**Q1, Identify Business Process Model for Online Agriculture Store- ( Goal , Inputs, Resources, Activities, Value created to end Customer)**

**Ans: Business Process Model for Online Agricultural Store**

**BPM** describes the key components of the online agriculture store, focusing on how it delivers value to farmers and manufacturers.

1. Goal (Objective)

To create an online platform that allows farmers, especially those in remote areas, to conveniently purchase agricultural products such as fertilizers, seeds, and pesticides.

2. Inputs

**Product Information**: Details about available products, including descriptions, prices, and availability.

**Customer Information:** Data about farmers, such as their contact details and delivery addresses.

**Order Details**: Information on the products selected by farmers, quantities, and payment methods.

3. Resources

**Online Platform**: A user-friendly website or mobile application where farmers can browse and purchase products.

**Inventory Management System**: To track product availability and manage stock levels.

**Payment Gateway:** Secure systems to process various payment methods, including online payments and cash-on-delivery options.

**Transport System**: Reliable delivery services to ensure products reach farmers promptly.

4. Activities

**Registration:** Farmers and suppliers create accounts on the platform.

**Product Listing:** Suppliers upload detailed information about their products.

**Product Browsing**: Farmers search for and select desired products.

**Order Placement:** Farmers place orders, choosing preferred payment and delivery options.

**Order Processing**: Suppliers receive orders and prepare products for shipment.

**Delivery:** Products are delivered to the farmers' specified addresses.

**Feedback**: Farmers provide feedback on products and services, helping to improve the platform.

5. Value Created for the End Customer

**Convenience**: Farmers can purchase agricultural products from anywhere at any time, eliminating the need to travel to physical stores.

**Access to Information:** Detailed product information helps farmers make informed purchasing decisions.

**Cost Savings**: By connecting directly with suppliers, farmers may benefit from competitive pricing.

**Improved Efficiency:** Streamlined ordering and delivery processes save time and reduce effort for farmers.

 This, BPM ensures that the online agricultural store is tailored to meet the needs of farmers, providing them with a seamless experience.

**Q2, 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: Mr. Karthik should evaluate the following aspects for the online agriculture store project:

**Strengths: Weaknesses:**

1.**Direct access to End Customers (Farmers):** The platform allows 1. **Digital Literacy Variations**: Some farmers may lack experience

farmers, especially in remote areas, to purchase agricultural with online platforms, potentially hindering their ability to use

products directly, reducing dependency on intermediaries. the store effectively.

2.**User-Friendly Design:** Designing the platform to be easy to 2. **Internet Connectivity Issues:** Rural areas might have

understand ensures that farmers with varying levels of digital inconsistent internet access, affecting the usability of the online

literacy can navigate and make purchases easily. Store.

**3.Comprehensive Product Information:** Providing detailed description 3.**Logistical Challenges:** Delivering products to remote locations

ns, usage guidelines, and pricing helps farmers make informed decisions. can be complex and costly.

**Opportunities:** **Threats:**

1.**Market Expansion**: The platform can reach underserved regions, 1.**Competition**: Existing agricultural suppliers or new entrants might

 tapping into new customer bases. offer similar online services.

2.**Educational Resources**: Integrating tutorials and best practices can 2. **Technological Barriers**: Limited access to smartphones or

enhance farmers' knowledge and promote platform usage. computers among some farmers could restrict platform adoption.

3.**Partnerships:** Collaborating with local cooperatives and agricultural 3. **Economic Factors**: Fluctuations in agricultural markets or

 organizations can help in building credibility and trust. farmers' income levels might impact purchasing power

Q3**, Mr Karthik is trying to do feasibility study on doing this project in Technology (Java), Please help with points (HW SW Trained Resources Budget Time frame) to consider in feasibility Study.**

**Ans:** Conducting a feasibility study for developing the online agriculture store using Java involves assessing several key factors:

Budget

Amount assigned to this project- Rs.2 crore

Cost Estimated-1.80 lakh

1. **Hardware (HW) Requirements:**

**Web Servers:** Invest in high-performance servers such as Dell PowerEdge R740 or HP ProLiant DL380 Gen10 to ensure robust performance and scalability.

**Database Servers:** Deploy dedicated servers like IBM System x3850 X6 to manage extensive database operations efficiently.

**Load Balancers:** Implement advanced load balancing solutions such as F5 Big-IP or Citrix NetScaler to distribute traffic effectively and maintain high availability.

 **Storage Devices:** Utilize enterprise-grade storage solutions like NetApp FAS or HP 3PAR Store SERV to ensure data reliability and quick access.

Total Cost:15 Lakhs

1. **Software (SW) Requirements:**

**Programming Language:** Develop the application using Java, leveraging its robustness for enterprise-level solutions.

**Web Servers:** Utilize Apache Tomcat or Jetty, which are well-suited for Java applications, ensuring efficient request handling.

**Database Management System (DBMS**): Implement PostgreSQL for reliable data management and support for complex queries.

