Capstone Project1 – Part -2/3

Question 1 – Audits - 5 Marks

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 1-

As a Business Analyst, it is vital to comprehend the quarterly audits for a project like this to determine whether the project is progressing as planned. These audits demonstrate how effectively the organization runs its business processes while adhering to established rules and regulations. Regular audits help confirm that firms maintain strict compliance with administrative standards and achieve the highest possible accuracy, particularly in financial reporting.

Stage	Status	Checklist
Requirement Gathering	Completed	- BRD Templates - Elicitation Outcome Report - Duplicate Requirements Log - Functional Grouping – Client Approval
Requirement Analysis Phase	Completed	- UML Diagrams - Mapping of Business to Functional Requirements - Client Approval - RTM Document Version Control
Design Phase	Completed	- Tool Utilization - Documented Client Communications - Stakeholder Meeting Minutes
Development Phase	Completed	- Creation of Timeline and List of Deliverables - Coordination Meetings with Development Team
Testing Preparation	Completed	- Meetings with Testers to Review Potential Outcomes - Discussions with QA Team

By maintaining a proactive and well-organized approach, you help ensure that audits not only confirm the project's achievements but also swiftly identify and address any emerging concerns. Your role as a BA is crucial in closing communication gaps between stakeholders and the technical team, thereby contributing significantly to the project's overall success.

Question 2 – BA Approach Strategy - 6 Marks

Before the Project is going to Kick Start, The Committee asked Mr. Karthik to submit BA Approach Strategy.

Answer 2-

As a Business Analyst, my core responsibility is to ensure that the project's requirements are well-understood, accurately captured, and successfully delivered to align with stakeholder expectations. Below outlines the BA Strategy for this initiative:

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1. Project Execution Steps

a) Initiation Phase

- Grasp the project goals and scope, particularly the CSR initiative aimed at enhancing agricultural accessibility for remote farming communities.
- Identify all stakeholders and outline their respective responsibilities.
- Establish success metrics in collaboration with the committee and key stakeholders.

b) Requirements Gathering

- Apply a variety of elicitation methods:
    - **Interviews**: Conduct discussions with stakeholders such as Peter, Kevin, and Ben to capture in-depth requirements and challenges.
    - **Workshops**: Facilitate collaborative sessions with manufacturers and farmers to chart existing workflows.
    - **Surveys/Questionnaires**: Collect broader insights from potential user groups.
    - **Document Review**: Analyze current agricultural procurement platforms or tools for industry best practices.
    - **Observation**: Examine real-world processes farmers use to obtain seeds, fertilizers, and pesticides.

c) Stakeholder Evaluation

- Develop a Stakeholder Matrix categorizing stakeholders by their level of influence and interest.
- Utilize a RACI Chart to assign roles:
    - **Responsible**: Individuals executing the tasks (e.g., Developers).
    - **Accountable**: The person ensuring task completion (e.g., Project Manager).
    - **Consulted**: Experts offering advice (e.g., Farmers, Manufacturers).
    - **Informed**: Those who need updates (e.g., Committee Members).

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2. Key Deliverables

A. Business Requirements Document (BRD)

- Captures strategic goals and business needs.
- Requires formal approval from the committee.

B. Functional Requirements Document (FRD)

- Details system features and operations.
- Developed with input from the technical team for feasibility assessment.

C. Use Case Diagrams and Flowcharts

- Graphical illustrations of user-system interactions.

D. Requirements Traceability Matrix (RTM)

- Monitors requirement fulfillment throughout the project lifecycle.

E. Change Request Form (CRF)

- Standardizes the recording of any modifications to scope or requirements.

F. Communication Plan

- Outlines communication flows among teams and stakeholders.

G. UAT Plan and Project Acceptance Form

- Directs the User Acceptance Testing process.
- Secures final client approval post-testing.

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3. Document Approval Process

- Distribute draft documents to stakeholders for feedback.
- Hold review meetings to gather and address input.
- Update documents based on feedback and redistribute.
- Achieve official approval via email or a document management system.

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4. Project Approval Workflow

- Present project deliverables and designs in scheduled committee meetings.
- Capture approvals through signed documentation or digital acknowledgments.
- Maintain an approval repository for record-keeping and audits.

