workforce to accomplish this project.
    d. Remote friendly environment.
    e. Quality work
    f. High budget project.
2. **Weaknesses:**
    a. Less internet connectivity in rural areas can affects farmer's registration.
    b. Small team
    c. Lack of communication between stakeholders.
    d. Lack of Advanced tools/system.
    e. Project Duration
3. **Opportunity:**
    a. First ever project in Agriculture sector.
    b. Farmer's awareness to use single platform.
    c. Agriculture organization can wants more facilities.
    d. To improve technological advancement in rural areas.
    e. Project of reputed company (SOONY)
4. **Threats:**
    a. Manufacturers take no part.
    b. Competitors offers same product.
    c. Farmer's lack of digital knowledge.
    d. Government stores attracts more farmers.
    e. Changing market conditions of agriculture sector.

Q.3) Feasibility study

Ans: Following points should be consider to help Mr. karthik to make feasibility study on this project in technology (Java).

1. **Hardware Requirements:**
    a. Servers: Types of database servers which can handle web/application.
    b. Advanced devices: Device need to require such as Computers and smart phones.
    c. Storage capacity/memory
2. **Software Requirements:**
    a. Development tools: Software tool that supports Java IDE
    b. DBMS (Database management system): Database system such as MySQL, PostgreSQL, Oracle etc.
    c. Project Management tools such as Jira.
3. **Trained Resources:**
    a. Skilled workforce need to be asses to accomplish this project.
    b. Training: Training should be delivered related to required Java IDE and related technologies.
    c. Java Developers: People need to trained, proficient in Java Development for web application.
    d. Web development
    e. Agile methodologies
    f. Testers
4. **Budget:**
    a. Initial cost: Initial stage cost including Hardware, Software and Development tools.
    b. Maintenance cost such as Sever maintenance, Software updates etc.
    c. Training Cost such as Training new technologies, Methodologies to Employees.
5. **Time Frame:** For 18 months duration project we have to schedule every stages.
    a. Project Initiation (1-2 month)
    b. Planning (3-5 month)
    c. Design (6-8 month)
    d. Development (9-14 month)
    e. Testing (15-16 month)
    f. Deployment (17-18 month)
    g. Implementation

Q.4) Gap Analysis

Ans: For Mr Karthik submit Gap Analysis to Mr Henry to initiate the project, Following points (comparing AS-IS existing process with TO-BE future process) showcase in Gap Analysis.

1. **Current process (AS-IS):**
    a. Current status of farmers is facing a problem to procure fertilizers, seeds and pesticides as they're completely in remote areas.
    b. Farmers have limited options of agricultural products as their inaccessibility of Agricultural market.
    c. Purchasing those Limited products contains physical visits which leads to time and cost consuming.
    d. Farmers reliance on local store, doesn't have any other option.
2. **Future process (TO-BE):**
    a. Give an online agricultural platform to farmers where they can access, compare and order wide range of agricultural product from anywhere with the help of internet connectivity.
    b. To build a digital bridge between farmers and manufacturers so they can connect directly.
    c. To introduce user friendly platform which can be familiar to farmers for future purchases and transactions.
3. **Gap analysis:**
    a. Accessibility: The current process shows that farmers have less accessibility of agricultural product, whereas Future process provides easy product accessibility to farmers.
    b. Time and cost consumption: Current process shows need of physical travel while future process offers order product at their home/farm leads to time and cost reduction.
    c. Product variety: In AS-IS process, It shows farmers depends on less variety of products as they're from remote areas, while in TO-BE process with the help of wide range of manufacturers, variety of product available in online platform.
4. **Value addition of Future process:**
    a. Direct connection between manufacturers and farmers helps to understand current demand and supply.
    b. On time/place delivery through out online platform's location and delivery services.
    c. Seasonable products available at door step of farmers home/farm.
    d. Minimum requirement to use platform services such as registration and basic details.

Q.5) Risk Analysis:

Ans: Risk Analysis as a BA for project Online Agriculture products store as follows:

a. Incomplete Requirements: The risk of gathering incomplete requirement and unclear requirement from stakeholders, leading to misunderstanding and project delays.
b. Miscommunication: Miscommunication between stakeholders, developers and BA leads to misunderstanding.
c. Changing Requirement: The Risk of changing requirement during the project, impacting project's direction and delivery.
d. Lack of stakeholder's Involvement: Stakeholders not actively participating in the requirements gathering and validation process, leading missed requirements.
e. Dependency on Third Parties: Relying on external vendors or partners for critical information or resources, with the risk of delays or misalignment.
f. Resource Constraints: Limited availability of resources, such as time, budget, or skilled personnel, impacting the BA's ability to deliver.
g. Technology Constraints: Constraints related to the technology stack or tools used, affecting the BA's ability to meet requirements.
h. Quality Assurance: Risk of overlooking quality assurance processes, leading to defects and rework later in the project.
i. Lack of BA Expertise: Inadequate BA skills or experience, leading to ineffective requirements gathering and analysis.

