Q.1 what is Business Process Model

A **Business Process Model (BPM)** is a visual representation of the sequence of tasks, activities, decisions, and workflows that make up a business process. It is a key tool used by business analysts to understand, analyze, and optimize business processes. BPM helps stakeholders visualize and communicate how a process works, identify inefficiencies, and design improvements.

**1. Goal:**

* To provide a platform connecting farmers with customers for buying and selling agricultural products conveniently and transparently.

**2. Inputs:**

* Product details from farmers.
* Customer requirements (e.g., seeds, fertilizers, tools).
* Technical and operational data.

**3. Resources:**

* Human: Developers, designers, logistics partners.
* Technology: Java-based backend, cloud servers, payment gateways.
* Financial: Budget for development and operations.

**4. Activities:**

* Product listing by farmers.
* Customers searching, ordering, and making payments.
* Delivery coordination and feedback collection.

**5. Outputs:**

* Farmers: Wider market access and fair pricing.
* Customers: Access to quality products with transparent pricing.
* Business: Revenue through commissions or advertisements.

**6. Value to Customers:**

* Convenience, cost-effectiveness, quality assurance, and support for farmers by reducing intermediaries.

**SWOT Analysis** is a strategic planning and analysis tool used in business analysis to evaluate the internal and external factors that impact an organization, project, or initiative.

SWOT stands for:

* **S**: Strengths
* **W**: Weaknesses
* **O**: Opportunities
* **T**: Threats

It helps business analysts and stakeholders understand the current situation, identify areas for improvement, and strategize for future actions.

Q.2 SWOT ANALYSIS ON THE PROJECT

 **Strengths** **Weakness**

-Online agriculture stores can reach customers in Trust Issues: some customers may

 Remote areas where traditional brick-and-mortar be hesitant to purchase agricultural

 Stores might not be feasible. Products online due to concerns

-Customers can shop for agricultural products about product quality, authenticity

Anytime, anywhere, which enhances convenience or delivery reliability.

And accessibility

**Opportunities Threats**

Online agriculture stores can capitalize on the Economic Factors: Fluctuations in

Growing trend of online shopping and the commodity prices, changes in

increasing adoption of e-commerce platforms, government policies, economic

Especially in rural areas. Downturns can impact on consumer

There's potential to expand operations beyond spending on agricultural products.

Domestic borders and cater to international

Markets with unique agricultural needs.

Q.3 what is feasibility study

A **Feasibility Study** for an online agricultural store evaluates whether the project is viable and practical to implement. It considers various aspects such as technology, hardware, software, resources, budget, and time frame. Here's an outline for the feasibility study:

**Technology:**

Consider integrating features such as secure payment gateways, inventory management systems, customer relationship management (CRM) software, and analytics tools to enhance user experience and streamline operations

**Hardware:**

* Assess the scalability and reliability of the hardware infrastructure to handle increasing website traffic, transactions, and data storage requirements over time.
	+ **Server Infrastructure:**
		- Cloud servers (AWS, Google Cloud, Azure) for hosting.
		- Load balancers for traffic management.
	+ **Networking:**
		- High-speed internet connection for seamless operations.
		- Secure routers and firewalls.
	+ **Client Devices:**
		- Desktop computers, laptops, and tablets for employees.
		- Barcode scanners for warehouse inventory management.
	+ **Backup Systems:**
		- External drives or cloud storage for data backups.

**Software:** Identify the software applications and platforms required to build and operate the online agricultural store.

* + **E-commerce Software:**
		- Custom-built or off-the-shelf solutions (e.g., Shopify, BigCommerce).
	+ **Content Management System (CMS):**
		- WordPress or Drupal for managing product catalogs and blogs.
	+ **Payment Gateway Integration:**
		- APIs for secure transactions (e.g., Razorpay, PayPal).
	+ **Inventory Management Software:**
		- Tools to track stock levels and generate alerts for restocking.
	+ **Customer Relationship Management (CRM):**
		- Salesforce or HubSpot for managing customer data and support.
	+ **Logistics Software:**
		- Tools for delivery tracking and route optimization.

