**Nurturing Process - Capstone Project1 – Part -1/3 V2D1- Mar2024**

**COEPD – Traditional Development**

**Capstone Project1 – Part -1/3**

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.

**Question – 1: BPM**

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

1. **Goal:**

To build a platform in the form of Website/Application which will connect Farmers to get the high-end Agricultural products directly from the Manufacturing Companies and improve the overall efficiency.

1. **Inputs:**

* Seeds, Fertilizers and Pesticides
* Digital Platform i.e Website and Mobile Application
* Online Payments Partners for Payments
* Delivery Partners for the delivery of goods
* Customer Support Mechanism like 24/7 Support Number, email and FAQs.
* An IT Team consisting of Product Manager, BA, QA, Developers, UI/UX Designers.

1. **Resources:**

* IT infrastructure such as Computers, Servers, Storage, Connectivity in Low end systems and internet speed.
* Distribution Network for Agricultural Products and Distributors
* APT IT Team for building the System
* Core Stakeholders: Peter, Kevin and Ben
* Committee members: Mr Henry, Mr. Pandu and Mr. Dooku

1. **Outputs:**
   * Operational Digital Platforms like e-Commerce website and Application where Farmers can Search and Buy Agricultural Products.
   * Manufacturers can list and manage their products.
   * Products shipped to the remotest area to the farmer.
   * Payments are managed
   * Agricultural Produce is increased by healthy margin.
2. **Activities:**
   * **Requirements Gathering and Planning:**
     1. Conduct meetings with Stakeholders(Farmers, Manufactures, Sponsors)
     2. Prepare Technical and Functional Document
     3. Prepare a plan according to the proposed Timeline i.e. 18 Months
     4. Plan the resources according to the allotted Budget i.e 2 Cr.
   * **System Design and Development:**
     1. Prepare User-friendly UI/UX
     2. Develop Farmer Interface, Manufacture Interface and Admin Panel
     3. Set up Database for Storage and Servers for maintaining the system.
   * **Quality Assurance:**
     1. Perform Functional and Non-Functional Testing
     2. Fix the Bugs in time and improve the Usability of the Platform.
   * **Deployment and Training:**
     1. Deploy the Application in designated time line.
     2. Train Farmers and Manufacturers to use the platform.
     3. Prepare the Videos for usability and Troubleshooting
     4. Provide Customer Support
3. **Value created to the end Customers:**
   * Convenient access to High-Quality goods at reasonable rates.
   * Easy to Order, Track and get the goods on time.
   * Better Produce due to timely availability of Seeds, Fertilizers and Pesticides.
   * It will enable farmers to be independent and helps in making more profits
   * Farmers will have the right to provide feedback and Manufacturers will have the opportunity to improve more.

**Question – 2: SWOT**

**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.**

Being a BA I can provide some suggestions to consider in the SWOT analysis.

1. **Strengths:**
   * The company’s clear goal is to challenge Agricultural hurdles and provide access to all the essential products for better Output.
   * Utilize Mr. Henry’s wealth and connections for brand marketing and outreach.
   * As the project is funded under CSR, it will benefit the brand value of the company and will ensure the financial stability also.
   * APT IT solutions is having highly talented team.
   * The product addresses actual pain points of the farmers, the Platform will be highly useful and more products can also be added in the future.
2. **Weaknesses:**
   * Many remote farmers will face initial challenges due to lack of system knowledge due to their non-technical background.
   * Farmers will require apt training and Live Customer Support to resolve their queries.
   * There can be logistical issues to deliver the products due to lack of infrastructure.
   * Internet connectivity will be a challenge as many remote areas don’t have proper Internet access.
   * Fixed Timeline of 18 Months can become a serious challenge to deliver the project in the designated timeline.
   * Technical challenges need to be addressed as the Platform will be integrated with multiple Manufacturers and need for a smooth Payment/Delivery system.
3. **Opportunities:**
   * By taking the initiative of Digital Agro Platform, Government and Private Players can bring Revolution in farming solutions.
   * Platform can be further expanded beyond Fertilizers, seeds, etc.
   * It can open New Avenues for Agri-Tech Firms which uses IT and AI to monitor the Crop and provide better farming suggestions.
   * The project will allow all the members to gain experience in the Agriculture domain.
4. **Threats:**
   * Other big Companies might enter the Agri-tech commerce Domain as they already have huge budgets and expertise in the e-Commerce domain.
   * Farmers may not get Products in time due to Supply chain issues or delays from Manufacturers.
   * Chances of Sub-standard products can be there as it is an open platform. It might affect the user.
   * Government Policies and Regulations related to Pesticides/Fertilizer can impact the Project due to Safety and Transportation standards.