5. Communication Methods

- Standard channels include:
    - **Email**: For official correspondence and updates.
    - **Project Management Software** (e.g., Jira, Trello): For tracking tasks, progress, and issues.
    - **Weekly Standups**: Short team updates.
    - **Monthly Review Meetings**: In-depth progress discussions with stakeholders.
    - **WhatsApp/Slack**: For rapid, informal communication.

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6. Managing Change Requests

- Adopt a formal Change Management Procedure:
    1. Stakeholders submit a CRF with details of the requested change.
    2. Assess the impact on the project's scope, schedule, and costs.
    3. Discuss proposed changes with the committee and project leadership.
    4. Proceed with changes only after formal approval.
    5. Update the RTM and related documentation accordingly.

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7. Stakeholder Project Updates

- **Weekly Reports**: Summarize completed tasks, upcoming milestones, and risks.
- **Quarterly Reviews**: Present detailed project performance analytics.
- **Milestone Checkpoints**: Review accomplishments at major phases.
- **Dashboard Reporting**: Offer real-time visibility into project status.

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8. User Acceptance Testing (UAT) and Final Client Approval

1. **Develop the UAT Plan**
    - Define test scenarios, acceptance criteria, and detailed test cases.
    - Engage selected farmers and manufacturers for testing activities.
2. **Execute UAT**
    - Coordinate testing activities with individuals like Mr. Jason and Ms. Alekya.
    - Document feedback and quickly resolve identified issues.
3. **Secure Final Client Approval**
    - Submit a Project Acceptance Form summarizing UAT outcomes.
    - Obtain the committee’s sign-off to officially close the project.

Question 3 – 3-Tier Architecture - 5 Marks

Explain and illustrate 3-tier architecture?

Answer 3-

The 3-tier architecture is a software design model that divides an application into three distinct logical and physical layers.

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1. **Presentation Layer (User Interface)**

- **Purpose:** Offers a platform for farmers and manufacturers to engage with the system.
- **Main Responsibilities:**
    - Farmers can explore various products (seeds, fertilizers, pesticides) and submit purchase requests.
    - Manufacturers have the ability to upload product information, manage inventory, and monitor incoming orders.
    - Manage user login and authentication processes for both farmers and manufacturers.
- **Technology Stack:**
    - Web Portal: Developed with HTML, CSS, and JavaScript libraries/frameworks such as React or Angular.
    - Mobile Application: Built for Android and iOS using Flutter or React Native.
- **Users:**
    - Farmers and Manufacturers.

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2. **Business Logic Layer (Application Core)**

- **Purpose:** Interprets and executes commands from the user interface and applies business rules.
- **Main Responsibilities:**
    - Verifies data input (such as ensuring inventory is available before confirming orders).
    - Oversees order lifecycle, including tracking and status updates.
    - Sends alerts and updates (like order confirmations and stock shortage warnings).
- **Technology Stack:**
    - Backend Services: Developed with Java using frameworks like Spring Boot.
    - API Services: RESTful APIs facilitate communication between the user interface and the database.
- **Users:**
    - Java Development Team (Ms. Juhi, Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo).

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3. **Data Layer (Database and Storage)**

- **Purpose:** Ensures secure management and persistence of application data.
- **Main Responsibilities:**
    - Maintain records of product information, user profiles, and order transactions.
    - Deliver up-to-the-minute updates on inventory and order processing.
- **Technology Stack:**
    - Databases: MySQL or PostgreSQL systems.
    - Optional: Cloud storage solutions for enhanced scalability.
- **Users:**
    - Database Administrator (Mr. John), Network Administrator (Mr. Mike).

Question 4 – BA Approach Strategy for Framing Questions – 10 Marks

Business Analyst should keep What points in his/her mind before he frames a Question to ask to the Stakeholder (5W 1H – SMART – RACI – 3 Tier Architecture – Use Cases, Use case Specs, Activity Diagrams, Models, Page designs)

Answer 4-

When preparing questions for stakeholders, a Business Analyst must ensure that the queries are precise, relevant, and aimed at gathering critical insights to drive project success. The guide below outlines how to structure powerful questions using frameworks like 5W1H, SMART, RACI, 3-Tier Architecture, and documentation best practices:

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1. Utilize 5W1H (Who, What, Where, When, Why, How)