**Resources:** Ensure the availability of human and operational resources.

* **Team Requirements:**
	+ Developers, designers, and testers for the website and app.
	+ Marketing team for customer acquisition.
	+ Customer support agents for handling inquiries and issues.
* **Operational Support:**
	+ Warehousing staff for inventory management.
	+ Logistics partners for delivery.
	+ Maintenance team for technical and system updates.
* **Training:**
	+ Employees should be trained on new software and systems.

**Budget:** Determine if the project is financially viable.

* **Development Costs:**
	+ Estimated cost for web and app development.
	+ Hosting and cloud service subscriptions.
* **Hardware Costs:**
	+ Purchasing servers, computers, and networking equipment.
* **Operational Costs:**
	+ Salaries for the team.
	+ Marketing and promotional campaigns.
* **Software Costs:**
	+ Licensing fees for third-party software and tools.
* **Miscellaneous Expenses:**
	+ Legal, regulatory compliance and unforeseen costs.
* **Estimated Budget Example:**
	+ Initial investment: $50,000 - $100,000.
	+ Monthly operational costs: $5,000 - $10,000.

**Time Frame:** Estimating the time required for project implementation.

* **Project Phases:**
	+ Requirement Gathering: 2-3 weeks.
	+ Design and Prototyping: 4-6 weeks.
	+ Development: 12-16 weeks.
	+ Testing and Quality Assurance: 4 weeks.
	+ Deployment and Launch: 2 weeks.
* **Total Time Frame:** Approximately 6-8 months for completion.
* **Time Contingency:** Allocate 10-15% extra time for unforeseen delays.

**Q.4 what is gap analysis?**

**Gap Analysis** is a strategic tool used to identify the difference (gap) between the current state and the desired future state of a project, process, or organization. It helps in understanding what needs to be improved or developed to achieve project goals.

**Steps in Gap Analysis**

1. **Define the Current State:**
	* Understand the existing situation, capabilities, and limitations.
	* Evaluate processes, technologies, and customer interactions currently in place.
2. **Define the Future State:**
	* Establish clear goals for the project.
	* Identify what the "ideal" solution looks like in terms of functionality, performance, and outcomes.
3. **Identify Gaps:**
	* Compare the current state with the future state.
	* Highlight deficiencies, inefficiencies, or missing elements.
4. **Develop an Action Plan:**
	* Outline steps to bridge the identified gaps, prioritizing tasks based on importance and feasibility.

Current State vs. Future State Gap Analysis for Online Agricultural Store

|  |  |  |  |
| --- | --- | --- | --- |
| Aspect | Current State | Future State | Gap |
| Technology | No online platform for sales or customer interaction. | Fully functional e-commerce website and mobile app. | Need for web and app development with integrated systems. |
| Product catalog | Manually maintained ,limited visibility for customers | Digitalized product backlog with real time updates | Develop a digital inventory management system |
| Customer reach | Sales limited to local markets or physical locations. | Nationwide or global customer base with online accessibility. | Marketing strategy and logistics partnerships required. |
| Payment systems | Cash-based transactions | Multiple payment options(credit cards,UPI | Integration of secure payment gateways |
| Inventory management | Manual tracking prone to errors | Automated inventory management system with restocking alerts. | Adoption of inventory management software |
| Delivery & logistics | No structured delivery mechanism, dependent on customers. | Efficient logistics system with tracking and delivery timelines | Partnership with logistics providers or in-house logistics set up. |
| Customer support  | Phone or in-person support only. | Multi -channel support (chat,e-mail,chatbot) | Implementation of CRM & communication tools |
| Marketing | Minimal online presence, limited brand awareness. | Robust digital marketing strategy leveraging SEO & social media. | Investment in marketing tools and campaigns. |

**Q.5.PREPARE RISK ANALYSIS?**

**INTERNAL RISKS**

**Operational Risks:** These involve day-to-day activities of running the online store, such as inventory management, order processing, and customer service. Issues like system failures, employee errors, or supplier problems could disrupt operations.