**Question – 3: Feasibility Study**

**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 the feasibility Study.**

1. **Hardware Requirements:**
   * Identify the types of Hardware such as
     1. Servers: Cloud-based Servers or On-Premises Servers
     2. Database and Storage
     3. Infrastructure compatible with low-end devices and poor reception of end-users' internet.
2. **Software Requirements:**
   * Programming languages and Framework must be decided for both Web and Mobile Platform.
   * Any Third-Party Software components or APIs are required to build the Application.
   * Hosting, Deployment, Security, Compliance and Payment Gateway Integration.
3. **Trained Resources Availability:**
   * Project Manager (1) – Mr. Vandanam
   * Senior Java Developer (1) – Ms. Juhi
   * Java Developers (4) – Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo
   * Database Administrator (1) – Mr. John
   * Network Administrator (1) – Mr. Mike
   * Testers (2) – Mr. Jason & Ms. Alekya
   * Business Analyst (1) – Me(Jaimin Shah)

**Feasibility of Resources:**

* Ensure all the resources are familiar with the Java-based Applications
* Ensure proper training is given if resources are not familiar
* Evaluate the availability of resources and hire new ones if possible

1. **Budget Considerations (2 Crores):**
   * Consider the Cost of the Hardware Components and Software Licenses.
   * Consider the Salaries of people involved in the Project
   * Consider Legal and Administrative Costs.
   * Ensure that the Project gets completed within the allocated Funds and timeframe.
2. **Time Frame (18 Months) Feasibility:**
   * **The proposed feasibility to complete the project within the given timeline is as follows:**
     1. **2 Months** - Requirements gathering and Planning.
     2. **2.5 Months** – Design and System Architecture
     3. **7 Months** – Development (both Web and Mobile)
     4. **3 Months** – Quality Assurance
     5. **2 Months** – Training and Deployment in Phases
     6. Maintenance, Prod Bug Fixes and Enhancements

**Question – 4: GAP Analysis**

**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**

**GAP Analysis for Online Agriculture Store**

As a Business analyst, it is important to showcase the GAP Analysis. It will compare the AS-IS(Existing Process) with the TO-BE (Future Process).

This will help the Stakeholders understand the Value addition of this entire Project.

GAP Analysis in the Following Table will display the GAPs identified in the Current Process.

**GAP Analysis Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Aspect** | **AS-IS (Existing Process)** | **TO-BE (Future Process)** | **GAP Identified** |
| **Product Procurement** | Farmers were traveling long distances to buy products. | Farmers can purchase products online from their location. | Reduced travel time, cost, and effort. |
| **Product Availability** | Limited choices; Monopoly of Local Shops. | Access to a wide variety of products from multiple manufacturers. | Improved product availability and variety. |
| **Price Transparency** | Prices vary; no standard pricing; chances of exploitation. | Transparent and standardized pricing from manufacturers. | Fair pricing and reduced middlemen exploitation. |
| **Farmer-Manufacturer Interaction** | No direct communication; have to rely on the middleman. | Direct communication between farmers and manufacturers. | Better understanding of product details and offers. |
| **Order Placement** | Manual, time-consuming process; subject to availability. | Quick online ordering with real-time stock visibility. | Streamlined and efficient ordering process. |
| **Delivery Mechanism** | Farmers handle their own transportation. | Home delivery services to farmers' locations. | Convenient and reliable delivery system. |
| **Product Information Access** | Limited or no information on product usage or quality. | Detailed product descriptions, reviews, and usage guidelines online. | Informed decision-making for farmers. |
| **Payment Process** | Cash transactions; risks of fraud and inconvenience. | Secure digital payment options and cash-on-delivery facilities. | Safer and more flexible payment methods. |
| **Support & Assistance** | No after-sales support; difficult to get help. | Customer support for queries, complaints, and guidance. | Improved customer service and satisfaction. |
| **Market Reach (For Manufacturers)** | Limited to local markets and dealers. | Expanded reach to remote areas and a larger farmer base. | Increased sales opportunities for manufacturers. |
| **Operational Efficiency** | Manual operations lead to delays and inefficiencies. | Automated order processing, inventory management, and delivery tracking. | Enhanced operational efficiency and faster fulfilment. |
| **Data Analytics & Insights** | No data tracking or market insights. | Data-driven insights for manufacturers and farmers (e.g., demand trends). | Better decision-making through analytics. |
| **Training & Awareness** | Farmers lack awareness of new products and technologies. | Platform provides product tutorials and agricultural tips. | Empowered farmers with up-to-date knowledge. |

The GAP Analysis demonstrates significant improvements in product accessibility, operational efficiency, and customer experience with the Online Agriculture Store.