Before posing questions, make sure you address key dimensions of the issue or need:

- **Who**:
  - Who are the primary users (e.g., farmers, suppliers)?
  - Who holds responsibility for process execution or approvals?
- **What**:
  - What obstacles are users encountering (e.g., in sourcing seeds, managing inventory)?
  - What features are necessary to overcome these challenges?
- **Where**:
  - Where will users access the platform (rural areas, urban centers)?
  - Where should the goods be delivered?
- **When**:
  - When will users most frequently interact with the application (e.g., during sowing seasons)?
  - When should key deliverables or project stages be completed?
- **Why**:
  - Why are certain features indispensable for users?
  - Why is scalability important (e.g., to accommodate growing user bases)?
- **How**:
  - How will users navigate and engage with the system?
  - How will essential operations like payment and inventory updates be managed?

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2. Design Questions Around SMART Criteria

- **Specific**: Focus questions tightly on a particular aspect (e.g., "Which seed varieties are most in demand among farmers?").
- **Measurable**: Frame questions so answers can be quantified (e.g., "How many items should appear on one screen?").
- **Achievable**: Ensure questions relate to realistic functionalities (e.g., "What process will manufacturers follow to list their products?").

- **Relevant**: Center questions on factors that impact project outcomes (e.g., "Why is offline access critical for the farming community?").
- **Time-Bound**: Address timing constraints and deadlines (e.g., "By when must the system be ready for seasonal usage?").

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3. Apply RACI Model to Clarify Roles

While forming questions, ensure clarity around roles and responsibilities:

- **Responsible**: Who will carry out the tasks?
    - "Who from the vendor's team will be responsible for uploading product information?"
- **Accountable**: Who owns the final decision?
    - "Who will sign off on the product category structure?"
- **Consulted**: Whose input is needed?
    - "What feedback does users, such as farmers, provide on the design prototype?"
- **Informed**: Who needs to stay updated?
    - "Which committee members should receive ongoing status updates?"

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4. Connect Questions to the 3-Tier Architecture

Frame questions based on the system's structural layers:

- **Presentation Layer**:
    - "What UI design elements can make the app more user-friendly for farmers?"
    - "Is multilingual support necessary for the user interface?"
- **Business Logic Layer**:
    - "What validation rules and payment processes should be incorporated?"
    - "What policies will govern discounts and promotional offers?"
- **Data Layer**:
    - "What product information needs to be captured (e.g., product type, stock levels, price points)?"
    - "What measures should be in place to secure user data, especially financial and personal information?"

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5. Leverage Use Cases and Visual Models

Gain a strong understanding of the workflows by referencing Use Cases, Activity Diagrams, and relevant models:

- **Use Cases**:
    - "What should occur when a farmer orders a product that is out of stock?"
- **Use Case Specifications**:
    - "What prerequisites must be met for a user to view past orders?"

- **Activity Diagrams**:
    - "What are the detailed steps a manufacturer follows to list new products?"

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6. Focus on Page Layout and User Experience

Ensure usability by framing questions about the user interface:

- "What key elements should be displayed on the homepage for first-time visitors (farmers, manufacturers)?"
- "What navigation features would simplify product searches for users?"
- "What accessibility options should be provided for users with limited digital skills?"

Question 5 – Elicitation Techniques - 6 Marks

As a Business Analyst, What Elicitation Techniques you are aware of? (BDRFOWJIPQU)

Answer 5-

The acronym **BDRFOWJIPQU** covers a range of elicitation techniques that a Business Analyst can employ to gather requirements. Let's relate each technique to the provided scenario:

a. Document Analysis — Document analysis involves reviewing and interpreting existing documents to understand the associated product, project, or process.

b. Reverse Engineering — Also referred to as back engineering, it involves extracting design insights or functional knowledge from existing systems or products to recreate or improve them.

c. Focus Group — A focus group is used to collect opinions and ideas about a particular product, service, or concept by engaging participants in a collaborative group setting.

d. Observations — Watching users perform their tasks or shadowing them can help uncover details about the current processes, inputs, and outputs.

e. Workshop — Requirements workshops are structured sessions designed to collaboratively define, prioritize, and finalize system requirements with key stakeholders.

f. JAD (Joint Application Development) — In JAD sessions, users participate directly in the design and development process, leading to greater customer satisfaction and reduced errors.

g. Interview — An interview is a structured method where specific questions are asked to gather detailed information about a system, with the responses carefully recorded.

h. Prototyping — Prototyping is especially beneficial for complex or new systems where no existing models are available, helping to clarify and refine requirements through early samples.

i. Survey/Questionnaire — Surveys and questionnaires are helpful tools for gathering system requirements from users or stakeholders who have limited involvement or are located remotely.

j. Brainstorming — Brainstorming encourages the generation of a wide range of ideas around a particular topic, which are later analyzed to identify the most effective solutions.