**Financial Risks:** Financial risks include cash flow issues, budget overruns, or unexpected expenses. These could arise from poor financial management, economic downturns, or inaccurate forecasting.

 **EXTERNAL RISKS**

**Market Risks:** Market risks stem from factors outside the control of the business, such as changes in consumer preferences, competitive pressures, or shifts in agricultural trends. Failure to adapt to market dynamics could lead to decreased sales or market share.

**Supply Chain Risks:** Dependence on suppliers for agricultural products, packaging materials, or logistics can expose the business to risks such as supply shortages, quality issues, or transportation disruptions.

**Business Analysis (BA) Risks:**

**Requirements Risks:** Inadequate understanding of customer needs or unclear project requirements can result in the delivery of products or services that do not meet expectations, leading to customer dissatisfaction and revenue loss.

**Scope Risks:** Scope creep, where project requirements expand beyond the initial scope, can lead to delays, budget overruns, and resource constraints.

**PROJECT BASED RISKS:**

**Timeline Risks:** Delays in project milestones or deployment schedules can prolong time-to-market, affecting revenue generation and competitive advantage.

**Resource Risks:** Inadequate allocation of human, financial, or technological resources can impede project execution and quality, leading to subpar outcomes.

**Q.6.PREPARE RACI MATRIX**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Task/deliverable** | **Stakeholder** | **Responsible** **(R )** | **Accountable****(A )** | **Consulted** **(C )** | **Informed** **(I)** |
| Strategic Planning | Management | R | A | C | I |
|  | Marketing Team | C | I | R | C |
| Website Development | I T Team | R | A | C | I |
|  | Marketing Team | C | I | R | C |
| Product Sourcing | Procurement Team | R | A | C | I |
|  | Sales Team | C | I | R | C |
| Marketing Campaigns | Marketing Team | R | A | C | I |
|  | Sales Team | C | I | R | C |
| Customer Support | Customer Service | R | A | C | I |
|  | Sales Team | C | I | R | C |
| Inventory Management | Operations Team | R | A | C | I |
|  | Finance Team | C | I | R | C |

* R: Responsible - Those who do the work to achieve the task or deliverable.
* A: Accountable - The one ultimately answerable for the completion of the task or deliverable.
* C: Consulted - Those whose opinions are sought; typically subject matter experts.
* I: Informed - Those who are kept up-to-date on progress or decisions.

**Q.7.Business Case Document**

* **Why is the project initiated?**

The project is initiated to modernize the agricultural retail sector by introducing an online platform. This initiative aligns with the increasing demand for digital solutions in various industries, including agriculture.

* **What are the current problems?**

Traditional agricultural markets suffer from inefficiencies such as limited reach, lack of transparency in pricing, and inconvenience for both farmers and consumers. Additionally, unpredictable weather conditions and market fluctuations further exacerbate these challenges.

* **With this project, how many problems could be solved?**

By establishing an online agricultural store, several problems can be addressed:

* Increased Market Reach: Farmers can reach a wider audience beyond their local markets.
* Price Transparency: Transparent pricing mechanisms can be implemented, ensuring fair deals for both buyers and sellers.
* Convenience: Consumers can access a variety of agricultural products from the comfort of their homes.
* Weather and Market Fluctuations Mitigation: Diversification of markets can help mitigate risks associated with weather and market fluctuations.
* **What are the resources required?**
* Technological Infrastructure: Development of a user-friendly website or mobile application.
* Logistics Support: Transportation and delivery services for the efficient distribution of agricultural products.
* Marketing and Promotion: Strategies to attract farmers and consumers to the online platform.
* **How much organizational change is required to adopt this technology?**

Adoption of technology will require a moderate level of organizational change. Training programs may be necessary to familiarize stakeholders with the online platform and its functionalities.