**Payment Gateways:** Integrate secure and widely-used payment gateways like Net banking and PayPal and phone pe to facilitate seamless transactions.

**Security Applications:** Employ comprehensive security measures, including SSL Certificates, advanced firewalls, and intrusion detection systems, to protect against potential threats.

Total Cost:25 Lakh

**3. Resources:**

Mr. Vandanam -Project Manager -1 1L per month\*18= 18L

Ms. Juhi -Sr. Java Developer -1 1.16L per month\*18= 21L

Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo-Java Developers-3 0.66 per month annual Sal 8L\*3 =36L

Mr. Mike-Network Admin-1 0.50 per month \*18= 9L

Mr. John-DB admin-1 0.66 per month annual Sal 8L \*1 =12L

Mr. Jason and Ms. Alekya -2 testers 0.41 per month annual Sal 5L for 2\*18 =15L

Mr. Srinivas Goud-BA-1 0.50 per month \*18 =9L

Marketing and farmer training - 0.20L

Total staffing cost= 1.20 Cr

4.Budget:

Total Budget is 2 Cr

Estimated project cost -1.8cr

Contingency Fund: Allocating ₹20 lakhs to address unforeseen expenses, ensuring financial flexibility for later changes may take place in the project.

 5. Timeframe:

Total Duration: 18 months.

Project Phases:

Requirement gathering/Analysis: 2 months.

Design and Architecture Planning: 3 months.

Development: 8 months.

Testing: 3 months.

Deployment and Implementation: 2 months

**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: To effectively address the challenges faced by farmers in remote areas, it's essential to describe the current (As-Is) and desired (To-Be) stages of their agricultural procurement processes.

**GAP ANALYSIS:**

**Current Stage (As-Is):**

**Limited Access to Agricultural Inputs:** Farmers in remote regions often struggle to obtain essential supplies such as fertilizers, seeds, and pesticides. This difficulty arises from inadequate infrastructure and the high costs associated with transporting these inputs to isolated locations.

**Dependence on Intermediaries:** The lack of direct access to manufacturers forces farmers to rely on multiple intermediaries, which can lead to increased costs and potential delays in receiving necessary products.

**Inconsistent Product Quality:** Without direct channels to trustworthy suppliers, there is a chance farmers may purchase fake or low-quality products, adversely affecting crop yields and soil health.

**Limited Market Access**: Farmers often struggle to reach wider markets, restricting their sales opportunities and income potential.

**Desired Stage (To-Be):**

**Direct Access to Manufacturers via Digital Platforms**: Implementing an online agriculture products store would enable farmers to connect directly with manufacturers, ensuring timely access to quality inputs. This digital transformation can streamline procurement processes and reduce reliance on intermediaries.

**Enhanced Product Transparency and Selection**: Through the platform, farmers can access detailed product information, compare options, and make informed purchasing decisions, leading to better crop management and productivity.

**Improved Logistics and Delivery Systems**: A well-structured e-commerce platform can facilitate efficient logistics, ensuring that products are delivered promptly to remote areas, thereby minimizing delays and associated costs.

**Expanded Market Reach:** An online platform allows farmers to sell their products beyond local markets, increasing sales opportunities and potential profits.

Transitioning from the current to the desired stage involves leveraging digital technologies to create a more efficient, transparent, and farmer-centric procurement system. This shift not only addresses existing challenges but also empowers farmers to enhance their agricultural practices and overall livelihoods.

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

Ans: Developing an Online Agriculture Products Store involves various risk factors that can impact the project's success. These risks can be categorized into internal and external risks, as well as Business Analysis (BA) risks and process/project risks.

**Internal Risks**:

1. **Budget Overruns:**

Inaccurate cost estimations can lead to exceeding the allocated budget, affecting project viability.

2**. Technical Challenges:**

Complexities in integrating various system components or adopting new technologies can cause delays and increase costs.

3. **Resource Allocation:**

Inefficient distribution of tasks and responsibilities among team members can lead to project delays and reduced quality.

**External Risks:**

1. **Market Acceptance:**

Farmers reluctance to adopt digital platforms due to lack of trust or familiarity can hinder the platform's success.

2. **Regulatory Changes:**

New laws or regulations affecting e-commerce or agriculture could impact the project's operations and compliance requirements.

3. **Economic Fluctuations:**

Economic downturns can reduce farmers purchasing power, affecting platform revenues.

**Business Analysis (BA) Risks:**

1. **Requirement Ambiguity:**

Unclear or poorly defined requirements can lead to misunderstandings and misaligned deliverables.

2. **Stakeholder Misalignment:**

Conflicting interests among stakeholders can result in project scope changes and delays.

3. **Inadequate Elicitation Techniques:**

Using inappropriate methods to gather requirements can result in incomplete or inaccurate information.

**Process/Project Risks:**

1. **Scope Creep:**

Uncontrolled changes or continuous growth in project scope can lead to delays and budget overruns.

2**. Schedule Delays:**

Unexpected issues causing project timelines to extend can affect delivery and increase costs.