Question 6 – This project Elicitation Techniques - 5 Marks

Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques?

Answer 6-

Elicitation Methods Utilized in This Project

To collect the requirements efficiently for Mr. Henry's online agriculture product store initiative, the following elicitation methods will be employed:

1. **Interviews**

Rationale:

Since Peter, Kevin, and Ben are primary stakeholders and end users (farmers), holding individual or group interviews with them will help uncover their specific needs, difficulties, and expectations. Discussions with Mr. Henry, Mr. Pandu, and Mr. Dooku (the Committee) will assist in clarifying the business vision, budget constraints, timelines, and overall expectations.

2. **Workshops**

Rationale:

Organizing collaborative workshops with farmers, committee members, and the APT IT SOLUTIONS project team (developers, testers, database/network administrators) will promote open discussions and address conflicting requirements. Workshops are ideal for jointly prioritizing key features (such as payment gateways, product search filters, multilingual support, etc.) in a structured environment.

3. **Observation (Job Shadowing)**

Rationale:

By visiting the rural village and observing how farmers like Peter, Kevin, and Ben currently purchase agricultural supplies such as seeds, fertilizers, and pesticides, the team can gather real-world insights into their challenges and technological barriers. This will be invaluable in designing an intuitive, user-friendly interface for users with limited tech experience.

4. **Document Review**

Rationale:

Reviewing existing documents such as distribution records, procurement forms, and government scheme data will provide functional information, aiding the design of backend data systems and overall platform structure.

5. **Brainstorming Sessions**

Rationale:

Hosting brainstorming sessions with APT IT SOLUTIONS team members (developers, testers, DB administrators) alongside committee participants will encourage creative thinking for innovative app features, usability enhancements, and technical viability.

Conclusion:

Applying these techniques will ensure thorough requirement gathering from all key groups (farmers, committee members, and technical staff), while maintaining alignment with business goals and the unique challenges faced by remote farming communities.

Question 7 – 10 Business Requirements- 10 Marks

Make suitable Assumptions and identify at least 10 Business Requirements.

Answer 7-

Project Assumptions

1. The solution will be a web-based platform, optimized for mobile device usage.
2. Internet access in rural locations may be unstable; therefore, the application must perform well under low bandwidth conditions.
3. Since farmers may have limited technical skills, the user interface should remain straightforward and user-friendly.
4. Product information, including images, descriptions, pricing, and inventory levels, will be uploaded by manufacturers.
5. Payment integrations must adhere to the region's financial and regulatory requirements.
6. Order deliveries will be handled by external logistics service providers.
7. The application must offer support for multiple languages to accommodate farmers' preferences.
8. Secure authentication procedures will be required for account registration and login.
9. The system will dispatch email alerts for order placements and delivery status updates.
10. All purchases, orders, and product information will be recorded and maintained for auditing and reporting needs.

Documented Business Requirements

1. **BR001**: Farmers must be able to browse and search for agricultural products (such as fertilizers, seeds, and pesticides) with the use of filters like category, cost, and stock status.
2. **BR002**: Manufacturers must have the ability to sign up, log in, and upload product details, including descriptions, pricing, pictures, and stock counts.
3. **BR003**: Farmers should be able to register accounts with their email addresses and secure passwords, along with options for password reset.
4. **BR004**: The platform must integrate a secure payment system supporting various methods, such as cash on delivery (COD), credit/debit cards, and UPI payments.
5. **BR005**: Farmers should have the ability to save products to a "Wishlist" for later purchase or proceed to checkout directly from the shopping cart.
6. **BR006**: The system must send notification emails upon user registration, order confirmation, payment success, and dispatch updates.
7. **BR007**: A delivery tracking module must enable farmers to view the live status and expected arrival time of their shipments.
8. **BR008**: Multi-language capabilities must be available to serve farmers who speak various regional languages.