Risk Analysis

Risk Analysis for project Online Agriculture products store as follows:

Project/Product Risks:

a. Budget Risk: Exceeding the allocated budget due to poor cost estimation.
b. Delays: Delays in project timelines due to unwanted circumstances, resource constraints, or scope changes.
c. Resource constraints: Insufficient or misallocated resources, impacting project delivery and quality.
d. Technical Challenges: Complex technical requirements or dependencies, leading to implementation difficulties.
e. Stakeholder Conflict: Conflicting interests or priorities among stakeholders, affecting decision-making and project direction.
f. Scope Creep: The project scope expanding beyond the initial requirements, impacting timelines and resources.
g. Dependency Risks: Relying on external dependencies, such as third-party vendors or technology providers, with the risk of delays or failures.
h. Quality Assurance: Insufficient quality assurance processes, leading to defects and rework.

Q.6) Stakeholder Analysis (RACI Matrix):

Ans. The RACI Matrix provides Clear find out of Key stakeholder as follows:

Key Stakeholders:

a. Mr. Henry
b. Mr. Pandu (Financial head)
c. Mr. Dooku (Project coordinator)
d. Mr. Karthik (Delivery head)
e. Ms. Juhi (Senior Java Developer)

Project Activity/Deliverable	Mr. Henry (Client)	Mr. Pandu (Financial Head)	Mr. Dooku (Project Coordinator)	Mr. Karthik (DeliveryHead)	Ms. Juhi (Senior Java Developer)
Project Initiation	R	I	C	I	I
Financial Aspects	A	R	C	I	I
Project coordination	I	I	R	C	I
Project Delivery	I	A	C	R	I
Platform Development	I	I	A	C	R

Q.7) Business case document:

Template guide: A business case document is a document which outlines the justification for the start up for a project. It includes:

- A description of a business problem (or opportunity) which exist in a business.
- A listing of a available options for delivering a solution to resolve a problem.
- The benefits and costs associated with each solution option.
- A recommended solution option for approval.

Document control

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Document Approval:

Role	Name	Signature	Date
Project sponsor	Mr. Henry		
Project review group	Mr. Henry Mr. Pandu Mr. Dooku		
Project Manager	Mr. Karthik		
Quality Manger	Ms. Juhi		
Procurement Manager	Mr. Dooku		

Business case

1.Executive summery

- **Project overview**
- **Business problem**
- **Proposed solution**
- **Benefits**
- **Recommendations**
- **Key points**

2.Business problem

- **Environmental Analysis:** The environmental analysis assesses the external factors that could impact the success of the online agriculture product store project. This includes factors such as market trends, competition, regulatory environment, and technological advancements. The analysis aims to identify opportunities and threats that the project may encounter.
- **Problem Analysis:** The problem analysis focuses on identifying and understanding the specific challenges faced by farmers in accessing agricultural products. This could include issues such as limited availability of quality products, high costs, lack of accessibility to stores, and difficulties in product selection. The analysis aims to provide a clear picture of the problems that the online store project intends to solve, guiding the development of effective solutions.

3.Available options

3.1 (Option 1): Online Agriculture Product store

- **3.1.1 Description:** Create an online platform for farmers to purchase fertilizers, seeds, and pesticides.

- **3.1.2 Benefits, Goals and Measurement Criteria**

Category	Benefit	Value
Financial	• New Revenue generated • Reduction in cost • Increased profit margin	xxx xxx xxx
Operational	• Improved operational efficiency • Reduction in profit time to market • Enhance quality of product	
Market	• Increased market awareness • Greater market share • Additional competitive advantage	
Customer	• Improved customer satisfaction • Increase customer retention • Greater customer loyalty	
Staff	• Increased staff satisfaction • Improved organizational culture • Longer staff retention	

- ### 3.1.3 Cost and Funding Plan

Category	Cost	Value	Budgeted
People	• Salaries of project staff • Contractors/Outsource parties • Training Courses		
Physical	• Building premises for project team • Equipment and materials • Tools (Computers, Phones)		
Marketing	• Advertising/Branding • Promotional Materials • PR and communications		
Organizational	• Operational downtime • Short term loss in productivity • Cultural changes		

- ### 3.1.4 Feasibility

Component	Rating	Method used to determine feasibility
New technology	**8**	Availability of e-commerce platforms, payment gateways, and delivery tracking systems.
New people	**7**	availability of skilled personnel, such as web developers, designers, and IT support staff, needed for development and maintenance.
New process	**9**	new processes required for online ordering, payment processing, and product delivery
New Asset	**8**	new assets needed, such as servers, software licenses, and online payment systems.

