|  |  |
| --- | --- |
| Stage | Quarter 1 Audit Report (Requirement Gathering Phase) |
| Completed | 4 week (Week 1 to Week 4) |
| Checklist | Gather business requirements from stakeholders. |
|  | Prepare Business Requirement Document (BRD) and Functional Requirement Document (FRD). |
|  | Get approvals from the committee. |
|  | Ensure alignment with project scope and budget. |

1. **Audits** 4 Quarterly Audits are planned Q1 , Q2, Q3, Q4 for this Project What is your knowledge on how these Audits will happen for a BA?

Answer:

|  |  |
| --- | --- |
| Stage | Quarter 2 Audit Report (System Design and Prototype Validation Phase) |
| Completed | 5 weeks (Week 5 to Week 9) |
| Checklist | Work with UI/UX designers and developers to create prototypes. |
|  | Validate user flows and wireframes. |
|  | Conduct requirement traceability matrix (RTM) to check coverage. |
|  | Identify risks and dependencies. |

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| Stage | Quarter 3 Audit Report (Development & Mid-Phase Testing Phase) |
| Completed | 5 weeks (Week 10 to Week 14) |
| Checklist | Review system functionalities as per FRD. |
|  | Support developers with clarifications. |
|  | Conduct user acceptance test (UAT) planning. |
|  | Ensure compliance with business needs. |

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| Stage  | Quarter 4 Audit Report (Final Testing & Readiness phase) |
| Completed  | 4 weeks (Week 15 to Week 18) |
| Checklist | Conduct final UAT with farmers and stakeholders. |
|  | Document feedback and coordinate fixes with developers. |
|  | Ensure the system meets business and regulatory compliance. |
|  | Assist in Go-Live preparation and transition planning. |

1. **BA Approach Strategy**

Answer:

* **Project kickoff & Initial Planning:**

Conduct a Kickoff Meeting with all stakeholders, including Mr. Henry, the committee, and the APT IT SOLUTIONS team. Define project objectives, scope, and expected deliverables. Establish a 3-Tier Architecture Approach:

Presentation Layer (UI for Farmers & Companies)

Business Logic Layer (Processing user requests, communication)

Data Layer (Database for storing product details, and transactions)

* **Requirement Elicitation & Analysis:**

|  |  |
| --- | --- |
| Elicitation Technique | Usage in This Project |
| Interviews | With Mr. Henry, Peter, Kevin, Ben, and the committee to understand pain points. |
| Workshops | Brainstorming sessions with stakeholders & IT team to refine requirements |
| Surveys/ Questionnaires  | Collect data from farmers to ensure usability. |
| Prototyping  | Creating wireframes/ mockups for UI feedback. |
| Document Analysis | reviewing similar solutions or industry standards. |

* **Stakeholder Analysis – RACI Matrix and ILS Approach**

**RACI (Responsible, Accountable, Consulted, Informed) Matrix**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Role | Requirement Gathering | Development | Testing & UAT | Go live |
| Mr. Henry (Client) | C | I | A | A |
| Mr. Pandu (Finance Head) | I | I | I | A |
| Mr Dooku (Project coordinate) | C | I | C | I |
| Peter, Kevin, Ben (Stakeholders)  | C | I | C | I |
| Mr. Karthik (Delivery Head) | A | A | A | A |
| Mr. Vandanam (PM) | R | A | R | A |
| BA (ME) | R | C | C | C |
| Developers(Juhi, Teyson,Lucie, Tucker, Bravo) | I | R | C | C |
| DB Admin (John) | I | R | C | C |
| Network Admin (Mike) | I | R | C | C |
| Testers (Jason, Alekya) | I | C | R | C |

ILS (Interest, Level of Influence, Support Required) Analysis will ensure key stakeholders (farmers and manufacturers) remain engaged and supported throughout the project.