9. **BR009**: An administrative dashboard must provide system admins with tools to oversee transactions, manage users, and generate analytical reports on sales, product performance, and user engagement.
10. **BR010**: A review and rating feature must allow farmers to leave feedback on products to guide other buyers in making informed choices.

Question 8 –Assumptions- 5 Marks
List your assumption
Answer 8 –
Project Assumptions are outlined below:

- **Target Audience:** The main users are farmers located in remote regions. Suppliers of fertilizers, seeds, and pesticides will serve as the product vendors.
- **Technology:** The solution will be accessible via both web and mobile platforms, ensuring ease of use. It will be optimized for low-internet-speed environments to support users in rural locations.
- **User Experience:** The application will feature a straightforward and user-friendly design, specifically tailored for non-technical users such as farmers. It will also offer multilingual support to accommodate various language groups.
- **Product Listings:** Product suppliers will upload relevant product data, such as descriptions, pricing, available stock, and product images. Farmers will be able to search using filters like product category, price bracket, and stock status.
- **Payment Options:** The system will offer secure payment facilities, including cash-on-delivery (COD), credit and debit card transactions, and UPI integration, adhering to regional financial compliance standards.
- **Logistics:** Third-party logistics partners will handle the order deliveries. A delivery tracking feature will be available to farmers to monitor their shipments.
- **Notifications:** Automated email alerts will notify users about important activities like account creation, order placement, and delivery status updates.
- **Security Measures:** User accounts will be safeguarded with secure login procedures and password recovery options. Role-based access will be enforced, assigning distinct permissions to farmers, manufacturers, and administrators.
- **Stakeholder Involvement:** Farmers Peter, Kevin, and Ben will represent the user group and assist with requirements gathering. Mr. Henry, serving as the project sponsor, will oversee goal-setting and track project milestones.
- **Financials and Timeline:** The allocated project budget is INR 2 Crores, with a targeted completion timeline of 18 months.

Question 9 – This project Requirements Priority - 8 Marks

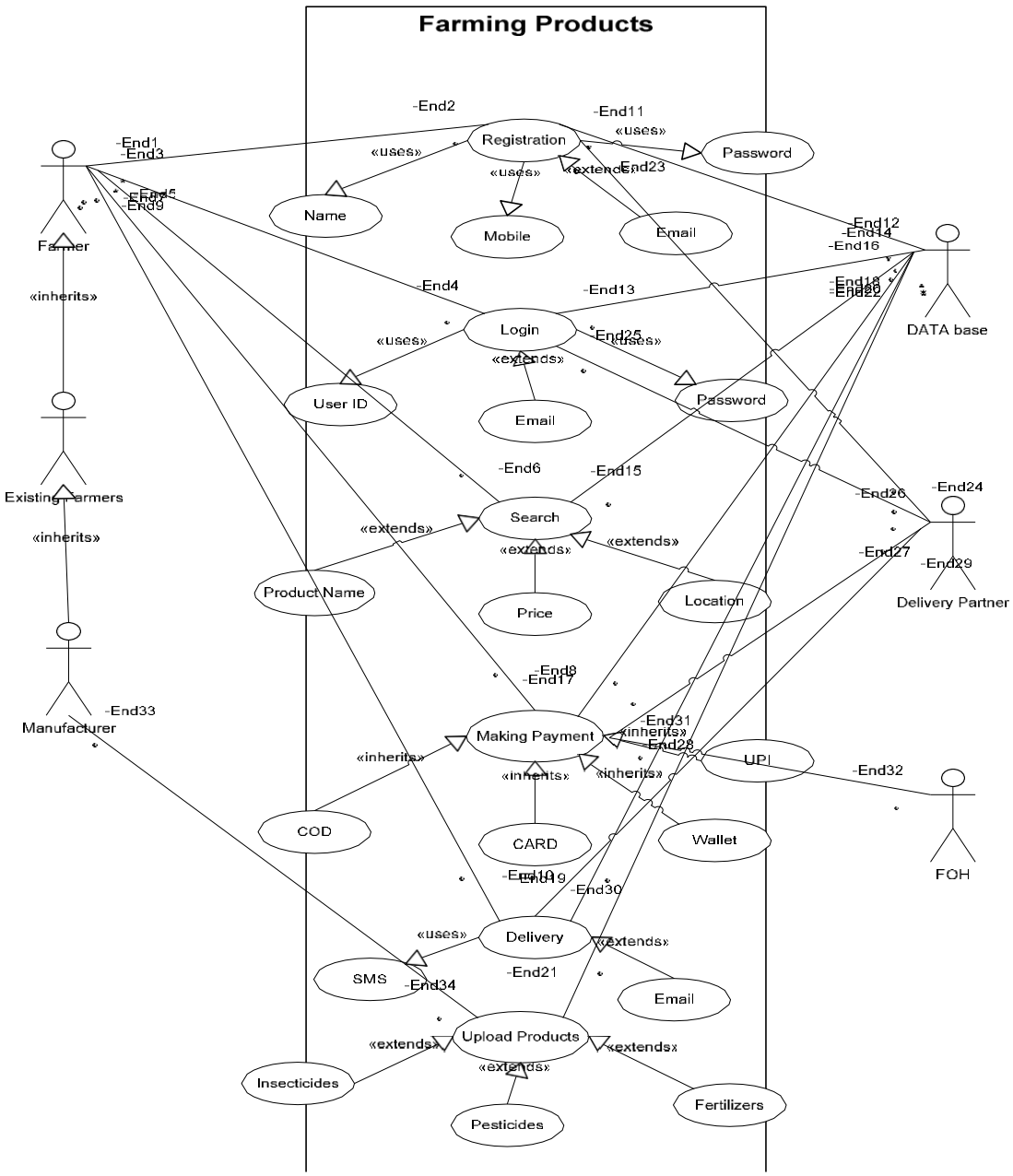
Give Priority 1 to 10 numbers (1 being low priority – 10 being high priority) to these Requirements after discussions with the stakeholder.