- ### 3.1.5 Risks

Description	Likelihood	Impact	Mitigating Actions
Development of the online platform may face technical challenges or delays.	Low	Very High	Conduct thorough testing and quality assurance processes.
The market may not be ready for online agricultural product purchases, leading to low adoption rates.	Medium	High	Conduct market research to understand the demand and readiness of farmers.
The project may exceed its budget, leading to financial constraints.	Medium	Medium	Implement strict budget monitoring and control measures
Deliveries to remote rural areas may be challenging, leading to delays or disruptions.	l	Low	Partner with reliable logistics providers.

- ### 3.1.6 Issues

Description	Priority	Resolution Action
Farmers may be hesitant to adopt online purchasing.	High	Conduct user training and provide incentives for early adopters.
Limited internet connectivity in rural areas may affect online platform access.	Medium	Partner with local internet providers to improve connectivity

- ### 3.1.7 Assumptions
    - Farmers have access to internet connectivity.
    - Farmers are willing to adopt online purchasing methods.
    - The online platform will effectively showcase product details and options.
    - The online platform will provide a user-friendly and secure shopping experience

3.1 Option 1: Develop an online agriculture product store.

- Description: Create an online platform for farmers to purchase fertilizers, seeds, and pesticides.
- Benefits: Increased accessibility and convenience for farmers, potentially lower costs.
- Cost: Estimated development and maintenance costs.
- Feasibility: Assessment of the feasibility of implementing the online store.
- Risk: Potential risks to develop online platform, Competition from existing online agriculture store, Rural area and farmers acceptance.
- Issues: Successful online transaction and Product delivery to exact Location.
- Assumptions: Farmers acceptance and willingness to buy product from online platform.

3.2 Option 2: Implement a traditional brick-and-mortar store.

- Description: Establish physical stores in rural areas for farmers to purchase products.
- Benefits: Immediate availability of products, potential for personal interaction.
- Cost: Estimated costs of establishing and operating physical stores.
- Feasibility: Assessment of the feasibility of implementing physical stores such as suitable location, customer demand etc.
- Risk: Potential risks associated low customer attraction.
- Issues: issues such as store location, staff selection and inventory management.
- Assumptions: Availability suitable location, sufficient demand.

3.3 Option 3: Partner with existing agricultural supply stores.

- Description: Collaborate with existing stores to provide agricultural products.
- Benefits: Utilization of existing infrastructure, potential cost savings.
- Cost: Costs associated with partnership agreements.
- Feasibility: Assessment of the feasibility of partnering with existing stores.
- Risk: Risks associated with partnering with external entities.
- Issues: Challenges that may arise in partnering with existing stores.
- Assumptions: Assumptions regarding the availability and willingness of stores to partner.

4 Recommended options:

This section compares the key characteristics of each solution option and recommends a preferred solution option for implementation.

4.1 Option Ranking: Ranking each characteristic between 1-10.

Criteria	Option 1	Option 2	Option 3
Benefits			
• Increased revenue	**8**	**6**	**5**
• Reduce expenditure	**7**	**5**	**6**
• Improved efficiency	**9**	**7**	**6**
• Enhanced quality	**8**	**6**	**5**
• other	**3**	**3**	**3**
Cost			
• People	**6**	**7**	**6**
• Physical	**7**	**8**	**6**
• Organizational	**6**	**7**	**6**
• Other	**2**	**2**	**2**
Feasibility			
• Technological components	**8**	**6**	**5**
• People component	**7**	**7**	**6**
• Process component	**8**	**6**	**5**
• Asset component	**7**	**7**	**6**
Risk			
• Resourcing	**6**	**7**	**6**
• Technology	**7**	**6**	**5**
• Organizational	**6**	**7**	**6**
• Others	**3**	**3**	**3**
TOTAL SCORE	**108**	**100**	**87**

4.2 Option Recommended:

Based primarily on the highest Total Score achieved above, list here the 'Recommended Option' for Business Case approval. Summarize the primary reasons why this **option 1** was chosen over the other options previously identified.

