**Question 1**

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

**Ans:**

**Goal:** is to reach as many customers as possible at the ideal moment in order to boost agricultural product sales and profitability.

**Inputs:**

* Developers
* Raw materials and partnerships with companies for sourcing materials
* Delivery personnel to transport purchased products
* Admin to oversee product and order management
* High-quality images, videos, and specifications of products, including brands and prices
* Checkout page, shopping cart, payment options, and delivery details.

**Resources**:

* Internet/Wi-Fi
* Mobile devices, laptops, and tablets
* Users, farmers, and agricultural products
* Marketing, testing, and development teams
* Funds and workforce

**Activities:**

* Accept product details, display them on the website, and allow farmers to search and select products (models, brands, items).
* Enable farmers to raise purchase requests, add products to the cart, and proceed to checkout.
* Process payments and send payment confirmation via email, text, or WhatsApp.
* Manage order delivery to the customer and provide clear delivery details.
* Handle returns, exchanges, and reverse payments if products don't meet expectations or are no longer needed.

**Value to the Customer**:

* Farmers in remote areas will have easy access to agricultural products and direct communication with manufacturers, sellers, or dealers.
* The convenience of online shopping will save them both time and travel expenses.

**Question 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:

**Strengths:**

* It is challenging to live in a remote place when farming items must be manually obtained. Since it will make running the internet business easier.
* The new app will accept the product details from the manufacturer and will display them to farmers.
* Farmers will browse these items, choose the ones they require, ask to purchase them, and have them delivered.

**Weakness**: Once this application is introduced to the market, numerous other companies may create similar apps, posing a potential risk.

 In this scenario, it will be essential to uphold the brand reputation, product quality, and overall business performance.

**Opportunities:**

The application will create opportunities for increased sales of agricultural products. Not only can remote farmers participate, but anyone can place orders from the store at any time, day or night.

This will benefit buyers by improving sales and promoting the addition of higher quality products. Users will also have the option to advertise new product launches, promotions, and discounts. It will provide convenience for customers to make purchases online, allowing them to save both time and travel expenses.

**Threats:**

- Delivery to isolated regions. -
Finding delivery personnel willing to travel and complete deliveries. - They may require higher wages or benefits such as fuel allowances or incentives, etc. - Not all farmers will be adept with technology, so some may struggle to navigate the app.

Ordering from remote areas could be challenging because of factors like electricity and internet.

Question 3

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:

A feasibility study evaluates whether the proposed project is viable within the given constraints of **technology, budget, and time**. This includes assessing **Hardware, Software, Trained Resources, Budget, and Time Frame** to determine if the project can be successfully executed.

**Technical Feasibility**

* **Hardware:** Servers, cloud infrastructure, and storage solutions required for hosting the web/mobile application.
* **Software:** Java-based technology stack, database management systems (MySQL/PostgreSQL), frontend frameworks (React/Angular), and cloud-based solutions.
* **Manpower:** Skilled Java developers, UI/UX designers, database administrators, and DevOps engineers.

**2. Financial Feasibility**

* **Budget:** The project has an allocated budget of **₹2 Crores**.
* **Funding Source:** CSR initiative under **SOONY Company** ensures financial backing.
* **Cost Considerations:** Hardware, software development, security, cloud services, and resource salaries over an **18-month period**.

**3. Market Feasibility**

* **Industry Demand:** High demand for an **agriculture-based e-commerce platform** connecting farmers and suppliers.
* **Competition:** Analysis of existing platforms, their features, pricing, and gaps in the market.
* **Supply Chain Considerations:** Ensuring reliable product delivery and logistics for remote farmers.

**Organizational Feasibility**

* **Trained Resources:** APT IT SOLUTIONS has a **strong talent pool**, including project managers, Java developers, business analysts, and UI/UX designers.
* **Team Availability:** Resources are available for the **18-month project timeline**, ensuring project completion within the defined scope.