Answer 9-

Req. ID	Req. Name	Req. Description	Priority
BR001	Farmer Product Search	Farmers must be able to find available fertilizers, seeds, and pesticides.	8
BR002	Manufacturer Product Listing	Manufacturers must be able to upload and showcase their products in the app.	8
BR003	Secure Account Access	Farmers and manufacturers must securely sign in to manage their profiles.	10
BR004	Multiple Payment Methods	The system must allow various payment options (Cash on Delivery, Cards, UPI).	9
BR005	Order Delivery Tracking	Farmers must monitor the real-time delivery progress of their purchases.	7
BR006	Email Alerts	Automated emails for sign-up, order confirmation, and shipping notifications.	6
BR007	Language Localization	The platform must offer multi-language support for diverse user groups.	5
BR008	Product Catalogue Browsing	Farmers must browse an organized catalogue of fertilizers, seeds, and pesticides.	9
BR009	Product Feedback and Ratings	Farmers must be able to provide ratings and reviews for products to guide others.	4
BR010	Admin Analytics and Reports	Admins must access detailed reports on sales, usage patterns, and user behaviour.	3

Question 10 – Use Case Diagram - 10 Marks

Draw use case diagram.



Question 11 – (minimum 5) Use Case Specs - 15 Marks

Prepare use case specs for all use cases