* **Documentation to be Prepared:**

|  |  |  |
| --- | --- | --- |
| Document | Purpose | Approval Required from |
| Business Requirement Document (BRD) | Captures high-level business needs. | Mr. Henry, Committee |
| Functional Requirement Document (FRD) | Defines system functionalities & workflows. | APT IT SOLUTIONS Team |
| System Requirement Specification (SRS) | Technical system architecture. | Project Manager, Developers |
| Process Flow Diagrams | Visual representation of system processes. | BA, Developers, Testers |
| User Stories & Use Cases | Helps developers understand user interactions. | Developers, Testers |
| User Acceptance Test (UAT) Plan | Defines test scenarios for client validation. | Testers, Client (Mr. Henry) |

* **Document Approval & Sign-Off Process:**
* After drafting each document, send it for internal review within the APT IT SOLUTIONS team.
* Conduct review meetings with Mr. Henry & the committee for feedback.
* Make necessary revisions based on stakeholder input.
* Obtain final approval via email confirmation or a formal sign-off document.
* **Communication Plan & Implementation:**

|  |  |  |  |
| --- | --- | --- | --- |
| Communication Method | Purpose | Frequency | Participants |
| Weekly Status Meetings | Project updates, issue tracking | Weekly | APT IT Team |
| Monthly Steering Committee Meetings | Milestone review & decision-making | Monthly | Mr. Henry, Committee, PM, BA |
| Requirement Review Meetings | Requirement clarification & changes |

|  |
| --- |
| As needed |

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 | BA, Developers, Testers |
| Email Reports | Formal documentation & approvals | Weekly | Stakeholders |
| Collaboration Tools (Jira, Confluence, Slack, etc.) | Task tracking & discussions | Daily | Development Team |

* **Change Request (CR) Management:**
* Change Request Submission – Stakeholder submits request.
* Impact Analysis – BA assesses feasibility, cost, and timeline impact.
* Approval Process – The committee (Mr. Henry, Mr. Pandu, Mr. Dooku) decides whether to approve or reject.
* Implementation & Testing – Developers make changes, testers validate.
* Deployment & Sign-off – Update system, and inform stakeholders.
* **Project Progress Updates:**
* Weekly Status Reports sent to all stakeholders.
* Monthly Progress Reviews with the Steering Committee.
* Milestone Completion Reports are submitted during each phase.
* **User Acceptance Testing (UAT) & Sign-Off:**
* Prepare UAT Test Cases – Cover real-time farmer scenarios.
* Conduct UAT Sessions – Farmers, and stakeholders test system usability.
* Log & Fix Defects – Identify and resolve issues.
* Obtain Client Approval – UAT Report reviewed by Mr. Henry & Committee.
* Sign-off on UAT Form – Client formally approves system acceptance.

This BA Approach Strategy ensures that all requirements are properly documented, reviewed, and approved while maintaining clear communication, risk management, and structured change handling. This approach will drive the successful implementation of the Online Agriculture Product Store within the 18-month timeline and 2 Crore INR budget.

1. **3-Tier Architecture** Explain and illustrate 3-tier architecture.

Answer:

1. **Application Layer (Presentation Layer):**
* This is the front end that users interact with.
* It can be a Web Application, Mobile App, or Desktop App.
* For this project, it will be an Online Agriculture Product Store where: Farmers can browse and order products. Companies can list and manage their products.
* Built using HTML, CSS, JavaScript, React, or Angular.
* Example: Farmers access the web/mobile app, view products, and place orders.
1. **Business Logic Layer (Application Layer):**
* This is the middleware, responsible for processing requests, handling logic, and enforcing business rules.
* Ensures secure communication between the UI and database.
* Implements authentication, validation, order processing, and payment handling.
* Developed using Java, Python, Node.js, or .NET.
* Example: When a farmer places an order, the system: Validates the request, Checks inventory in the database, Sends confirmation, and updates stock levels.
1. **Database Layer (Data Layer):**
* Stores all application data securely.
* **I**ncludes tables for Users, Products (Seeds, Fertilizers, Pesticides), Orders, Payments, etc.
* Can use MySQL, PostgreSQL, MongoDB, or Oracle.
* Ensures data integrity, backup, and recovery.
* Example: When a farmer orders a product, the order details are stored in the database.
1. **BA Approach Strategy for Framing Questions** A Business Analyst should keep What points in his/her mind before he frames a Question to ask the Stakeholder.