* **What is the time frame to recover ROI?**

The time frame to recover Return on Investment (ROI) will depend on factors such as market penetration, user adoption rates, and operational efficiency. However, a conservative estimate suggests that ROI can be achieved within 2-3 years of operation.

* **How to indentify stakeholders?**

Stakeholders in this project include

* Farmers: Primary suppliers of agricultural products.
* Consumers: End-users of the agricultural products.
* Logistics Partners: Providers of transportation and delivery services.
* Technology Providers: Suppliers of the online platform and related technology.
* Government Agencies: Regulatory bodies and policymakers involved in the agricultural sector.

**Q.8. FOUR SDLC METHODOLOGIES?**

**Sequential (Waterfall) Methodology**:

In this traditional approach, the development process progresses linearly through distinct phases such as requirements gathering, design, implementation, testing, deployment, and maintenance.

Each phase is completed before moving on to the next, and changes are difficult to implement once a phase is finished.

This methodology works well for projects with clearly defined requirements and stable scope, but it can be less flexible when requirements change or evolve during development.

**Iterative Methodology**:

In an iterative approach, development is broken down into smaller cycles or iterations.

Each iteration goes through the phases of requirements, design, implementation, testing, and evaluation.

After each iteration, feedback is gathered and used to refine the product in subsequent iterations.

This methodology allows for more flexibility and adaptability compared to the waterfall model, as changes can be incorporated at the end of each iteration.

**Evolutionary Methodology**:

Evolutionary methodologies focus on delivering a basic version of the software quickly, followed by successive iterations to add features and improve functionality.

The initial version, often called the minimum viable product (MVP), is developed and released to gather feedback from users.

Subsequent iterations build upon this MVP based on user feedback and changing requirements. This methodology is particularly useful for projects where requirements are uncertain or likely to change, as it allows for continuous improvement based on real-world usage and feedback.

**Agile Methodology**:

Agile is an iterative and incremental approach to software development that emphasizes flexibility, collaboration, and customer feedback.

It involves breaking the project into small, manageable tasks or user stories, which are prioritized and completed in short iterations called sprints.

Agile teams work closely with stakeholders and customers to continuously deliver working software and adapt to changing requirements.

Key principles of Agile include individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan.

**Thoughts and clarity on methodologies**

Each methodology has its own strengths and weaknesses, and the choice of methodology depends on factors such as project requirements, team dynamics, customer preferences, and organizational culture.

**Q.9. Waterfall RUP Spiral and Scrum Models**

**Waterfall Model**:

* The Waterfall model is a linear sequential approach to software development.
* It consists of several distinct phases such as Requirements, Design, Implementation, Testing, Deployment, and Maintenance.
* Each phase must be completed before moving on to the next one, and it's difficult to go back to previous phases once completed.
* This model is best suited for projects where requirements are well understood and unlikely to change significantly.
* Its simplicity and straightforward approach make it easy to understand and manage, but it's less adaptable to changes compared to agile methodologies.

 **RUP (Rational Unified Process)**:

* RUP is an iterative software development process framework created by Rational Software, now part of IBM.
* It provides guidelines, templates, and examples for all aspects and stages of software development.
* RUP is divided into four phases: Inception, Elaboration, Construction, and Transition.
* Each phase produces one or more deliverables, and iterations may be performed within each phase to refine and adjust requirements, design, and implementation.
* RUP combines elements of the waterfall model with iterative development, making it more flexible and adaptable to changing requirements.

 **Spiral Model**:

* The Spiral model is a risk-driven software development process model.
* It combines elements of the waterfall model and prototyping methodologies in an iterative framework.
* The model consists of multiple cycles, called "spirals," each representing a phase in the software development process.
* Each spiral typically involves four main activities: Planning, Risk Analysis, Engineering, and Evaluation.
* The Spiral model emphasizes early identification and mitigation of project risks.
* It's particularly well-suited for large, complex projects where risks need to be managed carefully.