5 Implementation Approach

- **Project Initiation:** This phase involves formally starting the project. Key activities include defining the project scope, objectives, and deliverables, as well as identifying stakeholders and establishing project governance.
- **Project Planning:** In this phase, detailed planning is done to define the project activities, schedule, resources, and budget. A project plan is developed to guide the execution of the project.
- **Project Execution:** This phase involves carrying out the project plan. Activities include coordinating resources, implementing project tasks, managing stakeholders, and monitoring project progress.
- **Project Closure:** The project closure phase marks the formal end of the project. Key activities include completing all project deliverables, obtaining acceptance from stakeholders, releasing project resources, and closing out contracts.
- **Project Management:** Throughout the project, effective project management is essential. This involves activities such as communication, risk management, quality management, and change management to ensure the project's success.

6 Appendix

6.1 Supporting Document:

1. **Feasibility study**
2. **Detailed cost/benefit spreadsheet**
3. **Gap analysis**
4. **RACI matrix**

Q.8) Four SDLC Methodologies

Ans: SDLC Methodologies which Mr Karthik Mentioned as follows:

1. **Sequential (Waterfall):** The Sequential (Waterfall) methodology based on sequential or linear approach of software development where process divided in to different phases such as requirement gathering, requirement analysis, design, development, testing, deployment and implementation. Each phase is completed before moving toward next phase.
   Benefits: Simple and easy understand with clear requirements**,** phases are processes and completed one at a time.
   Limitation: No working software produced during the life cycle.

2. **Iterative RUP (Rational Unified Process):** The Iterative methodology involves repeating cycles (iterations) of the development process. Each iteration builds upon the previous one, allowing for incremental development and improvement. Based on four project life cycle such as Inception, Elaboration, Construction and Transition describing what is to be produce, the necessary skill required and step by step describing how development goals are to be achieved.
   Benefits: Better development process with evolving requirements that allows easy improvement.
   Limitations: Requires management for each iteration more than sequential.

3. **Evolutionary (Spiral):** The Evolutionary methodology focuses on building prototypes of the software for identify risks and alternate solutions. It has four phases such as Planning, Risk analysis, Engineering and Evaluation. The process goes rapidly into this process called spiral. Each spiral builds a baseline for upcoming iteration.
   Benefits: Highly used for risk analysis and requirement feedback.
   Limitation: Requires highly expertise for risk analysis. Doesn't work for small project.

4. **Agile (Scrum):** Methodology emphasizes collaboration throughout development process. Breaks project into small sprints, can be implemented where faster delivery is required. Based on four values,
   - Individuals and interactions over processes and tools
   - Working software over comprehensive documentation
   - Customer collaboration over contract negotiation
   - Responding to change over following a plan

   Benefits: Encourage employees to collaboration and involvement. Useful for faster software delivery.

   Limitation: May challenging for large team, it emphasizes working software over documentation.

Q.9) Four SDLC Models

Ans: Four SDLC Models as follows:

1. **Waterfall:** The Waterfall model is a linear and sequential approach to software development. It progresses through defined phases (requirements, design, implementation, testing, deployment) with each phase being completed before moving on to the next. It is well-suited for projects with well-defined and stable requirements

2. **RUP (Rational Unified Process):** RUP is an iterative software development process framework that is based on the Unified Modeling Language (UML). It emphasizes iterative development, use-case driven development, and architecture-centric approach. It is well-suited for large-scale projects requiring a disciplined approach to development.

3. **Spiral:** The Spiral model combines elements of both waterfall and iterative development models. It emphasizes risk management by continuously evaluating and mitigating risks throughout the development process. It is well-suited for projects with high uncertainty and evolving requirements.

4. **Scrum:** Scrum is an agile framework that focuses on iterative and incremental development. It emphasizes self-organizing, cross-functional teams and encourages frequent inspection and adaptation. It is well-suited for projects where requirements are expected to change or evolve.

As a business analyst, the choice between the V model and the Waterfall model would depend on the specific requirements of the project. The V model is a variation of the Waterfall model that emphasizes testing at each stage of development, making it suitable for projects with a strong emphasis on quality assurance. On the other hand, the Waterfall model is more linear and may be better suited for projects with well-defined and stable requirements.

Given that the project involves developing an online agriculture product store, which may have evolving requirements and a need for flexibility, the **Waterfall model may be more suitable**. However, it is essential to consider the input from both the SMEs and the project team and evaluate the specific requirements and constraints of the project before making a decision.

Q.10) Waterfall vs V model

1. Waterfall:

The Waterfall model is a linear and sequential approach to software development. It consists of several distinct phases that must be completed sequentially before moving on to the next phase. The phases typically include requirements gathering, design, implementation, testing, and deployment. Once a phase is completed, the development team moves on to the next phase, and there is little to no room for revisiting or changing previous phases.