Answer: As a Business Analyst (BA), framing the right questions for stakeholders is critical to gathering accurate requirements and ensuring a smooth development process. The following frameworks and methodologies should be kept in mind while structuring questions:

* **5W 1H Approach:**

|  |  |  |
| --- | --- | --- |
| Question Type | Purpose | Example Question |
| What | Identify the requirement. | What are the key challenges farmers face in ordering agricultural products? |
| Why | Understand the purpose. | Why do farmers prefer online ordering instead of local vendors? |
| Who | Identify stakeholders. | Who will use the system (farmers, companies, distributors)? |
| Where | Define locations/process scope. | Where will the system be deployed (rural areas, nationwide)? |
| When | Understand timing constraints. | When should the system be fully functional? |
| How | Identify functionality & implementation. | How should payments and order tracking be managed? |

* **SMART (Specific, Measurable, Achievable, Relevant, Time-bound) Approach):**

|  |  |  |
| --- | --- | --- |
| SMART Criteria | How It Helps in Framing Questions | Example Question |
| Specific | Target a well-defined area. | What specific agricultural products do farmers need? |
| Measurable | Get quantifiable answers. | How many farmers are expected to use the app in the first year? |
| Achievable | Ensure feasibility. | Can farmers easily access the app with basic smartphones? |
| Relevant | Align with business goals. | Will a delivery tracking system improve trust among farmers? |
| Time-bound | Understand timelines. | When should the beta version be available for testing? |

* **RACI (Responsible, Accountable, Consulted, Informed) Matrix Approach**:

BA must identify who is responsible for what while framing questions**.**

* Responsible (R) – Who executes the task?

Who will be responsible for managing product listings in the online store?

* Accountable (A) – Who makes key decisions?

Who will approve product pricing and offers?

* Consulted (C) – Who provides input before a decision?

Who should be consulted before adding new product categories?

* Informed (I) – Who needs updates?

Who should be informed about order processing updates?

* **3-Tier Architecture Considerations in Question Framing:**

|  |  |  |
| --- | --- | --- |
| Layer | Focus Area | Example Question |
| Application Layer (UI/UX) | User interface & ease of use. | How should the UI be designed to be farmer-friendly? |
|

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| --- |
| Business Logic Layer |

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|  |

 | Processing & rules implementation. | What business rules should be applied for bulk orders? |
| Database Layer | Data storage & retrieval. | What product details (price, stock, expiry) need to be stored? |

* **Use Cases, Use Case Specs and Activity Diagrams:**

When framing questions, use case scenarios should be considered to ensure every system function is well-defined**.**

* Use Cases: What are the different ways farmers will interact with the platform?
* Use Case Specs: What specific steps will a farmer take to complete an order?
* Activity Diagrams: What should the process flow look like for order placement & delivery?
* **Models, Page Designs & UI Considerations:**

For UI-related questions, BA should focus on:

* Wireframes: How should the homepage, product pages, and checkout pages look?
* Navigation Flow: What should be the easiest way for a farmer to place an order?
* Accessibility: How can we make the app usable for less tech-savvy farmers?

By following the 5W 1H, SMART, RACI, 3-Tier Architecture, Use Cases, Models, and Page Designs, a Business Analyst can ask the right questions, ensuring a clear understanding of requirements and a well-defined system for successful project execution.

1. **Elicitation Techniques** as a Business Analyst, What Elicitation Techniques you are aware of? (BDRFOWJIPQU)

Answer:

* **B – Brainstorming:**

Purpose: Generate creative ideas, identify solutions, and explore different perspectives.
Example: Conduct a session with farmers and manufacturers to brainstorm challenges in the agriculture supply chain.

* **D – Document Analysis:**

Purpose: Review existing documents to understand current processes, regulations, and constraints.
Example: Analyzing agricultural product policies, past procurement records, and existing e-commerce models.

* **R – Requirements Workshops:**

Purpose: Interactive sessions with stakeholders to gather, refine, and finalize requirements.
Example: Organizing a workshop with farmers, companies, and delivery partners to define order fulfillment processes.

* **F – Focus Groups:**

Purpose: Engage a selected group of stakeholders to discuss specific requirements and expectations.
Example: Meeting with a small group of farmers to understand their internet accessibility and mobile usage.