 **Scrum**:

* Scrum is an agile framework for managing and developing software.
* It emphasizes iterative development, collaboration, and flexibility.
* Scrum divides the project into small iterations called "sprints," typically lasting 2-4 weeks.
* Each sprint begins with a planning session where the team selects a set of tasks to complete during the sprint.
* Daily stand-up meetings are held to discuss progress and any impediments.
* At the end of each sprint, a review meeting is conducted to demonstrate the completed work to stakeholders.
* Scrum is highly adaptive to changing requirements and customer feedback.
* **AS Business analyst ,waterfall methodology is best suited for this project**
* Because we are doing waterfall case study so waterfall is preferred. Waterfall is best suited for small projects. It provides a structured framework.

**Q.10 WATERFALL VS. V MODEL**

|  |  |
| --- | --- |
|  **WATERFALL** |  **V MODEL** |
| Cost – low | Expensive |
| Testing activities start at later stages | Testing activities start with first stages |
| Move in linear way  | Don’t move in linear way |
| Less customer involvement | More customer involvement |

**Q.11 Justify your choice**

Waterfall methodology is best suited for this project

The Waterfall Model is well-suited for projects with stable and well-defined requirements. Since it follows a sequential approach, any changes to the requirements are difficult to accommodate once the project is underway. However, if the requirements are unlikely to change significantly during the development process, the Waterfall Model can be an effective choice.

While the Waterfall Model typically involves less customer involvement during the development process compared to agile methodologies, some customers may prefer this approach. It allows them to provide input during the requirements gathering phase and then focus on other aspects of their business while the development team works independently.

**12. GANTT CHART**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Task 1 | BA | RG | 11/10/2023 | 25/10/2023 | 14 |
| Task 2 | BA | RA | 26/10/2023 | 10/11/2023 | 14 |
| Task 3 | BA | Design | 10/11/2023 | 24/11/2023 | 14 |
| Task 4 | Teach Team | Development |  |  |  |
| sub task 1 | project manager | Planning | 28/11/2023 | 29/12/2023 | 31 |
|  | sr. Java developer |  |  |  |
| sub task 2 | Java developers | Phase D1 | 29/12/2023 | 30/03/2024 | 91 |  |
|  | Tester | Phase T1 |  |  |  |  |
| sub task 3 | Java developers | Phase D2 | 30/03/2024 | 30/05/2024 | 92 |  |
|  | Tester | Phase T2 |  |  |  |  |
| sub task 4 | Java developers | Phase D3 | 30/05/2024 | 1/8/2024 | 92 |  |
|  | Tester | Phase T3 |  |  |  |  |
| sub task 5 | Java developers | Phase D4 | 1/8/2024 | 2/11/2024 | 90 |  |
|  | Tester | Phase T4 |  |  |  |  |
| Task 5 | BA | UA Testing | 2/11/2024 | 3/12/2024 | 31 |  |
| Task 6 | Delivery head | Implement | 3/12/2024 | 3/3/2025 | 30 |  |
| Task 7 | project manager | Maintenance |  |  |  |  |
| Total |  |  |  |  | 499 |  |



**Q.13 FIXED BID VS. BILLING**

FIXED BID:

* In a fixed bid contract, the client and the service provider agree upon a set price for the project before work begins. This price is usually based on an estimation of the effort, resources, and time required to complete the project.
* **Advantages**:
	+ **Certainty**: Both parties know the cost upfront, which can provide a sense of security.
	+ **Budget Control**: Clients can budget more accurately since the cost is fixed.
* **Disadvantages**:
	+ **Risk for Provider**: If the project requires more effort than anticipated, the service provider may end up losing money.
	+ **Scope Creep**: Changes or additions to the project scope can lead to conflicts if not properly addressed in the contract.