Initiate the project to bridge these gaps and transform the agricultural procurement process for farmers and manufacturers.

**Question – 5: Risk Analysis**

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

As a Business Analyst, there a several Risk Factors which needs to be taken into consideration while Planning for the Project. Risk Factors can be further Categorized into 2 categories:

* Business Analyst (BA) Risks
* Process/Project Risks

1. **Business Analyst (BA) Risks:**

* Partial understanding of the Agriculture Domain and incomplete Requirements Gathering due to unclear communication with Farmers and Manufacturers.
* Requirements can keep changing till the end of the project due to lack of vision and Business knowledge.
* Farmers/Manufacturers may not participate while discussing the requirements as the lack the Technical and Business knowledge.
* Many requirements might seem Vague or unrealistic while developing the System.
* Language barrier of remote farmers and unclear requirements may become hurdles for the development team.
* Inevitable changes can extend the initial timeline.
* Some Stakeholders might get missed while doing requirements gathering. Some examples are outlined below:
  + Small Parts manufacturer
  + Raw materials provider to make some fertilizers.

1. **Process/Project Risks:**
   * Partial to No Network in the remotest areas where Users can face difficulties in accessing the System.
   * Issues with integrating Technology and Budget may increase due to Changing Requirements, which can lead to miss the actual deadline of the Project
   * Changes in requirements and miscommunication during the analysis will hamper the quality of the product.
   * Logistical and Service Risks in remote areas due to lack of infrastructure and unforeseen circumstances.
   * Security and Privacy challenges with online Payments and Data sharing while making transactions.
   * Resistance from the Farmers to accept the change from traditional methods of Purchase.
   * Competition from Local Players, who are already in business.

It is important to identify and mitigate aforementioned some of the risks to ensure success of the Project. As a BA it is important to work with the entire team and develop a comprehensive plan in case of any unwanted circumstances.

**Question – 6: Stakeholder Analysis (RACI Matrix)**

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

The **RACI Matrix** is a tool to identify roles and responsibilities of stakeholders in the project.

* **R (Responsible)**
* **A (Accountable)**
* **C (Consulted)**
* **I (Informed)**

The following are Key stakeholders of this Project:

|  |  |
| --- | --- |
| Stakeholder | Role |
| Mr. Henry | Project Sponsor |
| Mr. Pandu | Financial Head (SOONY) |
| Mr. Doku | Project Coordinator (SOONY) |
| Peter, Kevin, Ben | Farmers & Stakeholder Representatives |
| Mr. Karthik | Delivery Head (APT IT SOLUTIONS) |
| Mr. Vandanam | Project Manager (APT IT SOLUTIONS) |
| Ms. Juhi and Team | Development Team |
| Mr. Mike | Network Administrator |
| Mr. John | DBA |
| Mr. Jason & Ms. Alekya | QA Team |
| Jaimin Shah (Me) | BA |
| Farmers & Manufacturers | End Users |
| Logistics Partner | Delivery Service Provider |

**RACI Matrix:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tasks/Activities | Mr. Henry | Mr. Pandu | Mr. Dooku | Peter, Kevin, Ben | Mr. Karthik | Mr. Vandanam | Dev Team | BA | QA | Farmers & Manufacturers | Logistics Partner |
| Decision making & Funding | **A** | **R** | **C** | **I** | **C** | **I** | **I** | **I** | **I** | **I** | **I** |
| Requirement Gathering | **I** | **I** | **C** | **C** | **I** | **C** | **I** | **R** | **I** | **C** | **I** |
| Design & Architecture | **I** | **I** | **C** | **C** | **C** | **A** | **R** | **C** | **I** | **I** | **I** |
| Planning | **A** | **R** | **C** | **I** | **C** | **I** | **I** | **I** | **I** | **I** | **I** |
| Development | **I** | **I** | **I** | **I** | **C** | **C** | **R** | **C** | **I** | **I** | **I** |
| QA | **I** | **I** | **I** | **I** | **C** | **C** | **C** | **C** | **R** | **I** | **I** |
| Decision Making in Scope Changes | **A** | **C** | **C** | **C** | **R** | **C** | **I** | **C** | **I** | **I** | **I** |
| Deployment | **I** | **I** | **I** | **I** | **C** | **A** | **C** | **C** | **C** | **I** | **R** |
| Training & Support | **I** | **I** | **I** | **I** | **C** | **C** | **I** | **R** | **I** | **C** | **I** |
| Delivery & Logistics | **I** | **I** | **I** | **I** | **I** | **I** | **I** | **I** | **I** | **I** | **R** |
| Maintenance | **I** | **I** | **I** | **I** | **C** | **A** | **R** | **C** | **C** | **I** | **I** |
| Stakeholder Communication | **A** | **C** | **R** | **C** | **C** | **R** | **I** | **R** | **I** | **I** | **I** |