3. **Quality Assurance Failures:**

Insufficient testing can result in a product that doesn't meet user expectations or has critical defects.

Identifying and addressing these risks early in the project lifecycle is crucial for the successful development and implementation of the Online Agriculture Products Store.

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**Q6) Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers**

Ans:

|  |  |  |  |
| --- | --- | --- | --- |
| R/A/C/I | NAME OF THE PERSON/STAKE HOLDER | DESIGNATION/ROLE | DETAILS |
| RESPONSIBLE | APT IT SOLUTIONS TEAMMs. JUHI AND DEVELOPMENT TEAMMr. MikeMr. JASON AND Ms. ALEKYAMr. SRINIVAS GOUDFERTILIZER, SEED AND PESTICIDE COMPANIES  | DEVELOPMENT AND IMPLEMENTATION OF THE ONLINE PLATFORMFOR CORE TECHNICAL DEVELOPMENT AND RESPONSIBLE FOR CODING AND IMPLEMENTATIONNETWORK ADMIN RESPONSIBLE FOR SERVER AND NETWORK SET UPTESTERS RESPONSIBLE FOR SOFTWARE TESTING AND BUG FIXESBA RESPONSIBLE FOR REQUIREMENT GATHERING AND COMMUNICATIONSUPPLIERS OFFERING PRODUCTS TO BE LISTED ON THE PLATFORM | EMAIL ID: Aptitsolutions@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1stEMAIL id: juhiapt@gmail.com, javadevelopers@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1stEMAIL ID: mikenetwork@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1stEMAIL ID: mikenetwork@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1stEMAIL ID: Srinivas1@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1stEMAIL ID: Srinivas1@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st IST |
| ACCOUNTABLE | MR. HENRYMR. VANDANAMAPT IT SOLUTIONS | PROJECT SPONSOR AND INITIATOR, RESPONSIBLE and ACCOUNTABLE FOR OVERALL PROJECT APPROVAL AND DIRECTION.PROJECT MANAGER, ACCOUNTABLE FOR OVERALL PROJECT EXECUTION.IMPLEMENTATION TEAM, SINCE THE COMPANY IS RESPONSIBLE TO COMPLETE THE PROJECT WITH IN THE TIMELINE AND BUDGET, THEY ARE ACCOUNTABLE | EMAIL ID: henry11@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: vandanam21@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: Aptitsolutions@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st |
| CONSULTED | PETER, KEVIN AND BENMR. HENRYMR. PANDUMR. DOOKU BA AND APT IT SOLUTIONS TEAM | FARMERS PROVIDING INSIGHTS INTO AGRICULTURAL NEEDS AND CHALLENGESPROJECT SPONSOR AND INITIATOR, HE IS FUNDING THE PROJECT HIS VISION AND EXPECTATIONS SHOULD BE CONSIDERED FINANCIAL HEAD, TO DISCUSS BUDGET ALLOCATION, COST ESTIMATION AND FINANCIAL FEASABILITYPROJECT CORDINATOR, TO ENSURE SMOOTH EXECUTION AND ALIGNMENT WITH ORGANIZATIONAL GOALSBA AND IT TEAM, TO GATHER BUSINESS REQUIREMENTS AND ENSURE THE SYSTEM MEETS STAKEHOLDER EXPECTATIONS AND ALSO TO ACCESS FEASIBILITY, TECHNICAL CHALLENGES AND ENSURE PROPER IMPLEMENTATION | EMAIL ID: farmers1221@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: henry11@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: pandu31@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: dooku121@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: aptsolutions@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st IST |
| INFORMED | SOONY COMPANYPETER, KEVIN AND BENBA AND APT IT SOLUTIONS TEAMMR. VANDANAM | MR. HENRY AND MR. DOOKU SINCE THEY ARE FUNDING AND OVERSEEING THE PROJECT, THEY MUST BE KEPT UPDATED ON PROGRESS AND CHALLENGES.SINCE, THEY ARE END USERS, THEY NEED TO BE INFORMED ABOUT THE PLATFORM DEVELOPMENT, LAUNCH AND USABILITY. BA AND IT TEAM, TO GATHER BUSINESS REQUIREMENTS AND ENSURE THE SYSTEM MEETS STAKEHOLDER EXPECTATIONS AND ALSO TO ACCESS FEASIBILITY, TECHNICAL CHALLENGES AND ENSURE PROPER IMPLEMENTATIONHE MUST BE INFORMED ABOUT RISKS, TIMELINES AND DELIVERABLES TO MANAGE RESOURCES EFFECTIVELY | EMAIL ID: soonycompany@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: farmers1221@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: aptsolutions@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st ISTEMAIL ID: vandanam21@gmail.comPh no:123456789REACH OUT:9 AM TO 1PM 1st IST |

Thus, the summary as per the RACI Matrix

**The key decision-makers**

In the project are Mr. Henry (Project Sponsor & Owner - SOONY Company), Mr. Pandu (Financial Head - SOONY Company), Mr. Dooku (Project Coordinator - SOONY Company), and Mr. Vandanam (Project Manager - APT IT Solutions). Mr. Henry has the final authority over the project, including budget approvals and strategic direction. Mr. Pandu oversees financial management to ensure spending remains within the ₹2 Crore budget, while Mr. Dooku coordinates project execution with APT IT Solutions. Mr. Vandanam manages operational decisions, including timelines and resource allocation.