* **O – Observation (Job Shadowing):**

Purpose: Observe users in their real environment to understand workflows and challenges.
Example: Visiting farms to see how farmers currently purchase fertilizers and seeds**.**

* **W – Workshops (Joint Application Development - JAD):**

Purpose: Collaborative discussions between developers, business stakeholders, and BAs to refine system requirements.
Example: Conducting a JAD session with APT IT Solutions’ development team and farmers to define system features.

* **J – Job Analysis & Interviews:**

**Purpose:** Understand job roles, responsibilities, and needs through direct discussions.
**Example:** Interviewing farmers, suppliers, and delivery personnel to document their workflows.

* **I – Interface Analysis:**

**Purpose:** Analyzing interactions between different system components and third-party integrations.
**Example:** Defining API requirements for integrating the agriculture product store with logistics providers.

* **P – Prototyping:**

Purpose: Creating wireframes or mock-ups to visualize the application and refine user expectations.
Example: Developing a prototype of the mobile app interface for farmers to get feedback before development.

* **Q – Questionnaires & Surveys:**

Purpose: Collect structured feedback from a large group of stakeholders.
Example: Sending an online survey to farmers asking about their preferences for ordering fertilizers and pesticides.

* **U – Use Cases & Scenarios:**

Purpose: Define step-by-step user interactions with the system to identify functional needs.
Example: Creating a use case for "Farmer Places an Order" with specific system responses at each step.

1. **This project Elicitation Techniques** Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques? Prototyping Use case Specs Document Analysis Brainstorming

Answer**:**

* **Prototyping:**
* Since farmers and manufacturers may not be familiar with complex online systems, visual representations (wireframes, UI mockups) will help them understand how the application will look and function.
* Helps in early validation of the user interface (UI), ensuring a user-friendly design.
* Reduces rework by clarifying expectations before actual development.
* A prototype of the product catalog, login page, search feature, and checkout process will be created.
* Farmers (Peter, Kevin, Ben) and manufacturers will review and provide feedback.
* **Use Case Specifications:**
* Clearly defines how users (farmers, manufacturers) will interact with the system.
* Helps developers and testers understand functional requirements and expected outcomes.
* Use Case: "Farmer Searches for a Product" will describe Steps involved in searching for fertilizers, seeds, or pesticides. How search filters will work. Expected system behavior when a product is not found.
* Use Case: "Manufacturer Uploads a Product**"** will describe Steps to add product details like price, stock, and expiry date. Product approval process before displaying to farmers.
* **Document Analysis:**
* Helps in understanding existing business processes, regulations, and technical constraints.
* Useful for reviewing previous procurement methods, agricultural product catalogs, and industry policies.
* Reviewing documents related to agriculture product standards to ensure compliance.
* Analyzing existing online agricultural marketplaces to identify best practices.
* **Brainstorming:**
* Encourages creative problem-solving and helps in identifying possible challenges & enhancements.
* Engages multiple stakeholders (farmers, manufacturers, logistics partners) in generating new ideas.
* Brainstorm with Peter, Kevin, and Ben to identify challenges in product search, payment, and delivery tracking.
* Generating ideas for improving COD, UPI payment integration, and notification system.
* **Identified Business Requirements (BRs):**

|  |  |
| --- | --- |
| ID | Requirement |
| BR001 | Farmers should be able to search for available products in fertilizers, seeds, and pesticides. |
| BR002 | Manufacturers should be able to upload and display their products in the application. |
| BR003 | Farmers should have a login/signup feature to manage their orders and preferences. |
| BR004 | A secure payment gateway should be provided, supporting COD, Credit/Debit Card, UPI. |
| BR005 | An order confirmation email should be sent to users after placing an order. |
| BR006 | A delivery tracking system should be available for farmers to track their orders. |

1. **10 Business Requirements** Make suitable Assumptions and identify at least 10 Business Requirements.