From the above RACI Matrix, we can see that Mr. Henry, as the initiator of the project and is accountable for the project's success, while the APT IT SOLUTIONS company and team are responsible for delivering the project. Mr. Pandu, the Financial Head, is responsible for managing the project budget, while Mr. Dooku provides guidance and support to the project team. Peter, Kevin, and Ben are consulted for their requirements and feedback.

**Question – 7: Stakeholder Analysis (RACI Matrix)**

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

1. **Executive Summary**

* The purpose of this business case is to propose the development of an Online Agriculture Products Store to facilitate remote area farmers to buy agricultural products. The platform will connect farmers directly with manufacturers of fertilizers, seeds, and pesticides, improving product accessibility, transparency, and convenience. This initiative, under the CSR program of SOONY Company, has a budget of ₹2 Crores and an 18-month timeline.

1. **Problem Statement**
   * Farmers face the following challenges in acquiring essential agricultural products:
   * Limited Product availability
   * Hight Product Cost due to distributor Network
   * Time consuming procurement process
   * Lack of transparency and product information
2. **Proposed Solution**
   * Goal is to develop an online Agriculture Products Store in both Web and Mobile Platform. The application will have following features:
     + Farmers can browse, select and order the Products online.
     + All the information related to the Products will be in the Product Info Section.
     + Farmers and Manufacturers can directly communicate.
     + Secure Payment options and efficient delivery.
     + User friendly interface and ease of navigation.
3. **Goals and Objectives**
   * **Primary Goal:** Facilitate seamless procurement of agricultural products for remote-area farmers.
   * **Objectives:**
     + Increase product accessibility and variety.
     + Improve price transparency.
     + Reduce procurement time and costs.
     + Enhance farmer-manufacturer communication.
4. **Stakeholder Analysis (RACI Overview)**
   * **Decision Makers:** Mr. Henry, Mr. Pandu, Mr. Karthik, Mr. Vandanam
   * **Influencers:** Peter, Kevin, Ben (Farmer Representatives), Farmers & Manufacturers
   * **Execution Team:** Development, Testing, and Network/DB Administration teams
5. **SWOT Analysis Summary**
   * **Strengths:** Experienced team, strong sponsor backing, clear objectives.
   * **Weaknesses:** Limited digital literacy among target users, potential scope changes.
   * **Opportunities:** Expand to other agricultural services, government partnerships.
   * **Threats:** Connectivity issues in remote areas, market competition.
6. **Feasibility Study Overview**
   * **Hardware:** Scalable servers and secure infrastructure.
   * **Software:** Java-based application, secure payment gateways.
   * **Resources:** Skilled development team and testers.
   * **Budget:** ₹2 Crores allocated.
   * **Timeline:** 18 months with clear milestones.
7. **GAP Analysis Overview**

|  |  |  |  |
| --- | --- | --- | --- |
| Aspect | AS-IS Process | TO-BE Process | Gap Identified |
| Procurement | Manual and Local | Online and Direct | Reduced Cost and Time |
| Communication | Through Middleman | Direct with Manufacturers | Improved Quality |
| Product Information | Limited Access | Detailed Online Information | Informed Decisions |

1. **Risk Analysis**
   * **BA Risks:** Incomplete requirements, continuous change in Scope.
   * **Project Risks:** Budget overruns, timeline delays and technology integration challenges.
   * **Mitigation:** Regular stakeholder meetings, change control processes and comprehensive testing.
2. **Cost-Benefit Analysis**
   * **Costs:** Development, hardware/software, logistics.
   * **Benefits:** Time and cost savings for farmers, expanded market reach for manufacturers, enhanced rural economy.
3. **Conclusion**
   * The proposed solution will address the procurement challenges and it will offer a better Online platform for both Manufacturers and Farmers (Online Agriculture Store) with all the possible transparency.

