CAPSTONE PROJECT

Q.1

As the Business Analyst (BA) for this online agriculture products store project, it's essential to understand the full business process model. The process should align with the goal of facilitating smooth interaction between farmers and agricultural product manufacturers while improving procurement efficiency for remote farmers like Peter, Kevin, and Ben.

Here’s the detailed Business Process Model:

1. Goal:

To develop an online store (web/mobile app) where farmers can directly purchase fertilizers, seeds, and pesticides from manufacturers, ensuring easy access and competitive pricing.

. Inputs:

Product Information: Manufacturers (fertilizers, seeds, pesticides companies) input detailed product data such as name, price, availability, usage instructions, and safety guidelines.

Farmer Requirements: Farmers input their needs, such as the type of seeds, fertilizers, and pesticides required based on their crops and seasons.

Logistics Information: Shipping and delivery details from third-party logistics providers.

Financial Data: Pricing models, payment gateways, and discount schemes (if any) for the farmers.

3. Resources:

Technological Resources:

Online platform (web & mobile app)

Payment gateways (UPI, credit/debit cards, mobile wallets, etc.)

Logistics tracking and management system for deliveries

Human Resources:

Developers: Senior Java Developer (Ms. Juhi), Java Developers (Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo)

Network Admin (Mr. Mike)

DB Admin (John)

Testers (Mr. Jason, Ms. Alekya)

Business stakeholders: Peter, Kevin, and Ben (farmers), Mr. Henry, Mr. Pandu (financial head), Mr. Dooku (project coordinator)

Budget: INR 2 Crores for 18 months

Delivery Team: APT IT SOLUTIONS led by Mr. Karthik and managed by Mr. Vandanam.

6. Value Created to the End Customer (Farmers):

Convenience: Farmers in remote areas can order agricultural products directly without the need to travel to distant markets, saving time and effort.

Product Variety:

Farmers get access to a wide variety of products from multiple manufacturers, ensuring they find the best product suited to their needs.

Competitive Pricing: By connecting directly with manufacturers, farmers are likely to get products at a more competitive price compared to local middlemen.

Timely Delivery: Farmers can have essential supplies delivered to their location, ensuring timely access to seeds, fertilizers, and pesticides.

Knowledge Sharing: Through the platform, manufacturers can provide detailed product information, usage instructions, and tips, which help farmers make informed decisions.

Improved Farming Efficiency: Access to the right products at the right time improves the efficiency of farming operations, leading to better crop yields.

Summary of Business Process Model:

The online agriculture store aims to streamline the procurement process for farmers, connecting them directly with manufacturers of agricultural products. The process involves onboarding manufacturers, enabling farmers to browse and purchase products, and ensuring timely deliveries through logistics support. The system enhances the availability of critical farming inputs, ensures price transparency, and provides rural farmers with easy access to essential products. The platform will also create a robust infrastructure for manufacturers to expand their reach while offering competitive services to end customers.

Q.2 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- 1. Strengths:

a) Strong Budget and Timeline: The project has a well-defined budget of INR 2 Crores and a clear duration of 18 months, giving sufficient resources and time for development.

b) CSR Initiative: The project is part of a Corporate Social Responsibility (CSR) initiative, which means it is likely to receive goodwill and support from the community and government agencies.

2. Weaknesses:

A) Complexity of User Needs: The target users (farmers) may have limited technical knowledge and experience using online platforms.

B) Remote Area Logistics: Managing logistics in remote areas can be difficult, with potential challenges related to delivery delays, infrastructure issues, and higher transportation costs.

3. Opportunities:

A) Digital Transformation in Agriculture: The Indian agriculture sector is gradually adopting digital tools.

B) Farmer Education and Upskilling: The platform could evolve to offer educational content (videos, blogs, or advisory services) to teach farmers about modern agricultural practices, fertilizers, or pesticides, adding additional value.

4. Threats:

A) Competitive Market: Other online platforms, such as BigHaat, AgroStar, or KisanKraft, already serve the same purpose. They could potentially have more resources or a more established user base, making it harder for this platform to gain traction.

B) Dependency on Internet Infrastructure: The platform’s functionality is highly dependent on the availability of internet in rural areas. Poor network coverage could severely limit adoption, especially in regions with weak digital infrastructure.

In conclusion, this project has a strong potential to succeed, but careful attention to user education, logistical planning, and market positioning

Q3. 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- To assist Mr. Karthik in conducting a feasibility study for developing the online agriculture products store project using Java technology, it is important to evaluate several factors like hardware, software, trained resources, budget, and the overall timeframe.