 **Time Frame Feasibility**

* **Project Duration:** **18 months** as planned.
* **Development Phases:**
	+ **Phase 1 (3-6 months):** Requirement analysis, UI/UX design, and backend setup.
	+ **Phase 2 (6-12 months):** Core development, database integration, and testing.
	+ **Phase 3 (12-18 months):** Final testing, deployment, user training, and maintenance.

Question 4

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

**AS-IS Process (Current Challenges)**

* Farmers (stakeholders like **Peter, Kevin, and Ben**) struggle to procure **fertilizers, seeds, and pesticides** manually.
* Lack of a **centralized platform** for purchasing agricultural inputs.
* Dependence on **local suppliers**, leading to **limited choices, higher prices, and inconsistent availability**.

**TO-BE Process (Proposed Future State)**

* A **digital online store** that connects **remote farmers with commercial suppliers** of agricultural products.
* A **one-stop platform** accessible **anywhere, anytime**, reducing reliance on **physical stores**.
* **Improved efficiency** in purchasing and delivering agricultural products.
* Farmers can access **competitive pricing and a wider range of products**.
* **Secure and faster payment methods** for seamless transactions.

|  |  |  |
| --- | --- | --- |
| **GAP** | **Issue** | **Solution** |
| **Payment Delays** | Manual transactions cause slow payment processing to merchants. | Integrate mobile money services & digital payment gateways (UPI, bank transfers, mobile wallets). |
| **Logistics Challenges** | Delivery of products to remote farmers can be delayed. | Partner with logistics providers to ensure timely delivery & tracking. |
| **Farmer Digital Literacy** | Farmers may face challenges using an online platform. | Provide training & a user-friendly mobile interface. |
| **Supplier Onboarding** | Convincing suppliers to list their products online. | Offer incentives & streamlined onboarding to attract suppliers. |

**Outcome -** Less waste, enhanced earnings for sellers/dealers, greater productivity for farmers, a more convenient approach, time savings, and increased employment opportunities for delivery personnel/packers, among others.

**Question 5**

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

**1. Logistics Challenges:**

 An efficient product delivery relies on a robust logistics network. Any weaknesses in the logistics system can lead to increased expenses and hinder service growth.

 Risk Mitigation: Collaborate with trustworthy logistics partners and adopt a delivery tracking system.

**2. Payment Processing Risks**

Delays in payment settlements to sellers can cause business disruptions.

Risk Mitigation: Implement instant payment methods like UPI, mobile wallets, and direct bank transfers.

**3. Market Challenges:**

 Sales may be affected by competitive local markets and fluctuations in demand. Maintaining a consistent supply of agricultural products is essential. Risk Mitigation: Work with organic merchants to ensure stock availability and satisfy high demand.

**4. Storage & Warehouse Challenges:**

 Warehouses need regular monitoring to avoid damage from pests and rodents.

Risk Mitigation: Establish quality control measures and pest management strategies.

Question 6

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

Ans:

 **List of Project Stakeholders:**

**Project manager**- Mr Vandanam

**Delivery Head**- Mr Kartik

**Development Team:** Ms Juhi, MR Teyson, Ms Lucie, Mr Tucker, Mr Bravo

**Network and DB admin**- Mr Mike and John.

**Business stakeholders**:

Business sponsor: Mr Henry; Influencers: Peter, Kevin and Ben

**Finance team** : Mr Pandu ; **Project team** : Mr Doku

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Position | Responsible(R) | Accountable(A) | Consulted (C)  | Informed (I) |
| Mr Henry | **CEO** | **Yes** | **Yes** | **Yes** | **Yes** |
| Mr Vanadanam | **Project Manager** |  | **Yes** |  |  |
| Mr. Doku | **Finance Head** | **Yes** |  | **Yes** |  |
| Mr Pandu | **Project Coordinator** | **Yes** |  | **Yes** |  |
| Kevin, Ben, Peter | **Friends** |  |  | **Yes** | **Yes** |
|  |  |  |  |  |  |