**Question – 8: Four SDLC Methodologies**

**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**

The **Software Development Life Cycle (SDLC)** is a structured process used for developing software applications. It consists of several stages, including:

1. **Requirement Gathering and Analysis**
2. **Design**
3. **Development**
4. **Testing**
5. **Deployment**
6. **Maintenance**
7. **Sequential Methodology (Waterfall Model)**
   * The Sequential methodology, often referred to as the Waterfall model, is a linear and structured approach where each phase of the SDLC is completed before moving to the next. For example, requirements must be fully documented before design begins, and design must be finalized before development starts.
   * **Advantages:**
     + Simple to understand and manage, well-defined phases, suitable for projects with stable requirements.
     + Easy to manage and track progress.

* **Disadvantages:**
  + Lacks in flexibility, changes are difficult and expensive, limited user feedback until late stages.
  + Not suitable for complex or evolving projects.

1. **Iterative Methodology**
   * In the Iterative methodology, the project is divided into smaller cycles or iterations. Each iteration involves planning, design, development, and testing, allowing incremental improvements.
   * **Advantages:**
     + Feedback is incorporated after each iteration, improving the final product.
     + Reduces risks by addressing issues early in the process.
   * **Disadvantages:**
     + Requires more frequent communication and collaboration.
     + Each iteration must be well-defined or may lead to scope creep.
2. **Evolutionary Approach (Prototype Model / Spiral Model)**
   * The Evolutionary methodology focuses on developing a system incrementally, starting with a basic version and gradually adding features based on user feedback. It is particularly useful when requirements are unclear or likely to change.
   * **Advantages:**
     + High adaptability to changing requirements.
     + Reduces Project Failure Risks having unclear requirements.
   * **Disadvantages:**
     + More expensive due to Multiple Cycles of Development
     + Requires close collaboration with stakeholders throughout the process.
3. **Agile Methodology**
   * Agile is a flexible and collaborative approach that emphasizes iterative development, continuous feedback, and customer satisfaction. Agile breaks the project into small, manageable increments called "sprints," typically lasting 1-4 weeks.
   * **Advantages:**
     + Highly adaptable to changing requirements.
     + Encourages team collaboration and user involvement.
   * **Disadvantages:**
     + Requires a high level of team coordination and communication.
     + Can be challenging to estimate timelines and costs accurately.

Each methodology has its advantages and disadvantages, and the choice of methodology will depend on the specific needs of the project. It is essential to consider factors such as project requirements, project scope, team size, budget, and timeline before choosing the methodology.

**Question – 9: Waterfall RUP Spiral and Scrum Models**

**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?**

As a business analyst, I would consider the characteristics and requirements of the project to determine which methodology would be better suited: the V model or the waterfall model.

V-Model is more suitable than Waterfall for this Project. The explanation is as follows:

* **Early Testing and Validation**: The V-Model ensures that each phase is verified and validated, reducing the risk of defects in the final product.
* **High-Quality Deliverables**: Since the application will be used by farmers in remote areas, it must be reliable and user-friendly. The V-Model's focus on quality aligns with this requirement.
* **Clear Requirements**: The project's requirements are well-defined, making the V-Model a suitable choice.

**Question – 10: Waterfall Model VS V- Model**

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

|  |  |  |
| --- | --- | --- |
| **Aspect** | **Waterfall Model** | **V-Model** |
| **Structure** | Linear and sequential approach | V-shaped approach emphasizing verification and validation. |
| **Development Flow** | Step-by-step process; testing occurs after development | Each development phase has a corresponding testing phase |
| **Flexibility** | Inflexible; changes are difficult to implement once a phase is completed. | More flexible than Waterfall; allows for early testing and identification of defects. |
| **User Involvement** | Limited user involvement until the testing phase. | Encourages user involvement throughout the process to validate requirements and design. |
| **Risk Management** | Higher risk due to late testing | Lower risk as defects are caught early |
| **Project Suitability** | Best for well-defined projects with stable requirements | Suitable for projects with clear requirements and a need for high reliability. |
| **Customer Involvement** | Limited to the beginning and end of the project | Limited, but quality is ensured through validation |
| **Documentation** | Extensive documentation required before development begins | Requires detailed test documentation along with development documents |
| **Complexity** | Simple and easy to manage | More complex due to parallel testing |

**Question – 11: Justify your choice**

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

As a Business Analyst (BA), I recommend adopting the **V-model** for several compelling reasons:

1. **Structured Development Process:**
   1. The V Model provides a clear and structured approach to software development.
   2. Each phase of development corresponds directly to a testing phase, ensuring that every aspect of the application is validated against requirements.
2. **Emphasis on Verification and Validation:**
   1. The V Model emphasizes verification and validation at each stage of development.
   2. This engagement will help us identify gaps in requirements early and adjust accordingly, leading to a more user-centric product.
3. **Clear Milestones:**
   1. The V Model allows for the establishment of clear milestones throughout the project.
   2. This helps in tracking progress and ensures that the project remains on schedule.
4. **Risk Mitigation:**
   1. By integrating testing into each phase of development, the V Model helps identify and address issues early in the process.
   2. This proactive approach to risk management is crucial for minimizing potential setbacks and ensuring a smoother development experience.
5. **Collaboration and Communication:**
   1. Agile promotes close collaboration between the development team, stakeholders, and the BA.
   2. Frequent communication and feedback loops ensure everyone is aligned on the project goals.
6. **Structured and Well-Defined Requirements**
   1. The structured nature of the V Model can instill confidence in stakeholders, including farmers and manufacturers, as they can see a clear path from requirements to delivery.
   2. Regular updates and testing results can be shared with stakeholders, keeping them informed and engaged throughout the project.

**Summary:**

Therefore, I can say that the V-model is best for this project as it has clear Requirements.

It reduces the risks and ensures thorough testing throughout the development process.

**Question – 12: Gantt Chart**

**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.**

The Gantt Chart for the following V-model phases is as follows:

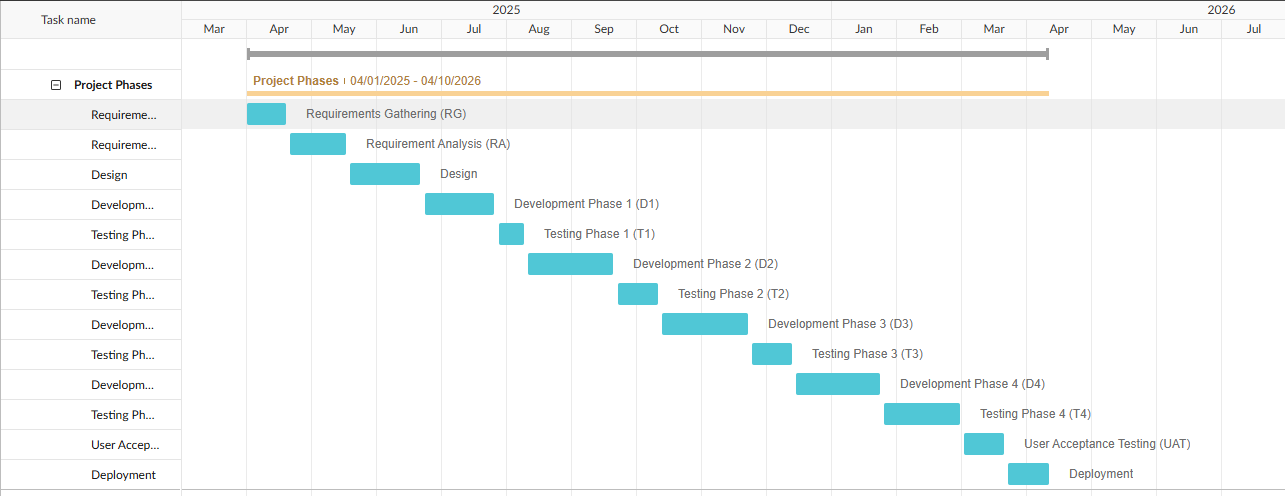
**Development Process:**

* **Requirements Gathering (RG)**: Collecting detailed requirements from stakeholders.
* **Requirements Analysis (RA)**: Analyzing and documenting the requirements.
* **Design**: Creating the architecture and design of the application.
* **Development Phases (D1, D2, D3, D4)**: Implementing the application in stages.
* **Testing Phases (T1, T2, T3, T4)**: Conducting various tests to ensure functionality and quality.
* **User Acceptance Testing (UAT)**: Final testing phase where stakeholders validate the application before deployment.

**Resource Allocation:**

The project will utilize the following resources:

* **Project Manager (PM):** Mr. Vandanam
* **Business Analyst (BA):** Me
* **Java Developers:** Responsible for coding and implementation.
* **Testers:** Ensuring quality through rigorous testing.
* **Database Administrator (DB Admin):** Managing the database.
* **Network Administrator (NW Admin):** Ensuring network stability and performance.