Key Feasibility Points for Mr. Karthik to Consider:

A)Technical Feasibility:

Java (with Spring, Hibernate) is an appropriate technology stack for building a scalable, secure, and robust platform.

Cloud infrastructure can handle the uncertain and potentially high traffic from users in remote areas.

Existing trained resources in Java development are a strong advantage, but there may be a need for additional frontend or UX/UI expertise.

B) Operational Feasibility:

Logistics management, especially for remote areas, poses challenges but can be mitigated through third-party logistics partnerships.

Payment processing, especially in rural areas, requires special attention, such as integrating popular payment methods like UPI and offering cash-on-delivery options.

C) Budget Feasibility:

The project budget of INR 2 Crores seems reasonable given the hardware, software, and resource requirements.

Allocation for cloud infrastructure, security, and logistics integration needs careful planning to stay within budget.

D) Time Feasibility:

The 18-month timeline appears feasible if the project is broken into structured phases (planning, development, testing, deployment).

Adequate time must be allocated for user training and support, as rural users might take time to adapt to the technology.

In summary, Mr. Karthik should consider the technical viability of using Java (strong backend, secure frameworks) and ensure that logistics and user adoption challenges are addressed. The team has the core competencies but might need to expand with frontend or UX/UI expertise. The project’s scope, budget, and timeline appear feasible if managed well with an appropriate contingency plan in place.

Q4. 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- A Gap Analysis is a crucial document for Mr. Karthik to submit to Mr. Henry to highlight the differences between the current AS-IS process (the way things currently work) and the TO-BE process (the proposed future state with the online agriculture products store). This analysis will help convince Mr. Henry to initiate the project by showcasing the improvements and benefits the new system will provide.

Below is the Gap Analysis for the online agriculture products store project:

A) Procurement of Agriculture Products:-

AS-IS (Current Process):

Farmers (like Peter, Kevin, Ben) physically travel to local markets or distributors to purchase fertilizers, seeds, and pesticides.

Limited variety of products, often dependent on local suppliers.

Difficult to access the latest or best-quality agricultural products, especially in remote areas.

Time-consuming process, as farmers have to take time off from their farming activities to make these trips.

Prices may fluctuate due to middlemen, with little transparency on pricing.

TO-BE (Future Process):

Farmers can purchase agricultural products directly from manufacturers via an online platform (web/mobile).

Access to a broader variety of fertilizers, seeds, and pesticides, including better-quality products.

Easy comparison of prices and product reviews from multiple manufacturers.

Timely delivery of products to farmers’ remote locations, eliminating the need for travel.

Real-time stock availability and transparency in pricing, with potential for discounts or bulk purchasing.

Efficient and time-saving process, allowing farmers to focus more on farming activities.

Gap: The current manual process is inefficient, time-consuming, and expensive due to middlemen and limited access to products. The new online platform will provide direct access, saving time and costs while increasing product options and transparency.

Q5. List down different risk factors that may be involved (BA Risks And process/Project Risks)

Ans- Here’s a list of potential risk factors involved in the Online Agriculture Products Store project, categorized into Business Analysis (BA) Risks and Process/Project Risks:

A). Business Analysis (BA) Risks:

Difficulty in gathering clear requirements from farmers (end users) due to their limited tech exposure.

Miscommunication between stakeholders (farmers, manufacturers) and the development team.

Difficulty in training farmers to use the online platform, especially those in remote or low-literacy areas.

Usability issues, leading to poor adoption by the farming community.

B). Process/Project Risks:

Network connectivity problems in remote areas, impacting platform usability.

Shortage of skilled resources (Java developers, testers) if additional support or expertise is required during development.

Risk of data breaches, especially concerning payment information or personal data of farmers.

Compliance with local regulations related to data privacy and secure transactions.

Delays in product delivery due to unreliable logistics in remote areas.

Payment gateway failures or limited adoption of online payment methods in rural areas.

Q5.Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers

Ans-Key Decision Makers:

Mr. Henry (Owner) – Project initiation and strategic decisions.

Mr. Pandu (Financial Head) – Budget approval.

Key Influencers:

Mr. Dooku (Project Coordinator) – Influences project coordination.

Farmers (Peter, Kevin, Ben) – Influence requirements and UAT.

Manufacturers – Influence product catalog and pricing.

This streamlined RACI Matrix highlights who is Accountable, Responsible, Consulted, and Informed for key tasks, ensuring clarity and efficient decision-making throughout the project.