Answer:

* **Product Search & Catalog:**
* **BR001**: Farmers should be able to search for available products in **fertilizers, seeds, and pesticides** using keywords and filters (e.g., category, price, brand).
* **BR002**: The system should display a **catalog** of fertilizers, seeds, and pesticides with details like **product name, price, manufacturer, and stock availability.**
* **User Authentication & Profiles:**
* **BR003**: Farmers and manufacturers should be able to **register/login** using their email ID and a secure password.
* **BR004**: Users should have a **profile management section** where they can update their details (e.g., address, phone number, payment preferences).
* **Product Upload & Management (For Manufacturers):**
* **BR005:** Manufacturers should be able to upload and manage their products (add/edit/update stock, prices, and descriptions).
* **BR006:** Products uploaded by manufacturers should go through an approval process before being displayed in the product catalog.
* **Ordering & Payment:**
* **BR007:** Farmers should be able to add products to their cart, proceed to checkout, and select from multiple payment methods (COD, Credit/Debit Card, UPI).
* **BR008**: The system should send an **order confirmation email/SMS** with order details and the expected delivery date after a successful purchase.
* **Delivery & Tracking:**
* **BR009:** Farmers should be able to track their orders in real-time, showing order status updates (e.g., Order Placed → Dispatched → Out for Delivery → Delivered)**.**
* **BR010:** The system should allow users to raise complaints/return requests in case of defective or incorrect product deliveries**.**
1. **Assumptions** List your assumptions

Answer:

* **Internet & Device Accessibility:**
* Farmers will have internet access and basic knowledge of using smartphones or computers to access the online store.
* The platform will be mobile-friendly to support rural farmers who primarily use smartphones.
* **User Registration & Authentication:**
* Farmers and manufacturers will provide valid email IDs and phone numbers for registration and login.
* One-time password (OTP) verification will be used for secure login and order confirmation.
* **Product & Order Management:**
* Manufacturers will regularly update product details (pricing, stock availability) to ensure accurate product listings.
* Orders placed by farmers will be fulfilled within a reasonable delivery timeframe based on their location.
* Delivery partners will be available to handle logistics for order fulfillment.
* **Payment & Security:**
* The platform will support multiple payment methods (COD, Credit/Debit Card, UPI) for a seamless transaction experience.
* Secure payment gateways will be integrated to prevent fraud and ensure transaction safety.
* **Customer Support & Issue Resolution:**
* Farmers can contact customer support for order-related issues, returns, or payment disputes.
* A **return/refund policy** will be in place to handle defective or incorrect product deliveries.
1. **This project Requirements a Priority**

Answer:

After discussions with the stakeholders, the business requirements have been assigned priority levels (1 = Low, 10 = High) based on criticality, user needs, and project goals.

|  |  |  |  |
| --- | --- | --- | --- |
| Req ID | Req Name | Req Description | Priority |
|

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| --- |
| **BR001** |

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|  |

 | Farmer Search for Products | Farmers should be able to search for available products in fertilizers, seeds, and pesticides. | 8 |
| BR002 | Manufacturers Upload Their Products | Manufacturers should be able to upload and display their products in the application. | 8 |
| BR003 | User Registration & Login | Farmers and manufacturers should be able to register/log in using email ID and password. | 10 |
| BR004 | Profile Management | Users should have a profile section to update details (address, payment preferences). | 6 |
| BR005 | Product Catalog Display | The system should display product catalogs with details like name, price, stock, and description. | 9 |
| BR006 | Order Placement & Checkout | Farmers should be able to add products to their carts and place an order. | 10 |
| BR007 | Payment Integration | Payment options should include COD, Credit/Debit Card**,** UPI for seamless transactions. | 9 |
| BR008 | Order Confirmation Notification | The system should send an order confirmation via email/SMS after a successful purchase. | 7 |
| BR009 | Order Tracking | Farmers should be able to track the real-time status of their orders. | 9 |
| BR010 | Returns & Complaint Handling | Users should be able to raise complaints/return requests for defective or incorrect deliveries. | 7 |

1. Use a Case Diagram.



1. **Use Case Specs -** Prepare use case specs for all use cases

Answer:

* **Use Case 1: Register/ Login:**

**Use Case ID:** UC1

**Actors**: Farmer, Manufacturer

**Description:** Allows users to register or log in to the system.

**Preconditions:** The user must have an email ID or phone number.

**Postconditions:** The user is successfully logged in.

**Basic Flow**:

1. User selects "Register" or "Login."
2. Enter email/phone and password.
3. System validates credentials.
4. If valid, the user is redirected to the dashboard.

**Alternate Flow:**

* If invalid credentials, an error message is shown.
* If a new user, they can register by providing the required details.