2. V Model:

The V Model, also known as the Verification and Validation model, is an extension of the Waterfall model. It also follows a sequential process, but with a strong emphasis on testing and validation at each phase of development. The V Model takes its name from the V-shaped diagram that illustrates the relationship between each development phase and its corresponding testing phase. This model emphasizes the importance of testing early and continuously throughout the development process, ensuring that any defects or issues are identified and addressed early on.

Differences According to Online Agriculture store project:

- **Testing Approach:**

Waterfall Model: Testing is conducted after the completion of each phase.

V Model: Testing is integrated into each phase, with corresponding testing activities for each development phase.

- **Requirements Management:**

Waterfall Model: Requirements are defined at the beginning of the project and verify before implement.

V Model: Requirements are validated and verified at each phase, allowing for refinement and adjustment based on feedback.

- **Risk Management:**

Waterfall Model: Risk management is typically addressed early in the project, with limited ongoing risk assessment.

V Model: Risk management is integrated into each phase, with continuous risk assessment and strategies.

- **Flexibility:**

Waterfall Model: Less flexible in changing requirements.

V Model: More flexible, as testing activities allow for early detection of issues.

- **Documentation:**

Waterfall Model: Emphasizes required documentation at each phase.

V Model: Documentation is produced at each phase, with a focus on test documentation and validation reports.

- **Cost Management:**

Waterfall Model: Cost estimation is done early and may be difficult to adjust as the project progresses.

V Model: Cost estimation is more adjustable.

- **Quality Assurance:**

Waterfall Model: Quality assurance will define at the end of the project.

V Model: Quality assurance is done through each phase, ensuring that quality is maintained throughout the project.

- **Client Involvement:**

Waterfall Model: Limited client involvement until the final product is delivered.

V Model: Client involvement is encouraged throughout the project, with opportunities for feedback and validation at each phase.

- **Time Management:**

Waterfall Model: Time estimation is based on the completion of predefined phases.

V Model: Time estimation is more iterative, allowing for adjustments based on from testing activities.

- **Resource Allocation:**

Waterfall Model: Resource allocation is based on the completion of predefined phases.

V Model: Resource allocation is more iterative, allowing for adjustments based on feedback from testing activities.

- **Communication:**

Waterfall Model: Communication is less frequent between development phases.

V Model: Communication is more frequent and structured, with regular feedback loops between development and testing teams.

- **Change Management:**

Waterfall Model: Change management is more challenging, as changes to requirements or design are difficult to accommodate.

V Model: Change management is more flexible, as testing activities allow for early detection and correction of issues.

- **Risk Identification:**

Waterfall Model: Risks are identified early but may not be revisited throughout the project.

V Model: Risks are continuously identified and managed throughout each phase of the project.

- **Scope Management:**

Waterfall Model: Scope is defined at the beginning and is expected to remain stable.

V Model: Scope is validated and verified at each phase, allowing for refinement and adjustment based on feedback.

- **Stakeholder Engagement:**

Waterfall Model: Stakeholder engagement is limited until the final product is delivered.

V Model: Stakeholder engagement is encouraged throughout the project, with opportunities for feedback and validation at each phase.

- **Dependency Management:**

Waterfall Model: Dependencies between phases are managed sequentially.

V Model: Dependencies between development and testing activities are managed concurrently, allowing for more efficient resolution.

- **Resource Utilization:**

Waterfall Model: Resources are allocated based on predefined phases.

V Model: Resources are allocated based on the completion of both development and testing activities.

- **Adaptability:**

Waterfall Model: Less adaptable to changes in requirements or design.

V Model: More adaptable, as testing activities allow for early detection and correction of issues.