**The key influencers**

Who shape project decisions include the farmers (Peter, Kevin, Ben, and other users), the Business Analyst (Mr. Srinivas Goud), the Senior Java Developer (Ms. Juhi), and IT administrators (Mr. Mike - Network Admin & Mr. John - Database Admin). Farmers play a crucial role in providing feedback and defining requirements, ensuring the platform meets real-world needs. The Business Analyst refines project scope and advises decision-makers on feasibility. The Senior Java Developer influences technical choices, while the IT admins ensure system stability, security, and performance.

Overall, the decision-makers handle approvals and project execution, while influencers provide insights that shape the final product, ensuring it is functional, efficient, and user-friendly.

**Q7)** **Help Mr Karthik to prepare a business case document**

**Ans:**

Business Case Document

Project Name: Online Agriculture Products Store

Prepared by: Mr. Karthik (Business Analyst)

Company: APT IT Solutions

Date: April 2025

**Reason for project initiation:**

This project was initiated to address a common and critical problem faced by farmers in remote areas: the difficulty in accessing quality agricultural products such as fertilizers, seeds, and pesticides. Mr. Henry, a successful businessman, realized that his friends and many other farmers struggle with procuring essential farming supplies. To solve this, the idea of an Online Agriculture Products Store was born, enabling farmers to buy products through a web/mobile application from anywhere

**Current problems:**

Farmers cannot easily access quality fertilizers, seeds, or pesticides.

There is no single platform where they can compare and order products.

They depend on local dealers or middlemen, who often overcharge.

There is poor communication between farmers and product suppliers.

Timely delivery and proper tracking of orders is not possible in current methods.

**Problems Solved by This Project**

With the implementation of the Online Agriculture Products Store, the following problems will be addressed:

It will provide a user-friendly online store for farmers to place orders.

Farmers will have direct contact with product suppliers.

It will increase product availability in remote areas.

The system will improve order tracking and delivery speed.

It ensures fair pricing and helps farmers make informed decisions.

**Resources Required for the Project**

To successfully develop and implement the Online Agriculture Products Store, the following resources are required:

1. Human Resources (Team Members)

Project Manager (PM) – 1 (Mr. Vandanam) – Responsible for overall project execution.

Senior Java Developer – 1 (Ms. Juhi) – Leads the development team.

Java Developers – 3 (Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo) – Responsible for coding and development.

Network Administrator – 1 (Mr. Mike) – Manages network infrastructure and security.

Database Administrator (DBA) – 1 (Mr. John) – Handles data storage and management.

Testers (QA Team) – 2 (Mr. Jason and Ms. Alekya) – Ensures application quality and bug-free deployment.

Business Analyst (BA) – 1 (Mr. Karthik) – Gathers requirements and ensures alignment with business needs.

**Infrastructure:**

Web servers, database servers, load balancers

**Software & Technology:**

HTML, PHP, MySQL, security tools

4. Budget Allocation (1.8 Cr for 18 Months)

Salaries for Team – Covers payments for developers, testers, project manager, and other team members.

Hardware & Software – Includes web servers, database licenses, security tools, and other technical needs.

Hosting & Maintenance – For keeping the platform online and ensuring smooth operations.

Marketing & Farmer Training – To create awareness among farmers and ensure effective adoption.

5. Timeframe

Total Duration – 18 months.

Phases :Requirement Gathering & Analysis – 2 months.

Design & Architecture Planning – 3 months.

Development – 8 months.

Testing & Quality Assurance – 3 months.

Deployment & Implementation– 2 months.

These resources will ensure the successful development and launch of the Online Agriculture Products Store, improving accessibility for farmers.

**Organizational Change Required to Adopt the Technology**

The change required is moderate and manageable. Farmers, who are not used to digital systems, will need training and support in using mobile/web applications. However, the system is designed to be intuitive and easy to navigate. Suppliers will register and upload their products, which will require a small change in how they manage their inventory.

Internally, SOONY and APT IT Solutions will follow a structured development and implementation cycle. No major changes to organizational roles are required, but adoption and awareness campaigns in villages will ensure smooth usage.

**Overall Impact**

Moderate adjustments for suppliers, who must digitize their business processes and inventory tracking.

Significant learning curve for farmers, who need support in using online tools and making digital payments.

Investment in IT infrastructure is crucial for ensuring scalability and security.

With proper guidance, gradual onboarding, and robust IT support, this transition will modernize agricultural procurement and create long-term benefits for farmers and suppliers alike.