Answer 11- Use Case Specifications for Online Agriculture Product Store

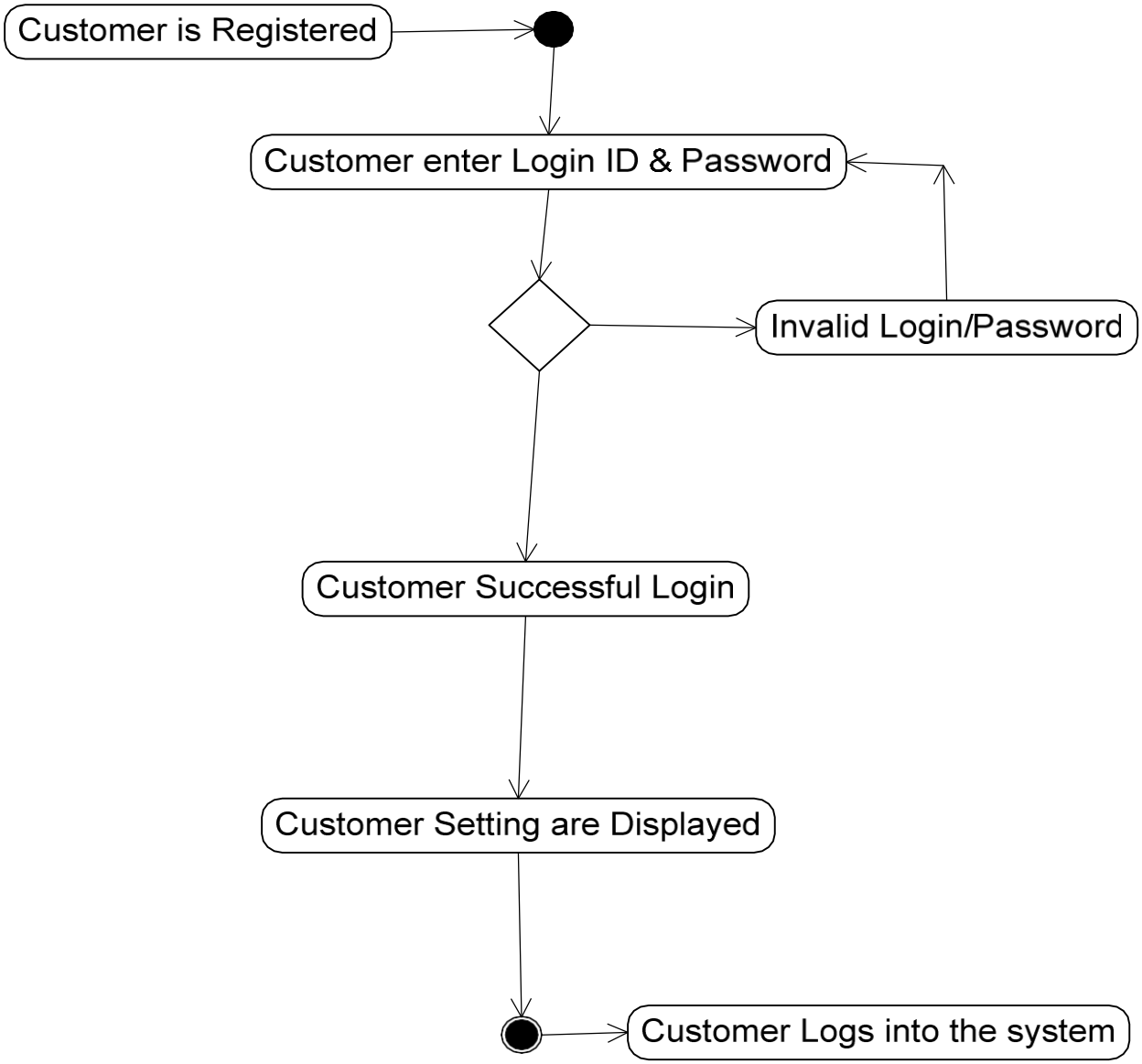
Use Case ID	Use Case Name	Actor	Description	Preconditions	Basic Flow	Alternate Flow	Postconditions
UC001	Search Products	Farmer	Enables farmers to search for specific products (fertilizers, seeds, pesticides) by using keywords or filters.	- Farmer must be logged in.	1. Farmer logs into the system.	If no products match the search, a "No Results Found" message is displayed with suggestions.	The farmer views relevant product options.
				- Product catalogue must be available.	2. Farmer enters a keyword or selects filters (e.g., type, price range).		
					3. The system displays a list of matching products.		
UC002	Browse Product Catalogue	Farmer	Farmers can explore a categorized catalogue of all available products.	- Product categories must be predefined.	1. Farmer selects the "Browse Catalogue" option.	N/A	The farmer views products within a selected category.
					2. The system displays categories such as fertilizers, seeds, and pesticides.		
					3. Farmer views products within a category.		
UC003	Place Order	Farmer	Farmers can add products to their cart and place an order.	- Farmer must be logged in.	1. Farmer adds products to the cart.	If payment fails, farmer is notified and can retry or choose another	The order is successfully placed and tracked.