Q7. Help Mr Karthik to prepare a business case document

Ans- Business Case for Online Agriculture Products Store

1. Executive Summary

Mr. Henry, a successful businessman, aims to create an online agriculture products store under a CSR initiative to help farmers in remote areas, like his friends Peter, Kevin, and Ben, access fertilizers, seeds, and pesticides directly from manufacturers. The project, with a budget of ₹2 Crores and an 18-month timeline, has been assigned to APT IT Solutions.

2. Problem Statement

Farmers in remote areas face challenges in accessing quality agricultural products due to:

Limited availability and variety in local markets.

High costs and lack of price transparency due to middlemen.

Time-consuming procurement processes.

3. Solution Overview

Develop an online platform that connects farmers directly with manufacturers, allowing farmers to:

Browse and purchase products (fertilizers, seeds, pesticides) online.

Communicate with manufacturers for product details and support

4. Project Objectives

Provide easy access to quality agricultural products for farmers in remote areas.

Eliminate middlemen and reduce costs for farmers.

Enable real-time communication between farmers and manufacturers.

Offer a user-friendly, scalable web and mobile application.

5. Benefits

For Farmers: Increased access to agricultural products, time savings, lower costs, and enhanced productivity.

6. Risks

Adoption Risk: Farmers may resist using the platform due to limited tech literacy.

Technical Risk: Connectivity issues in remote areas.

Q8. The Committee of Mr. Henry , Mr Pandu , and Mr Dooku and Mr Karthik are having a discussion on Project Development Approach.

Mr Karthik explained to Mr. Henry about SDLC. And four methodologies like Sequential Iterative Evolutionary and Agile. Please share your thoughts and clarity on Methodologies

Ans-

1. Sequential (Waterfall) Approach:

Description: Follows a linear, step-by-step process (Requirements → Design → Development → Testing → Deployment).

Suitability: Good for projects with well-defined, unchanging requirements.

Consideration: Less flexible if new requirements arise from farmers or manufacturers. May not be ideal for this project due to potential evolving user needs.

2. Iterative Approach:

Description: Develops the system in small cycles (iterations), refining through feedback after each cycle.

Suitability: Useful if initial requirements are unclear and need refinement over time.

Consideration: Suitable for projects where changes are expected, allowing continuous improvements based on feedback from farmers and stakeholders.

3. Evolutionary Approach:

Description: The system evolves by building a working product early and refining it through multiple versions.

Suitability: Ideal for projects needing gradual improvements, especially when interacting with end-users like farmers for ongoing input.

Consideration: Provides flexibility for gradual system evolution, ensuring the platform meets farmer needs over time.

4. Agile Approach:

Description: Emphasizes rapid development with continuous user involvement, delivering small, workable increments (sprints).

Suitability: Best for projects with changing requirements and a focus on user satisfaction.

Consideration: Highly suitable for this project due to its flexibility, fast delivery, and regular feedback from farmers and manufacturers. Allows addressing changes quickly based on end-user feedback.

Conclusion:

Given the nature of the Online Agriculture Products Store project, where farmers' needs and feedback may evolve, an Agile or Iterative approach would be most suitable. These methodologies provide flexibility, rapid adjustments, and a user-centric approach to ensure the platform meets the real needs of the farming community.

Q9. 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?

Ans- In the discussion between SMEs and the project team regarding which SDLC model to use for the Online Agriculture Products Store project, here’s a comparison of the V-Model and Waterfall Model to help decide:

1. Waterfall Model:

Description: A linear and sequential approach where each phase (Requirements, Design, Development, Testing) is completed before moving to the next.

Strengths: Easy to manage with clear milestones and deliverables.

Weaknesses: Less flexible if changes are needed after a phase is completed. Not ideal if there are frequent updates or feedback from farmers or manufacturers.

2. V-Model:

Description: An extension of the Waterfall model, but with a focus on testing at each stage. Every development phase has a corresponding testing phase, ensuring that issues are caught early.

Strengths: Rigorous validation and verification, ensuring quality at each stage. Ideal for projects with clear, well-defined requirements from the start.

Weaknesses: Like Waterfall, it lacks flexibility for handling evolving requirements.

Recommendation (As a Business Analyst):

Given that the project involves remote farmers and manufacturers, and their needs might evolve or become clearer over time, neither the Waterfall nor V-Model is ideal due to their rigid structure. Instead, a more iterative approach like Agile or Scrum would be preferable, offering flexibility to incorporate feedback throughout the development process.