**Timeframe to Recover Return on Investment (ROI)**

The return on investment is expected within 12 to 15 months after deployment. Here's how:

**Cost savings**: Reduction in manual processing, transport costs, and dependency on middlemen.

**High usage**: Once farmers start using the platform, regular and bulk orders will increase revenue flow.

**Brand goodwill**: As a CSR initiative, it will boost SOONY’s reputation and open future opportunities in AgriTech.

**Increased market reach**: By including more manufacturers and sellers, the platform can generate service and partnership fees in future phases.

Conclusion:

With effective marketing, supplier engagement, and smooth platform operations, the investment can be fully recovered in approximately 4 to 5 years, followed by sustainable long-term profitability.

**Stakeholders can be identified using the following approaches:**

Stakeholders were identified by reviewing who will use, manage, fund, and benefit from the platform:

**Primary Stakeholders**:

Farmers (end users)

Product suppliers (manufacturers of fertilizers, seeds, pesticides)

**Internal Stakeholders:**

Mr. Henry (project sponsor and visionary)

Mr. Pandu (Financial Head at SOONY)

Mr. Dooku (Project Coordinator)

Mr. Karthik (Business Analyst)

Entire APT IT Solutions team

**Secondary Stakeholders:**

NGOs or government agencies supporting rural development

Trainers and village representatives helping farmers adopt the system

Customers who may later use the platform for ordering products directly

Stakeholders were engaged through requirement-gathering sessions, field visits, committee discussions, and ongoing communication plans.

Conclusion:

Stakeholders should be identified based on who is impacted by the project and who has an influence over its success. This ensures that all key parties are engaged, informed, and aligned throughout the project lifecycle.

**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: Mr. Karthik explained the Software Development Life Cycle (SDLC) to Mr. Henry and the committee members, highlighting four key methodologies: Sequential, Iterative, Evolutionary, and Agile

**1. Sequential (Waterfall Model**)

The Waterfall Model is a linear and structured development approach where each phase is completed before moving to the next.

Key Characteristics:

Follows Requirement → Design → Development → Testing → Deployment in order.

No phase overlap; changes are difficult to accommodate once development begins.

Best suited for projects with well-defined and stable requirements.

Pros:

 Well-documented and structured.

Works well for fixed budget and timeline.

Cons:

 Less flexibility if requirements change.

 Late user feedback, increasing the risk of mismatched expectations.

Example Use Case: Large-scale government or banking applications where requirements are fixed.

2. Iterative Model

The Iterative Model develops the system in cycles, refining and improving it with each iteration.

Key Characteristics:

The system is built incrementally, allowing for early feedback.

Each iteration adds functionality, refining the product progressively.

Suitable for complex projects with evolving requirements.

Pros:

 Allows early feedback and course correction.

 Reduces risks by addressing issues in earlier phases.

Cons:

 Requires more planning and testing.

 May lead to scope creep if not managed properly.

Example: Enterprise software solutions that need continuous updates and refinements.

3. Evolutionary Model

The Evolutionary Model is an advanced form of Iterative Development, where a working system is built and continuously improved based on user feedback.

Key Characteristics:

Starts with a basic functional system and evolves over time.

Feedback-driven enhancements ensure user needs are met effectively.

Suitable for research-based or highly dynamic projects.

Pros:

 Ensures adaptability to changing business needs.

 Delivers value quickly by releasing early functional versions.

Cons:

 Difficult to estimate final cost and timeline.

 Can lead to frequent changes, increasing project complexity.

Example: Online marketplaces, e-learning platforms, and AI-based solutions.

4. Agile Model

Agile is a flexible, customer-centric approach that delivers software in small, frequent releases through collaboration and continuous feedback.

Key Characteristics:

Uses short development cycles called sprints (typically 2-4 weeks).

Encourages constant communication between business stakeholders and the development team.

Focuses on delivering the highest-priority features first.

Pros:

 High flexibility to accommodate changes.

 Early and continuous delivery of functional features.

Cons:

 Requires active stakeholder involvement.

 May lead to unclear project scope if not managed properly.

Example: Startups, web applications, and projects where user needs evolve frequently.

Conclusion: Best Methodology for the Online Agriculture Products Store

Considering the agricultural e-commerce nature of this project, Agile is the best choice because:

Farmers’ requirements may change over time.

The platform needs continuous testing and feedback for usability.

Early delivery of a Minimum Viable Product (MVP) is crucial for faster adoption.

Thus, Agile ensures a user-friendly, scalable, and adaptable solution that meets the project's goals effectively.

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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: Selecting the right Software Development Life Cycle (SDLC) model depends on project complexity, stakeholder needs, and flexibility requirements. Below is an explanation of the Waterfall, RUP, Spiral, and Scrum models, along with their advantages and disadvantages from a Business Analyst’s perspective.

1. Waterfall Model (Sequential Approach)

The Waterfall model follows a structured, step-by-step process where each phase is completed before moving to the next

This model is suitable when requirements are fixed and well-documented at the start.

The development process is highly structured, making it easier for compliance-heavy projects.