**Decision Makers:** Mr. Henry, Mr. Pandu, Mr. Dooku

**Influencers:** Peter, Kevin, Ben (Farmers), Committee members, APT IT Solutions Delivery Head (Mr. Karthik)

**Question 7**

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

|  |  |
| --- | --- |
| Sr No | Question - Answer |
| 1 | Why is this project initiated? |
| Ans  | Mr. Henry identified the need for farmers to have agricultural products delivered to their doorstep and saw an opportunity to capitalize on this need. |
| 2 | What are the current problems? |
| Ans | Farmers face difficulties in procuring fertilizers, buying seeds for certain crops, and dealing with a lack of pesticides, which impacts crop protection. |
| 3 | With this project, how many problems could be solved? |
| Ans | The project will facilitate farmers in buying seeds, pesticides, and fertilizers from anywhere through internet connectivity. |
| 4 | What will be the resources required |
| Ans | Financial resources such as banks, investors.- Manpower such as packers, delivery personnel.- Developers and testers for testing and deployment.- Sellers/Dealers to tie up and sell products online. |
|  |  |
| 5 | How many organizational changes are required to adopt this technology? |
| Ans | No major organizational changes are required. |
| 6 |  What is the time frame to recover ROI? |
| Ans | 6 Months |
| 7 | How to identify stakeholders? |
| Ans | Stakeholders are identified based on:- Understanding the purpose of identifying stakeholders.- Determining their impact on the project.- Assessing their needs in relation to the project.**Prime stakeholders: Mr. Henry, Peter, Kevin, Ben, Farmers, and Seller** |
|  |  |

Question 8

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:**

**Sequential** - The Sequential model is a linear stack of layers that can be created using the Keras library1. In this method, the entire project is delivered at the end of the deadline.
Clients can't use the application midway. This method begins at the system level and progresses through analysis, design, coding, testing, and support.

**Iterative:** In this method, the APP is delivered in modules. Each module is delivered per year at a given frequency of time. Clients can start using part of the application after delivery. Iterative changes result from repeated cycles of change, with each cycle contributing to the outcome. The whole process is divided into a particular number of iterations, and during each of them, developers build a limited number of features.

**Evolutionary:** The overall frame of the module is submitted to the stakeholders. Clients freeze on the given module. Slowly, the IT team starts adding functionality to the modules. The business analyst provides the look and feel of the project to the stakeholders.

**Agile:** Agile is the most popular method to use. In this methodology, the project is delivered from the beginning. Clients start using the APP immediately. Continuous support goes on. Change requests are possible at each phase of delivery. The Agile Manifesto defines four core values prioritizing individuals, working software, collaboration, and responsiveness to change. Agile roles are flexible, allowing team members to take on multiple roles or share responsibilities.

**Question 9 :** 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?**

**1. Waterfall (Sequential):** Waterfall methodology is a development process where all the phases flow like a waterfall. Each phase needs to be completed before the next phase begins. There are 5 stages in waterfall methodology.

i**. Requirement** – Waterfall model depends on all the requirements gathered and understood upfront.

**ii. Design** – Once the requirement is gathered, the technical team designs the requirement into layouts, data models, prototypes, etc.

**iii. Implementation** – Once the design is completed; the technical team starts coding as per the design or prototypes.

**iv. Testing** – Before the product is delivered to the customer, the product/software needs to be tested.

**v. Deployment/Maintenance** – Once the software is tested, it gets released to the customer and with that maintenance phase begins.

**2. Iterative:** In this development process, each phase builds on the previous one. The development takes place in iterations and in small parts at a time. It’s a process of gradual improvement and learning from previous iterations, as how to improve the next.

There are 4 phases in this methodology:

i. **Requirement:** The Goal needs to set accordingly, as every iteration is different from later ones and there is no previous iterations to work from.

ii. **Design:** In this phase, design needs to be created to solve the requirements, which includes technical designs, process flow diagrams, etc.

iii. **Implementation or Development:** The technical team will create the first iteration which will be informed by analysis and design.

iv. **Testing:** After the iteration, it will be tested to find out the improvement. It can also be checked with project stakeholders.

v. **Review:** Team will evaluate the success of the iteration and align on anything that needs to be changed.