Q.11) Waterfall model is Suitable for this project

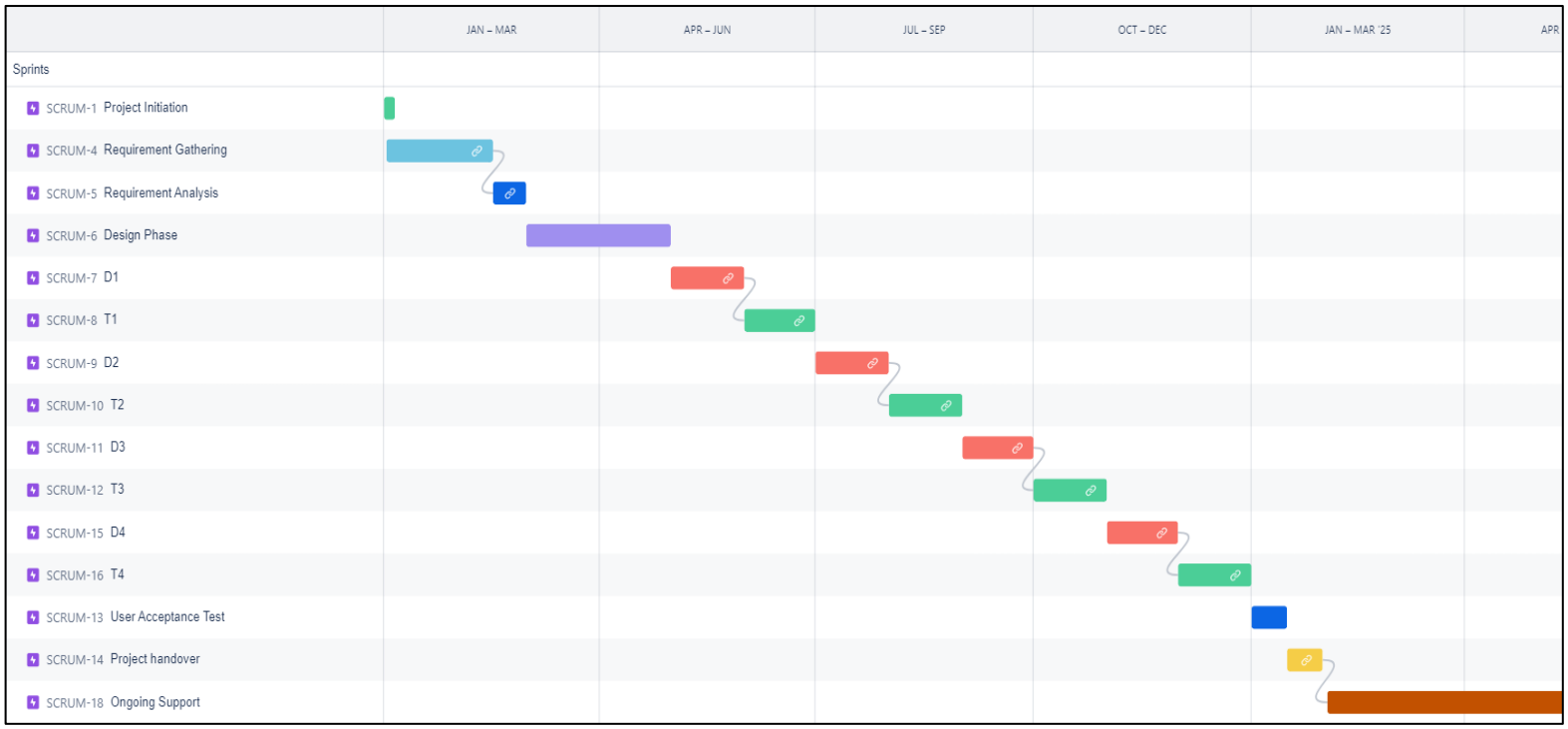
Ans: Justification

As a Business Analyst for this project, I would lean towards the Waterfall model for several reasons. Firstly, the Waterfall model's sequential nature aligns well with the project's clear and stable requirements. Since the goal is to create an online agriculture product store with specific functionalities like product browsing, selection, and ordering, having a defined roadmap from requirements to deployment can help ensure that each stage is thoroughly completed before moving on to the next. This approach reduces the risk of overlooking critical aspects and helps maintain a focus on quality throughout the development process.

Additionally, the Waterfall model's documentation-centric approach can be beneficial for this project. Given that the online store will involve various stakeholders, including farmers, manufacturers, and the project team, having comprehensive documentation at each stage can serve as a valuable reference point. It can help clarify requirements, track progress, and provide a clear overview of the project's status. This level of documentation can be particularly useful for future maintenance and enhancements, ensuring that the online store remains functional and relevant in the long term.

Q.12 Gantt chart

Ans: Gantt chart with the V model approach for online agriculture products store project using **JIRA** project management tool.