Since it follows a linear approach, tracking progress is straightforward.

Advantages:

Clear and well-defined project structure ensures that all phases are completed in sequence.

Documentation is detailed, making it easier to train new team members or comply with regulations.

Testing happens after development, ensuring that all components are complete before validation.

Disadvantages:

Changes in requirements are difficult to accommodate once development begins.

Late-stage testing increases the risk of identifying major issues late in the project.

Farmers and suppliers may have evolving needs that cannot be easily integrated into a fixed plan.

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

The RUP model follows an iterative and phased approach with four stages: Inception, Elaboration, Construction, and Transition.

It allows for gradual refinement of requirements, making it suitable for medium-to-large-scale projects.

Risk management is integrated into each phase, reducing the likelihood of failures.

Advantages:

Changes to the project are more manageable compared to Waterfall.

Testing and development occur in parallel, reducing the chance of major defects going unnoticed.

Early risk identification helps in mitigating potential issues before they become critical.

Disadvantages:

Managing iterations requires experienced project teams who can handle dynamic requirements.

Additional resources may be needed to maintain consistent communication between stakeholders.

Complexity can increase due to continuous requirement changes and multiple iterations.

3. Spiral Model (Evolutionary Approach)

The Spiral model is a risk-driven approach that focuses on continuous prototyping and iterative refinement.

This model is best for highly complex projects with uncertain requirements.

Continuous feedback from stakeholders ensures that business needs are aligned at every phase.

Advantages:

The iterative nature helps in refining requirements gradually, based on stakeholder feedback.

Risk assessment is performed at every stage, reducing uncertainty.

It provides flexibility, allowing for incremental changes without disrupting the entire project.

Disadvantages:

Managing frequent iterations can increase development costs.

Requires skilled project managers to handle evolving requirements effectively.

Extensive risk analysis may delay development timelines.

4. Scrum (Agile Methodology – Adaptive Approach)

The Scrum model follows an incremental and iterative approach, where development occurs in short cycles (Sprints).

This methodology is suitable for projects with changing business requirements and high stakeholder involvement.

Continuous feedback ensures that deliverables meet evolving business goals.

Advantages:

Agile development allows for frequent updates, ensuring that the solution remains relevant.

Farmers and suppliers can actively participate, providing real-time feedback on the application.

Faster delivery of working software helps in reducing time-to-market.

Disadvantages:

High stakeholder involvement is necessary, which may lead to delays if feedback is inconsistent.

Poorly managed Scrum teams may result in scope creep and uncontrolled changes.

Not ideal for strictly regulated projects where detailed documentation is mandatory.

**The key differences between the V-model and the Waterfall model are as follows:**

**Testing Integration:** The V-model builds testing into each stage of development, ensuring that every requirement is verified and validated early, whereas the Waterfall model typically schedules testing only after development is complete.

**Feedback and Risk Mitigation:** The V-model includes built-in feedback loops between development and testing phases, reducing risks and allowing for early corrections. In contrast, the Waterfall model’s linear approach may result in discovering issues too late in the process.

**Quality Assurance**: With the V-model, continuous validation ensures that the final product closely aligns with stakeholder needs and business requirements, while the Waterfall model may lead to misalignment if changes occur during the later stages.

As a Business Analyst, I support the V-model for this project because its emphasis on early and continuous testing helps identify and resolve issues sooner, which is essential for delivering a reliable and user-friendly online agriculture products store.

Q10) **20 Write down the differences between waterfall model and V model.**

Ans: Below are 20 differences between the Waterfall and V-model approaches, explained in simple terms.

1. **Sequence of Phases:**

Waterfall: Follows a strict linear progression from requirements to deployment.

V-model: Follows a similar sequence but emphasizes corresponding testing phases for each development stage.

2. **Testing Approach:**

Waterfall: Testing is performed only after the development phase is completed.

V-model: Testing activities are planned in parallel with each development phase, ensuring early detection of issues.

3**. Feedback Loops:**

Waterfall: Limited feedback occurs until the testing phase at the end.

V-model: Built-in feedback loops exist, allowing earlier validation and corrections at every stage.

4. **Validation of Requirements:**

Waterfall: Requirements are validated at the end during the testing phase.

V-model: Each requirement is matched with a corresponding test case early on, ensuring ongoing validation.

5. **Risk Mitigation:**

Waterfall: Risks may be discovered late, potentially increasing rework.

V-model: Risks are mitigated early through continuous testing and review.

6. **Quality Assurance Focus:**

Waterfall: Quality assurance mainly occurs during the testing phase.

V-model: Quality is built into every stage, with verification activities integrated throughout.

7. **Defect Identification**:

Waterfall: Defects often surface during the final testing stage.

V-model: Defects are caught early by linking each development phase to a specific testing phase.

8. **Documentation Alignment:**

Waterfall: Documentation is produced as the project moves through each phase, with testing documentation coming at the end.

V-model: Documentation is closely aligned with both development and its corresponding testing, providing clear traceability.