However, if a decision must be made between the V-Model and Waterfall, the V-Model is better due to its emphasis on early testing and quality assurance, ensuring the product meets requirements at each stage, which can be crucial in this agriculture store project.

Q10. Write down the differences between waterfall model and V model.

Here are the key differences between the Waterfall Model and the V-Model based on the context of the Online Agriculture Products Store project:

A) In the Waterfall Model, changes are challenging to implement once a phase is completed, resulting in limited flexibility. The V-Model offers slightly more flexibility than Waterfall by allowing for early testing, which facilitates quicker feedback.

B) Testing in the Waterfall Model occurs as a separate phase after development, while the V-Model integrates testing with development, allowing for immediate identification of issues.

C) The Waterfall Model is best suited for projects with stable and well-defined requirements, while the V-Model is more effective for projects that require thorough testing and validation throughout the development process.

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

Ans- As a Business Analyst, I recommend using the V-Model for the Online Agriculture Products Store project due to its strong emphasis on quality assurance through integrated testing. This model allows for immediate identification and resolution of issues at each development stage, which is crucial for ensuring the platform meets the needs of farmers and manufacturers effectively.

Given the potential for evolving user requirements and the importance of delivering a reliable and user-friendly application, the V-Model’s structured approach ensures that both development and testing occur concurrently. This will facilitate better communication with stakeholders, allow for continuous feedback, and ultimately enhance user satisfaction.

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

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.

Ans- The Committee, consisting of Mr. Henry, Mr. Pandu, and Mr. Dooku, decided to adopt the V-Model for the Online Agriculture Products Store project after discussions with Mr. Karthik. The development process will include the following phases: Requirements Gathering (RG), Requirements Analysis (RA), Design, Development (D1), Testing (T1), Development (D2), Testing (T2), Development (D3), Testing (T3), Development (D4), Testing (T4), and User Acceptance Testing (UAT).

Mr. Vandanam has been appointed as the Project Manager (PM) for this initiative. He will prepare a Gantt chart outlining the timeline for each phase, along with the resources needed, including the PM, Business Analyst (BA), Java Developers, Testers, Database Administrator (DB Admin), and Network Administrator (NW Admin). This Gantt chart will help visualize the project timeline, resource allocation, and dependencies among different phases of the V-Model approach.

Q13. Explain the difference between Fixed Bid and Billing projects

Ans-

A) Risk Allocation: In fixed bid projects, the risk of cost overruns is primarily borne by the service provider, while in billing projects, the client assumes this risk since costs are based on actual usage.

B) Scope Changes: Fixed bid projects can be less adaptable to scope changes, requiring formal agreements for any modifications, whereas billing projects can easily accommodate changes without renegotiation.

C) Flexibility: Billing projects offer more flexibility for clients, allowing adjustments to scope and resources as the project progresses.

D) Incentives: In fixed bid projects, the service provider is incentivized to complete the work efficiently within the agreed budget, while in billing projects, there may be less incentive for speed, as costs are based on time spent.

Q14. Preparer Timesheets of a BA in various stages of SDLC

A) Design Timesheet of a BA

Ans-Project: Online Agriculture Products Store

BA Name: [Your Name]

Week of: [Start Date] to [End Date]

Total Hours for the Week: [Total]

Instructions for Use:

Fill in Dates: Replace placeholders with actual dates.

Task Description: Specify the task being worked on each day.

Hours Worked: Log the number of hours spent on each task.

Cumulative Hours: Keep a running total of hours worked throughout the week.

Comments: Add any relevant notes regarding the tasks completed or challenges faced.

This timesheet will help the BA manage their workload, track progress, and provide transparency regarding time spent on project tasks.

B) Development Timesheet of a BA

Ans-Project: Online Agriculture Products Store

BA Name: SHUBHAM KUMAR

Week of: 10-08-2024 TO 10-10-2024

delivering a high-quality product that aligns closely with the farmers' needs.

Total Hours:236

C) Testing Timesheet of a BA

Ans- Project: Online Agriculture Products Store

BA Name: SHUBHAM KUMAR

Week of: 10-08-2024 TO 10-10-2024

Total Hours: 236

D) UAT Timesheet of a BA

Ans- Project: Online Agriculture Products Store

BA Name: SHUBHAM KUMAR

Week of: 10-08-2024 TO 10-10-2024

Total Hours: 236

E) Deployment n Implementation Timesheet of a BA

Ans-Project: Online Agriculture Products Store

BA Name: SHUBHAM KUMAR

Week of: 10-08-2024 TO 10-10-2024

Total Hours: 236