The above Gantt chart for 18 months of project outlines a project timeline for an online agriculture product store from January 2024 to June 2025. It includes Initiation, requirements gathering, requirement analysis, design, development, testing, and user acceptance testing phases. The project concludes with closure activities and ongoing support involving various resources such as **project managers, business analysts, Java developers, testers, database administrators, and network administrators.**

Type	Key	Summary	Labels	Actual start	Actual end	Status	Due date
	SCRUM-4	Requirement Gathering	BA PM	Jan 02, 2024, 12:00 AM	Feb 15, 2024, 5:00 AM	TO DO	Feb 15, 2024
	SCRUM-5	Requirement Analysis	BA PM	Feb 16, 2024, 12:00 AM	Feb 29, 2024, 5:00 PM	TO DO	Feb 29, 2024
	SCRUM-6	Design Phase	JavaDevelopers PM	Mar 01, 2024, 12:00 AM	Apr 30, 2024, 5:00 PM	TO DO	Apr 30, 2024
	SCRUM-7	D1	DBadmin JavaDevelopers NWadmin PM Testers	May 01, 2024, 12:00 AM	May 31, 2024, 5:00 PM	TO DO	May 31, 2024
	SCRUM-8	T1	PM Testers	Jun 01, 2024, 12:00 AM	Jun 30, 2024, 5:00 PM	TO DO	Jun 30, 2024
	SCRUM-9	D2	DBadmin JavaDevelopers NWadmin PM Testers	Jul 01, 2024, 12:00 AM	Jul 31, 2024, 5:00 PM	TO DO	Jul 31, 2024
	SCRUM-10	T2	PM Testers	Aug 01, 2024, 12:00 AM	Aug 31, 2024, 5:00 PM	TO DO	Aug 31, 2024
	SCRUM-11	D3	DBadmin JavaDevelopers NWadmin PM Testers	Sep 01, 2024, 12:00 AM	Sep 30, 2024, 5:00 PM	TO DO	Sep 30, 2024
	SCRUM-12	T3	PM Testers	Oct 01, 2024, 12:00 AM	Oct 31, 2024, 5:00 PM	TO DO	Oct 31, 2024
	SCRUM-15	D4	DBadmin JavaDevelopers NWadmin PM Testers	Nov 01, 2024, 12:00 AM	Nov 30, 2024, 5:00 PM	TO DO	Nov 30, 2024
	SCRUM-16	T4	PM Testers	Dec 01, 2024, 12:00 AM	Dec 31, 2024, 5:00 PM	TO DO	Dec 31, 2024
	SCRUM-13	User Acceptance Test	BA PM Testers	Jan 01, 2025, 12:00 AM	Jan 15, 2025, 5:00 PM	TO DO	Jan 15, 2025
	SCRUM-14	Project handover	BA PM	Jan 16, 2025, 12:00 AM	Jan 30, 2025, 5:00 PM	TO DO	Jan 30, 2025
	SCRUM-18	Ongoing Support	BA DBadmin JavaDevelopers NWadmin PM Testers	Feb 01, 2025, 12:00 AM	Jun 30, 2025, 5:00 PM	TO DO	Jun 30, 2025

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Q.13) Fixed Bid Vs Billing

Ans:

- **Fixed Bid Projects:** In fixed bid projects, the cost as well as timeline are predetermined and fixed at the very start of the project. The project development company agree to deliver project with the fixed price apart from actual cost is accrued.

  Advantage: Fixed cost of the projects provides certainty to the client. It also provides budgetary control for development company to accomplish project within budget.

  Disadvantage: Flexibility of budget might fluctuate as additional work with extra charges occurs. High risk for delivery team as project might not completed on timeline, also due to unexpected challenges and unclarity about requirements.

- **Billing Projects:** Billing projects refers to cost that accrued for actual project development. Client pays for actual hours worked and resources used.
  Advantages: Client can offer flexible changes or requirements in development process. It reduces risk for development team to manage change requirements.
  Disadvantages: Budget control depends upon client side which affects to timeline of the project. More challenging for budget perspective as cost is based on project changes.
  The choice between the two depends on the project's requirements, level of uncertainty, and the client's preferences for cost management.

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

Ans: 1. Design Timesheet of a BA

Design Timesheet of a BA

Time In	Time Out	Activity	Task Description	Total Hours
8:00 AM	08:30	Review and respond to emails	Check and respond to emails	00:30
8:30 AM	9:00 AM	Meeting with project team to discuss design requirements	Discuss design requirements with team	00:30
9:00 AM	10:30 AM	Requirement Elicitation	Engaging with stakeholders to gather and clarify requirements	01:30
10:30 AM	11:00 AM	Break	Take short break	00:30
11:00 AM	12:30 AM	Requirement Analysis	Analyse requirements and start drafting design document	01:30
12:30 PM	1:30 PM	Lunch	Lunch Break	01:00
1:30 PM	3:00 PM	Continue drafting design documentation	Continue drafting design documentation	01:30
3:00 PM	3:30 PM	Review design documentation	Review and finalize design documentation	00:30
3:30 PM	4:00 PM	Meeting with stakeholders to present and discuss design	Present and discuss design with stakeholders	00:30
4:00 PM	5:00 PM	Update project documentation and prepare for next day's tasks	Update project documentation and plan for next day	01:00