9. **Change Management**:

Waterfall: Changes are harder to accommodate once a phase is completed.

V-model: The early focus on testing allows changes to be incorporated before moving too far into development.

10. **Cost Implications**:

Waterfall: Late detection of issues can lead to higher rework costs.

V-model: Early and continuous testing helps reduce the cost of fixing defects.

11. **Process Structure:**

Waterfall: Follows a straight, one-way process with little overlap between phases.

V-model: Uses a “V” shape to show that for every design activity there is a corresponding testing activity.

12. **Time to Feedback:**

Waterfall: Feedback is delayed until after implementation is finished.

V-model: Feedback is received at each stage, allowing for more timely improvements.

13. **Customer Involvement:**

Waterfall: End-user input is typically gathered only during the requirements phase and later testing.

V-model: Although not as iterative as Agile, it promotes more regular checks that can involve stakeholders in the validation process.

14. **Approach to Verification and Validation**:

Waterfall: Emphasizes validation (ensuring the product meets requirements) primarily at the end.

V-model: Balances both verification (are we building the product, right?) and validation (are we building the right product?) at every level.

15. **Suitability for Stable Requirements:**

Waterfall: Best when requirements are completely stable and unchanging.

V-model: Also, best for stable requirements, but its integrated testing makes it a better choice when quality is critical.

16. **Complexity Handling:**

Waterfall: May struggle with complexity if requirements evolve.

V-model: Better suited for complex systems because early testing helps manage potential complications.

17. **Emphasis on Early Testing**:

Waterfall: Testing is postponed until after implementation.

V-model: Emphasizes early testing, reducing the chances of major issues later.

18. **Project Control:**

Waterfall: Provides control through well-documented phases, but lacks checkpoints for early validation.

V-model: Offers more control through continuous checks, ensuring alignment with business requirements.

19. **Process Transparency:**

Waterfall: The linear progression can make it hard to know the quality of earlier stages until final testing.

V-model: Transparency is improved because each phase is immediately followed by a corresponding test, clarifying progress.

20. **Suitability for Critical Systems:**

Waterfall: Used in many projects but may not offer sufficient quality control for critical systems.

V-model: Often preferred for safety-critical or high-quality systems because its focus on validation and verification at every stage increases overall reliability.

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

Ans: As a Business Analyst, I recommend the V-Model for this project because it ensures early validation of requirements and allows testing to be integrated throughout the development process. Since this project involves direct interaction between farmers and suppliers, system accuracy, reliability, and user satisfaction are critical. The V-Model allows for early detection of issues, reducing rework and ensuring the final product aligns with business goals and user expectations.

**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.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| RESOURCES | Week 1 | Week 10  | Week 20 | Week 29 | Week 38 | Week 46 | Week 55 | Week 65 | Week 73 | Week 78 |
| Project Manager |  |  |  |  | 1 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Business Analyst |  |  |  |  | 1 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Java Developer |  |  |  |  | 5 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| DB Admin |  |  |  | 1 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Testers |  |  |  |  | 2 |  |  |  |   |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Network Admin |  |  |  |  | 1 |  |  |  |  |  |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Week 1 | Week 10  | Week 20 | Week 21-28 | Week 29-32 | Week 33-38 | Week 39-42 | Week 43-46 | Week Week47-5051-54 Week Week 55-58 59-62 | Week 63-72 |
|  | RG |  |  |  |  |  |  |  |  |
|  |  | RA |  |  |  |  |  |  |  |
|  |  |  | DESIGN |  |  |  |  |  |  |
|  |  |  | D1 | T1 | D2 | T2 | D3 | T3 D4 T4 UAT | DEPLOYMENT&SUPPORT |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  | DB ADMIN |  |  |  |  |  |  |
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|  |  | NETWORK ADIN |  |  |  |  |  |  |  |
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**Q13, Explain the difference between Fixed bid and Billing projects.**

Ans: Difference Between Fixed Bid and Billing Projects

1. Fixed Bid Project:

A Fixed Bid project is one where the total cost of the project is agreed upon at the beginning, regardless of how much time or effort it actually takes to complete. This model works best when the project scope is clear, stable, and well-defined.

The client and vendor agree on a fixed price.

The service provider bears most of the risk.

Any changes to the scope may require a new agreement.

Budget is fixed; the client knows the cost upfront.

Less flexibility for changes once the project starts.

Best suited for short-term projects with defined requirements.

Example: Building an online store with specific, unchanging features and a fixed delivery timeline.

2. Billing (Time & Material) Project:

A Billing or Time & Material project is one where the client pays based on the actual time and resources spent. The scope can be flexible, and it allows for ongoing changes and iterative development.

The client is billed based on hourly, daily, or monthly rates.

The client bears the risk of increased costs.

Suitable when project scope is not clearly defined or might change.

Budget is flexible and depends on how long the work takes.

Allows for ongoing changes and feedback during development.

Best suited for long-term or evolving projects.

Example: Enhancing an existing application where features evolve based on user feedback.