**3. Spiral Model:** Spiral model is an SDLC methodology which combines Iterative development and Waterfall model. It is used for Risk management. This SDLC model is mostly used for large and complicated projects. The spiral model enables gradual releases and refinement of a product through each phase of the spiral as well as the ability to build prototypes at each phase. It can manage unknown risks once the project is started.

The radius of the Spiral model represents the cost of the project,/ and the angular degree represents the progress made in the current phase. Every phase can be broken into four quadrants:

i. **Identifying and understanding requirements** – Every phase can be broken into four quadrants: identifying and understanding requirements, performing risk analysis, building the prototype, and evaluation of the software's performance.

ii. **Performing risk analysis** – Risk analysis should be performed on all possible solutions to find any faults or vulnerabilities, such as running over the budget or areas within the software.

iii. **Building the prototype** – Prototype is built and tested. This step includes architectural design, design of modules, and the final design.

iv. **Evaluation of the software's performance** – In the final quadrant, test results of the new version are evaluated. This analysis allows programmers to stop and understand what worked and didn’t work before progressing with a new build. At the end of this quadrant, planning for the next phase begins and the cycle repeats. At the end of the whole spiral, the software is finally deployed in its respective market.

**4. Agile**

Agile is the mainstream methodology used in modern software development and expands its influence beyond coding into many aspects of product development, from ideation to customer experience.

The Agile methodology breaks a project down into multiple cycles, each passing through some or all the SDLC phases. The focus is on people and how they work together to get the project done. Agile calls for continuous collaboration between team members and stakeholders with regular cycles of feedback and iteration.

**The Agile Manifesto’s 4 Core Values**

1. Individuals and interactions over processes and tools
2. Working software over comprehensive documentation
3. Customer collaboration over contract negotiation
4. Responding to change over following a plan

**Agile Roles**
Agile Roles assign responsibilities to members of the team. They are different than positions as a single person can take on multiple Agile roles depending on the scope of the project.

**Waterfall Model (Project Team’s Choice)**

* **Pros:**
	+ Structured and sequential approach, making it easy to manage.
	+ Clearly defined phases from requirements to deployment.
* **Cons:**
	+ No early testing; testing happens only after development is complete.
	+ Rigid structure; not ideal for projects that may require user feedback.

**2. V-Model (SMEs’ Choice)**

* **Pros:**
	+ Each development phase has a corresponding testing phase, ensuring early defect detection.
	+ Helps maintain quality, which is crucial for an agriculture product store handling transaction.
	+ Reduces risks since verification and validation occur at every stage.
* **Cons:**
	+ Requires detailed documentation and planning.

**11 Ans:
As a Business Analyst,**

**Why the V-Model is the Better Choice?**

* **Early Testing Reduces Risks:** Since this is a **web and mobile application**, ensuring the system works correctly at each stage is crucial. The V-Model’s approach of **testing at every phase** ensures that issues are identified early rather than after full development.
* **Higher Quality Assurance:** The system involves multiple stakeholders (farmers, suppliers, administrators). The **V-Model ensures validation at every stage**, improving usability and reducing post-launch defects.
* **Requirement Stability:** Since the project is **CSR-based and predefined**, frequent requirement changes are unlikely, making the V-Model an effective approach.

**Question 10**

Write down the differences between waterfall model and V model.

Ans:

|  |  |
| --- | --- |
|  Waterfall Model | V Model |
| The waterfall model is a relatively linear sequential design approach to develop software projects. | V-Model follows a V-shaped process where every development phase has a corresponding testing phase, ensuring early defect detection. |
| Waterfall is continuous, meaning all stages follow each other sequentially. | V-Model is simultaneous, where testing occurs alongside development. |
| Waterfall has higher defects because testing is done at the end, leading to late issue detection | V-Model has fewer defects as testing is integrated from the beginning. |
| Waterfall model detects defects only in the testing phase after full development. | V-Model identifies defects early, ensuring better software quality. |

| **Feature** | **Waterfall Model** | **V-Model** |
| --- | --- | --- |
| Structure | Linear | V-shaped (parallel dev & test phases) |
| Testing | After development | In parallel with development |
| Feedback | Limited | Continuous (each stage validated) |
| Risk Management | Late | Early |
| Cost of Fixing Defects | High (found late) | Lower (found early) |
| Flexibility | Low | Low |