The above Gantt Chart displays the following information for the V-Model approach and outlines the following information:

* **Project Phases** (RG, RA, Design, D1-T1, ..., Deployment).
* **Timeline** (starting from April 1, 2025 and ending by April 10, 2026).
* **Resource Allocation** (PM, BA, Java Developers, Testers, DB Admin, Network Admin).

**Question – 13: Fixed Bid Vs Billing**

**Explain the difference between Fixed Bid and Billing projects**

**Fixed Bid Project:**

A Fixed Bid Project is characterized by a predetermined total price for the entire project, agreed upon before the work begins.

**Advantages:**

* Typically, these projects have a well-defined scope and deliverables, which can lead to clear expectations.
* Here, the cost is fixed at 2 Cr. INR and timeline is also fixed for 18 months.

**Disadvantages:**

* If project requirements change or unforeseen issues arise, the fixed price may not cover the additional work, leading to potential disputes.
* If the project takes longer than anticipated, the contractor absorbs the extra costs, which can affect profitability.

**Billing Project (Time and Material):**

It is often referred as Time and Materials contracts, involve billing based on the actual time spent and materials used. This means clients are charged for the hours worked and any materials or resources utilized during the project.

**Advantages:**

* This model allows for adjustments in scope and requirements without the need for renegotiation of the contract.
* The client is billed based on the actual time spent by the project team (e.g., hourly rates for developers, BAs, etc.) plus the cost of materials.
* The total cost is not fixed upfront, which brings more transparency to the client.

**Disadvantages:**

* Project Cost can escalate if the project takes longer than expected, making it harder for clients to manage their budgets.

This project has a well-defined budget, duration, and scope. Apart from this the Fixed Bid model is the most suitable and has rightly been chosen by Mr. Henry’s committee.

APT IT SOLUTIONS must manage resources efficiently to ensure delivery within the 2 Crore INR and 18-month time frame.

**Question – 14: 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 and Implementation Timesheet of a BA**

1. **Design Timesheet of a BA:**

|  |  |
| --- | --- |
| Employee Name | Jaimin Shah |
| Department | Business Analysis |
| Activity | Design Timesheet |
| Reporting to: | Mr. Vandanam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Task** | **Hours** |
| **Week1** | 01-April-2025 | Stakeholder Analysis | 3 |
|  | Eliciting Req. from Stakeholders | 5 |
| 02-April-2025 | Eliciting Req. from Stakeholders | 8 |
| 03-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| 04-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| **Week 2** | 07-April-2025 | Sorting Requirements | 2 |
|  | Prioritizing Requirements | 2 |
|  | Assess Requirement Changes | 4 |
| 08-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| 09-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| 10-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| 11-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| **Week 3** | 14-April-2025 | Sorting Requirements | 2 |
|  | Prioritizing Requirements | 2 |
|  | Assess Requirement Changes | 4 |
| 15-April-2025 | Requirements Documentation | 6 |
|  | Requirements Confirmation | 2 |
| 16-April-2025 | Testcases Preparation | 6 |
|  | Allocate requirements and Identify improvements | 2 |
| 17-April-2025 | Assess Design Options | 4 |
|  | Estimate Cost and Benefits | 4 |
| 18-April-2025 | Communicate with Client about Design and Solutions | 5 |
|  | Recommend New Solutions | 3 |
| **TOTAL HOURS** | | | **112** |

1. **Development Timesheet of a BA:**

|  |  |
| --- | --- |
| Employee Name | Jaimin Shah |
| Department | Business Analysis |
| Activity | Design Timesheet |
| Reporting to: | Mr. Vandanam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Task** | **Hours** |
| **Week1** | 21-April-2025 | Specify Requirements | 4 |
|  | Model Req. using Use Case Diagrams and Matrices | 4 |
| 22-April-2025 | Verify Requirements | 4 |
|  | Validate the Requirements | 3 |
|  | Define Business Requirements | 1 |
| 23-April-2025 | Assess requirement changes | 4 |
|  | Analyse and Add New changes | 4 |
|  | 24-April-2025 | Prepare Mockups and Workflow | 8 |
|  | 25-April-2025 | Analyse the requirements with end user perspective | 8 |
| **Week 2** | 28-April-2025 | Analyse Requirements | 8 |
| 29-April-2025 | Analyse Requirements | 8 |
| 30-April-2025 | Verify the Requirements | 4 |
|  | Validate Requirements | 4 |
| 01-May-2025 | Assess Requirements Changes | 4 |
|  | Add and Draft New Changes | 4 |
| 02-May-2025 | Analyse Requirements | 8 |
| **Week 3** | 05-May-2025 | Review the Requirements | 8 |
| 06-May-2025 | Conduct meeting with Stakeholders | 5 |
|  | Analyse New Changes | 3 |
| 07-May-2025 | Analyse New Changes | 4 |
|  | Draft New Changes | 4 |
| 08-May-2025 | Draft New Changes | 8 |
| 09-May-2025 | Verify and Validate New Changes | 8 |
| **Week 4** | 12-May-2025 | Conduct meeting with Stakeholders | 5 |
|  | Coordinate meetings with Team | 3 |
| 13-May-2025 | Grooming Session with the team | 8 |
| 14-May-2025 | Clarify the queries of the team members | 8 |
| 15-May-2025 | Outline Business Requirements | 8 |
| 16-May-2025 | Finalize the Requirements | 8 |
| **TOTAL HOURS** | | | **160** |