**Billing**:

* **Definition**: Billing refers to the practice of invoicing clients based on the actual time, resources, and materials expended on a project. The client pays for the services or products provided according to an agreed-upon rate or hourly fee.
* **Advantages**:
	+ **Flexibility**: Clients can adjust project scope and requirements as needed without the need for extensive contract renegotiation.
	+ **Fairness**: Clients only pay for the actual work done, providing transparency and fairness.
* **Disadvantages**:
	+ **Uncertainty**: Clients may find it challenging to predict the final cost of the project, leading to budgetary concerns.
	+ **Potential Disputes**: Billing disputes can arise if clients question the accuracy of billed hours or expenses.
	+ **Complexity**: Tracking and managing billable hours and expenses can be administratively burdensome.

**Q. 14 Prepare Timesheets of a BA in various stages of SDLC**

**Design Phase**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SR.NO. | TASKS | ACTIONABLE INTEMS | START TIME | END TIME | DURATION |
| 1 | Participate in Design Workshops | Collaborate with developers and architects for solution | 11.00 AM  | 3.00PM | 4 hours |
| 2 | Review Design Documents | Ensure designs align with requirements and standards | 4.00PM | 7.00PM | 3 hours |
| 3 | Document Design Decisions | Record rationale behind design choices | 7.00PM | 8.00PM | 1 hour |
| 8 hours |

### Development (D1, T1, D2, T2, D3, T3, D4, T4)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SR.NO** | **TASKS** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| 1 | Support Developers in Initial Development | Clarify requirements, provide input on implementation | 9.00AM | 11.AM | 2 hours |
| 2 | Test Developed Features (T1) | Validate functionality against requirements | 12.PM | 2.00PM | 2 hours |
| 3 | Collaborate with Dev Team for Iterative Dev | Address any issues, provide feedback for improvements | 2.00PM | 4.00PM | 2 hours |
| 4 | Test Integrated Features (T2) | Ensure seamless integration with existing components | 4.00PM | 5.00PM | 1 hour |
| 5 | Review Final Build (D4) | Confirm all requirements are met before testing | 5.00PM | 6.00PM | 1 hour |
| 6 | Final Testing and Bug Fixes (T3, T4) | Identify and resolve any defects | 6.30PM | 7.30PM | 1 hour |
|  10Hours |

**Testing of Timesheet**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SR.NO** | **TASKS** | **ACTIONABLE INTEMS** | **START TIME** | **END TIME** | **DURATION** |
| 1 | Develop Test Plan | Define testing strategy, including types of tests to be conducted | 9 | 12 | 3 hours |
| 2 | Create Test Cases | Document detailed test cases covering all functionalities | 1 | 4 | 3 hours |
| 3 | Review Test Cases  | Ensure test cases are comprehensive and cover all scenarios | 4 | 6 | 2 hours |
| 4 | Ensure test cases are comprehensive and cover all scenarios | Validate that the software meets functional requirements | 6 | 8 | 2 hours |
| 10 hours |

### User Acceptance Testing (UAT)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SR.NO** | **TASKS** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| 1 | Prepare UAT Test Cases | Define scenarios to validate user acceptance | 11.00AM | 2.00PM | 3 hours |
| 2 | Support UAT Execution | Assist users in executing tests and documenting results | 3.00PM | 7PM | 4 hours |
| 3 | Address UAT Feedback | Communicate issues to development team for resolution | 8.00PM | 9.00PM | 1 hour |
| 8 hours |

### Deployment and Implementation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SR.NO** | **TASKS** | **ACTIONABLE ITEMS** | **START TIME** | **END TIME** | **DURATION** |
| 1 | Coordinate Deployment Activities | Ensure smooth rollout of the software to production | 11.00AM | 2.00PM | 3 hours |
| 2 | Monitor Initial Implementation | Address any post-deployment issues as they arise | 3.00PM | 5.PM | 2 hours |
| 3 | Conduct Post-Implementation Review | Gather feedback from stakeholders and document lessons | 5.00PM | 7.00PM | 2 hours |
| 7 hours |