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**Q14, Prepare Timesheets of a BA in various stages of SDLC**

**Design Timesheet of a BA**

**Development Timesheet of a BA**

 **Testing Timesheet of a BA**

 **UAT Timesheet of a BA**

 **Deployment n Implementation Timesheet of a BA**

**Ans:**

**Design Timesheet of a BA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO** | **Tasks** | **Actionable items** | **Start time** | **End time** | **Duration** |
| **1** | Review Requirements Document | Go through BRD/SRS thoroughly | 10:00 am | 11:00 am | 1 hour |
| **2** | Create wire frames | Prepare and develop initial wireframes for user interface | 11:00 am | 1:00 pm | 2 hours |
| **3** | Discuss design with developers | In-person meeting with tech team for feasibility | 2:00 pm | 3:00 pm | 1 hour |
| **4** | Update design Documents | Review and refine user interface and user experience specifications and business workflows | 3:30 pm | 4:30 pm | 1 hour |
| **5** | Internal review with PM &Team | Walk through of updated design documents | 4:30 pm | 7:00 pm | 2.5 hours |
|  |  |  |  |  | 7.5 hrs |

**Development Timesheet of a BA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO** | **Tasks** | **Actionable items** | **Start time** | **End time** | **Duration** |
| **1** | Clarify use cases with development team | Review of business rules and regulatory guidelines | 10:00 am | 11:30 am | 1.5 hours |
| **2** | Respond to developer queries | Through virtual or offline meetings for clarifying requirements | 11:30 am | 1:00 pm | 1.5 hours |
| **3** | Update traceability matrix | Mapping BRD/SRS to features being built | 2:00 pm | 3:00 pm | 1 hour |
| **4** | Review user interface elements | Match development with user experience mock ups | 3:00 pm | 4:00 pm | 1 hour |
| **5** | Internal BA testing for logic validation | Validate key work flows or main steps and raise clarifications | 4:00pm | 5:30 pm | 1:5 hours |
| **6** | Documentation update | Modify BRD if business changes occur during development | 5:30 pm | 6:30 pm | 1 hour |
|  Total Duration: 7.5 hours |

**Testing Timesheet of a BA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO** | **Tasks** | **Actionable items** | **Start time** | **End time** | **Duration** |
| **1** | Review test plan | Understand the test objectives and strategies | 10:00 am | 11:00 am | 1 hour |
| **2** | Validate test scenarios | Cross-check test cases with BRD/SRS | 11:00 am | 1:00 pm | 2 hours |
| **3** | Requirements Traceability Matrix | Map requirements to test cases | 2:00 pm | 3:00 pm | 1 hour |
| **4** | Clarify business rules and regulatory guidelines for testers | Provide support on logic gaps | 3:30 pm | 4:30 pm | 1 hour |
| **5** | Decision making and defect meeting | Discuss and prioritize defects | 4:30 pm | 7:00 pm | 2.5 hours |
|  |  |  |  |  | 7.5 hrs |

**UAT Timesheet of a BA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.NO** | **Tasks** | **Actionable items** | **Start time** | **End time** | **Duration** |
| **1** | Prepare UAT test scenarios | Drafted UAT scenarios based on business requirements | 10:00 am | 11:00 am | 1 hour |
| **2** | Review UAT scripts with quality assurance | Walk through of UAT cases with QA and SME | 11:00 am | 12:30 pm | 1.5 hours |
| **3** | Coordinate with users for UAT schedule | Setup calls and shared UAT Calendar and documentation | 12:30 pm | 1.30 pm | 1 hour |
| **4** | Monitor UAT execution | Observed test execution, recorded observations | 2:00 pm | 3:30 pm | 1.5 hours |
| **5** | Capture and bug review of UAT issues | Logged feedback, created defect list and severity issues | 3:30 pm | 5:00 pm | 1.5 hours |
| **6** | UAT sign off prep and stakeholder update | Prepared Summary and shared with stakeholders | 5:00 pm | 6:30 pm | 1.5 hours |
|  Total Duration: 7.5 hours |

**Deployment n Implementation Timesheet of a BA**

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| --- | --- | --- | --- | --- | --- |
| **S.NO** | **Tasks** | **Actionable items** | **Start time** | **End time** | **Duration** |
| **1** | Final Go-live checklist | Review checklist with stakeholders | 10:00 am | 11:00 am | 1 hour |
| **2** | Deployment Co-ordination | Coordinate with Developers/QA/infra teams during release | 11:00 am | 12:30 pm | 1.5 hours |
| **3** | Production Verification | Validate data, access and configurations in live environment | 1:30 pm | 2:30 pm | 1.5 hour |
| **4** | Post – Go live Support | Assist with user queries and fix clarifications | 2:30 pm | 4:00 pm | 1.5 hour |
| **5** | Feedback and closure reports | Collect feedback, lessons learned and update closure reports | 4:00 pm | 6:00 pm | 2.0 hours |
|  | Total duration: |  |  |  | 7.5 hrs |