1. **Testing Timesheet of a BA:**

|  |  |
| --- | --- |
| Employee Name | Jaimin Shah |
| Department | Business Analysis |
| Activity | Design Timesheet |
| Reporting to: | Mr. Vandanam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Task** | **Hours** |
| **Week1** | 19-May-2025 | Work with Testing Team to Create Test plans | 8 |
| 20-May-2025 | Review Test Cases Prepared by Testing Team | 4 |
|  | Start writing UAT Test Plan | 4 |
| **Week 2** | 23-Jun-2025 | Help Testing Team to clarify the Doubts regarding the System | 4 |
|  | Give proper grooming session for core functionalities | 4 |
| 24-Jun-2025 | Complete writing UAT Testcases | 8 |
| **TOTAL HOURS** | | | **32** |

1. **UAT Timesheet of a BA:**

|  |  |
| --- | --- |
| Employee Name | Jaimin Shah |
| Department | Business Analysis |
| Activity | Design Timesheet |
| Reporting to: | Mr. Vandanam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Task** | **Hours** |
| **Week1** | 31-July-2025 | Start Writing UAT Test Cases | 8 |
| 01-Aug-2025 | Complete Writing UAT Test Cases | 8 |
| **Week 2** | 04-Aug-2025 | Start UAT Testing Phase 1 | 8 |
| 05-Aug-2025 | Complete UAT Testing Phase 1 | 8 |
| **Week 3** | 25-Sept-2025 | Start Writing UAT Test Cases | 8 |
| 26-Sept-2025 | Complete Writing UAT Test Cases | 8 |
| **Week 4** | 29-Sept-2025 | Start UAT Testing Phase 2 | 8 |
| 30-Sept-2025 | Complete UAT Testing Phase 2 | 8 |
| **Week 5** | 27-Nov-2025 | Start Writing UAT Test Cases | 8 |
|  | 28-Nov-2025 | Complete Writing UAT Test Cases | 8 |
| **Week 6** | 01-Dec-2025 | Start UAT Testing Phase 3 | 8 |
|  | 02-Dec-2025 | Complete UAT Testing Phase 3 | 8 |
| **Week 7** | 29-Jan-2026 | Start Writing UAT Test Cases | 8 |
|  | 30-Jan-2026 | Complete Writing UAT Test Cases | 8 |
| **Week 8** | 02-Feb-2026 | Start UAT Testing Phase 4 | 8 |
|  | 03-Feb-2026 | Complete UAT Testing Phase 4 | 8 |
| **Week 9** | 02-March-2026 | Start Writing UAT Regression Test Cases | 8 |
| 03-March-2026 | Complete Writing UAT Regression Test Cases | 8 |
| 04-March-2026 | Start Final UAT Testing | 8 |
| 05-March-2026 | Continue Final UAT Testing | 8 |
| 06-March-2026 | Complete Final UAT Testing | 8 |
| **TOTAL HOURS** | | | **168** |

1. **Deployment and Implementation Timesheet of a BA:**

|  |  |
| --- | --- |
| Employee Name | Jaimin Shah |
| Department | Business Analysis |
| Activity | Design Timesheet |
| Reporting to: | Mr. Vandanam |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Date** | **Task** | **Hours** |
| **Week1** | 23-March-2026 | Prepare RTM and Share with Client | 5 |
|  | Coordinate with Stakeholders to complete the Manual | 3 |
| 24-March-2026 | Complete the Manual | 8 |
| 25-March-2026 | Start preparing Training Sessions for End User | 8 |
| 26-March-2026 | Complete preparation of Training Sessions for End User | 8 |
| 27-March-2026 | Prepare learning points from the Project. | 4 |
| **TOTAL HOURS** | | | **36** |