**Question 12**

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:**

**Refer to excel**

 **Question 13**

Explain the difference between Fixed Bid and Billing projects

Ans:

|  |  |
| --- | --- |
| Model | Description |
| Fixed Bid Model | - The vendor commits to a set amount of money for a project with defined deliverables. - Used for projects with predetermined data, fixed scope, or a strict budget. - Charged as a single, flat fee, irrespective of hours spent. - Features predefined project requirements, fixed time frames, and a fixed budget. - Clients must pay extra for any work not specified in the documentation. - Suitable for companies with a clear understanding of their project requirements and looking for cost predictability. - Can cause confusion in choosing the right model for a business. |

|  |  |
| --- | --- |
| **Billing Model** | - Billed based on the number of hours worked, at an hourly, daily, or monthly fixed billing rate. - No budget restrictions; the budget can be increased based on the work required. |

**Question 14**

– Preparer Timesheets of a BA in various stages of SDLC ?

Design Timesheet of a BA – Requirement Gathering

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task Description | Time Started | Time Stopped | Total Time | Remark |
| Had a meeting with stakeholders | 10:45 AM | 11:45 AM | 60 min | Completed |
| Worked on consolidation of raw information received from stakeholders | 12:00 PM | 1:00 PM | 60 min | Completed |
| Discussion on call about summarized data with stakeholders for verification. | 1:15 PM | 2:30 PM | 75 min | Completed |
| High level design document is prepared and analysed | 3:00 PM | 4:00 PM | In progress | Completed |

RA Timesheet of BA: Requirement analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Description** | **Time Started** | **Time Stopped** | **Total Time** | **Remark** |
| Had a meeting with technical team | 10:45 AM | 11:45 AM | 60 min | Completed |
| Detailed analysis on the progress of the application | 12:00 PM | 1:00 PM | 60 min | Completed |
| The risk and challenges faced in the design phase are covered | 1:15 PM | 2:30 PM | 75 min | In progress |
| High level design document is prepared and | 3:00 PM | 4:00 PM | 60 min | Completed |

Development Timesheet of a BA:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task Description | Time Started | Time Stopped | Total Time | Remark |
| Morning meeting with programmers and developers | 10:45 AM | 11:45 AM | 60 min | 10:45 AM |
| Thorough analysis on the coding part of the software | 12:00 PM | 1:00 PM | 60 min | Completed |
| Reporting the development of the software | 1:15 PM | 2:30 PM | 75 min | In progress |
| Low level design document is prepared by developers and studied | 3:00 PM | 4:00 PM | 60 min | Completed |

Testing Timesheet of a BA:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Description** | **Time Started** | **Time Stopped** | **Total Time** | **Remark** |
| Meeting with testers and responsible stakeholders | 10:45 AM | 11:45 AM | 60 min | 10:45 AM |
| Comprehensive assessment of a software as per the client needs | 12:00 PM | 1:30 PM | 90 min | Completed |
| Defects are analysed and errors are minimized | 2:15 PM | 3:45 PM | 90 min | In progress |
| Test document is prepared | 4:15 PM | 5:15 PM | 60 min | Completed |

UAT Timesheet of BA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task Description** | **Time Started** | **Time Stopped** | **Total Time** | **Remark** |
| Kick-off meeting with business users and UAT coordinators | 10:45 AM | 11:45 AM | 60 min | Completed |
| Review of UAT test cases and mapping with business requirements | 12:00 PM | 1:00 PM | 60 min | Completed |
| Coordinating with users during execution of UAT scenarios | 1:15 PM | 2:45 PM | 90 min | In progress |
| Logging and tracking of UAT defects and getting sign-off on validated scenarios | 3:00 PM | 4:30 PM | 90 min | Completed |