2. Development Timesheet of a BA

Development Timesheet of a BA

Time In	Time Out	Activity	Task Description	Total Hours
8:00 AM	08:30 AM	Review and Respond emails	Check and respond to emails	00:30
8:30 AM	9:00 AM	Meeting with development team	Discuss project progress and challenges	00:30
9:00 AM	10:30 AM	Analyse user stories	Refine user stories and requirements	01:30
10:30 AM	11:00 AM	Break	Take short break	00:30
11:00 AM	12:30 AM	Collaborate with developers	Clarify requirements with developers to sign off on requirements	01:30
12:30 PM	1:30 PM	Lunch	Lunch Break	00:30
1:30 PM	3:00 PM	Review and provide feedback	Review and feedback on deliverables	01:30
3:00 PM	3:30 PM	Meeting with stakeholders	Update stakeholders on progress	00:30
3:30 PM	4:30 PM	Document changes and updates to requirements	Change requirements	01:00
4:30 PM	5:00 PM	Prepare for next day's tasks and wrap up	Prepare for next day's tasks	00:30

3. Testing Timesheet of a BA

Time In	Time Out	Activity	Task Description	Total Hours
8:00 AM	08:30	Review and Respond emails	Check and respond to emails	00:30
8:30 AM	9:00 AM	Meeting with testing team to discuss test plans and strategies	Discuss test plans and strategies	00:30
9:00 AM	10:30 AM	Review test cases and scenarios	Update test cases	01:30
10:30 AM	11:00 AM	Break	Take short break	00:30
11:00 AM	12:30 AM	Coordinate Bug resolution	Coordinate with developers and testers for bug resolution	01:30
12:30 PM	1:30 PM	Lunch	Lunch Break	00:30
1:30 PM	3:00 PM	Monitor and track testing progress	Monitor and track testing progress	01:30
3:00 PM	3:30 PM	Meeting with stakeholders	Update stakeholders on testing progress	00:30
3:30 PM	4:30 PM	Document test results	Document test results and prepare reports	01:00
4:30 PM	5:00 PM	Prepare for next day's testing activities	Prepare for next day's testing activities	00:30

4. UAT Timesheet of a BA

UAT Timesheet of a BA

Time In	Time Out	Activity	Task Description	Total Hours
8:00 AM	08:30	Review and Respond emails	Check and respond to emails	00:30
8:30 AM	9:00 AM	Meeting with UAT team	Discuss UAT test plans and strategies	00:30
9:00 AM	10:30 AM	Review UAT test cases and scenarios	Review and update UAT test cases	01:30
10:30 AM	11:00 AM	Break	Take short break	00:30
11:00 AM	12:30 AM	Coordinate with UAT testers and stakeholders for testing activities	Coordinate UAT testing activities	01:30
12:30 PM	1:30 PM	Lunch	Lunch Break	00:30
1:30 PM	3:00 PM	Monitor and track UAT progress	Monitor and track UAT progress	01:30
3:00 PM	3:30 PM	Meeting with stakeholders to update on UAT progress	Update stakeholders on UAT progress	00:30
3:30 PM	4:30 PM	Document UAT results and prepare test reports	Document UAT results and prepare reports	01:00
4:30 PM	5:00 PM	Prepare for next day's UAT activities	Prepare for next day's UAT activities	00:30

5. Deployment and Implementation Timesheet of a BA

Deployment and Implementation Timesheet of a BA

Time In	Time Out	Activity	Task Description	Total Hours
8:00 AM	08:30	Review and Respond emails	Check and respond to emails	00:30
8:30 AM	9:00 AM	Review deployment plan and update stakeholders	Review and update deployment plan	00:30
9:00 AM	10:30 AM	Coordinate with IT and operations teams for deployment activities	Coordinate deployment activities	01:30
10:30 AM	11:00 AM	Break	Take short break	00:30
11:00 AM	12:30 AM	Review deployment progress and address any issues	Review progress and address issues	01:30
12:30 PM	1:30 PM	Lunch	Lunch Break	00:30
1:30 PM	3:00 PM	Monitor deployment activities and update stakeholders	Monitor activities and update stakeholders	01:30
3:00 PM	3:30 PM	Meeting with stakeholders to update on deployment progress	Update stakeholders on deployment progress	00:30
3:30 PM	4:30 PM	Document deployment results and prepare deployment report	Document results and prepare report	01:00
4:30 PM	5:00 PM	Prepare for next day's deployment activities	Prepare for next day's activities	00:30