**Exceptions:**

* System error during validation.
* Email already registered.
* **Use Case 2: Search Products**

**Use Case ID:** UC2

**Actors**: Farmer

**Description**: Allows farmers to search for products.

**Preconditions**: The user must be logged in.

**Postconditions**: Search results are displayed.

**Basic Flow**:

1. The user enters a keyword in the search bar.
2. System fetches relevant products.
3. The user views the search results.

**Alternate Flow**: If no products match, a “No Results Found” message is displayed.

**Exceptions**: Network issues preventing search results display.

* **Use Case 3: View Product Details**

**Use Case ID:** UC3

**Actors**: Farmer

**Description**: Allows users to view detailed information about a product.

**Preconditions**: The product must be available in the catalog.

**Postconditions**: A detailed product page is displayed.

**Basic Flow**:

1. The user selects a product.
2. System displays product name, price, description, and reviews.

**Exceptions**: Product details are unavailable due to server issues.

* **Use Case 4: Add to Cart & Checkout**

**Use Case ID:** UC4

**Actors**: Farmer

**Description**: Farmers can add products to the cart and proceed to checkout.

**Preconditions**:

* User must be logged in.
* Product is available in stock.

**Postconditions**: The item is added to the cart, and the order is created after checkout.

**Basic Flow**:

1. The user clicks "Add to Cart."
2. The user reviews the cart and clicks "Checkout."
3. The system confirms the order and displays the order summary.

**Exceptions**: The product goes out of stock during checkout.

* **Use Case 5: Make Payment**

**Use Case ID**: UC5

**Actors**: Farmer

**Description**: Allows users to make payments for their orders.

**Preconditions**: The user has items in the cart.

**Postconditions**: Payment is processed, and confirmation is sent.

**Basic Flow**:

1. The user selects a payment method (COD, UPI, Card).
2. System processes the payment.
3. Confirmation is displayed.

**Exceptions**:

* Payment gateway issues.
* Insufficient funds.
* **Use Case 6: Track Order**

**Use Case ID**: UC6

 **Actors**: Farmer

**Description**: Allows users to track the status of their orders.

**Preconditions**: The user must have placed an order.

**Postconditions**: Order status and delivery details are displayed.

**Basic Flow**:

1. The user goes to the “Track Order” section.
2. System displays order status and estimated delivery date.

**Exceptions**: Tracking data unavailable.

* **Use Case 7: Upload & Manage Products**

**Use Case ID:** UC7

**Actors**: Manufacturer

**Description**: Manufacturers can upload and manage their products.

**Preconditions**: Manufacturers must be logged in.

**Postconditions**: The product is listed and visible to farmers.

**Basic Flow**:

1. Manufacturer clicks “Upload Product.”
2. Enters product name, price, description, and images.
3. The system saves the product in the catalog.

**Exceptions**: Incorrect or incomplete product details.

* **Use Case 8: Receive Order Notification**

**Use Case ID:** UC8

**Actors**: Manufacturer

**Description**: Notifies manufacturers of new orders.

**Preconditions**: An order must be placed by a farmer.

**Postconditions**: The manufacturer prepares the product for shipping.

**Basic Flow**:

1. Order notification is sent to the manufacturer.
2. Manufacturer reviews order details.
3. The order is confirmed and shipped.

**Exceptions**: Notification delivery failure.

* **Use Case 9: Handle Returns & Complaints:**

**Use Case ID:** UC9

**Actors**: Farmer, Manufacturer

**Description**: Handles customer complaints and product returns.

**Preconditions**: The product must have been purchased.

**Postconditions**: Complaint is resolved, or product is returned.

**Basic Flow**:

1. The farmer submits a return or complaint request.
2. Manufacturer reviews and approves or rejects the request.
3. Refund or replacement is processed.

**Exceptions**: Return requests outside the allowed return period.

1. **Activity Diagrams** - Activity diagrams
* **Activity Diagram 1: Register/ Login:**

Steps for Login



* **Activity Diagram 2: Search Products**

Steps for Search



* **Activity Diagram 3: Add to Carts and Checkout**

Steps Add Carts



* **Activity Diagram 4: Make Payment**

Steps Payment



* **Activity Diagram 5: Track Order**

Step Tracking