Use Case ID	Use Case Name	Actor	Description	Preconditions	Basic Flow	Alternate Flow	Postconditions
						payment method.	
				- Products must be in stock.	2. Farmer proceeds to checkout.		
					3. Farmer selects payment method and confirms order.		
					4. System generates a confirmation.		

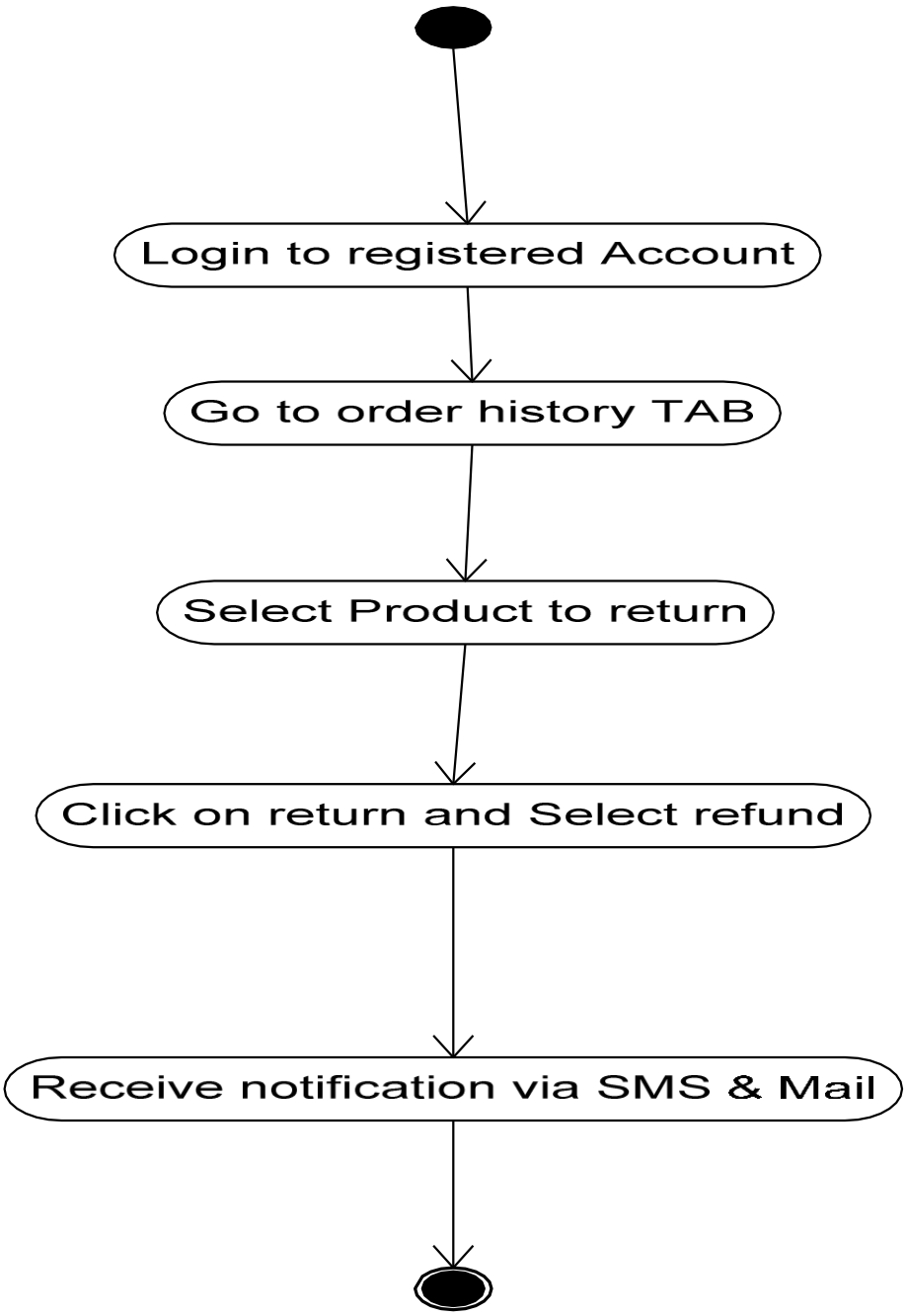
Answer 12-

Activity diagram is basically a flowchart diagram that shows the flow of activity from one activity to another activity.

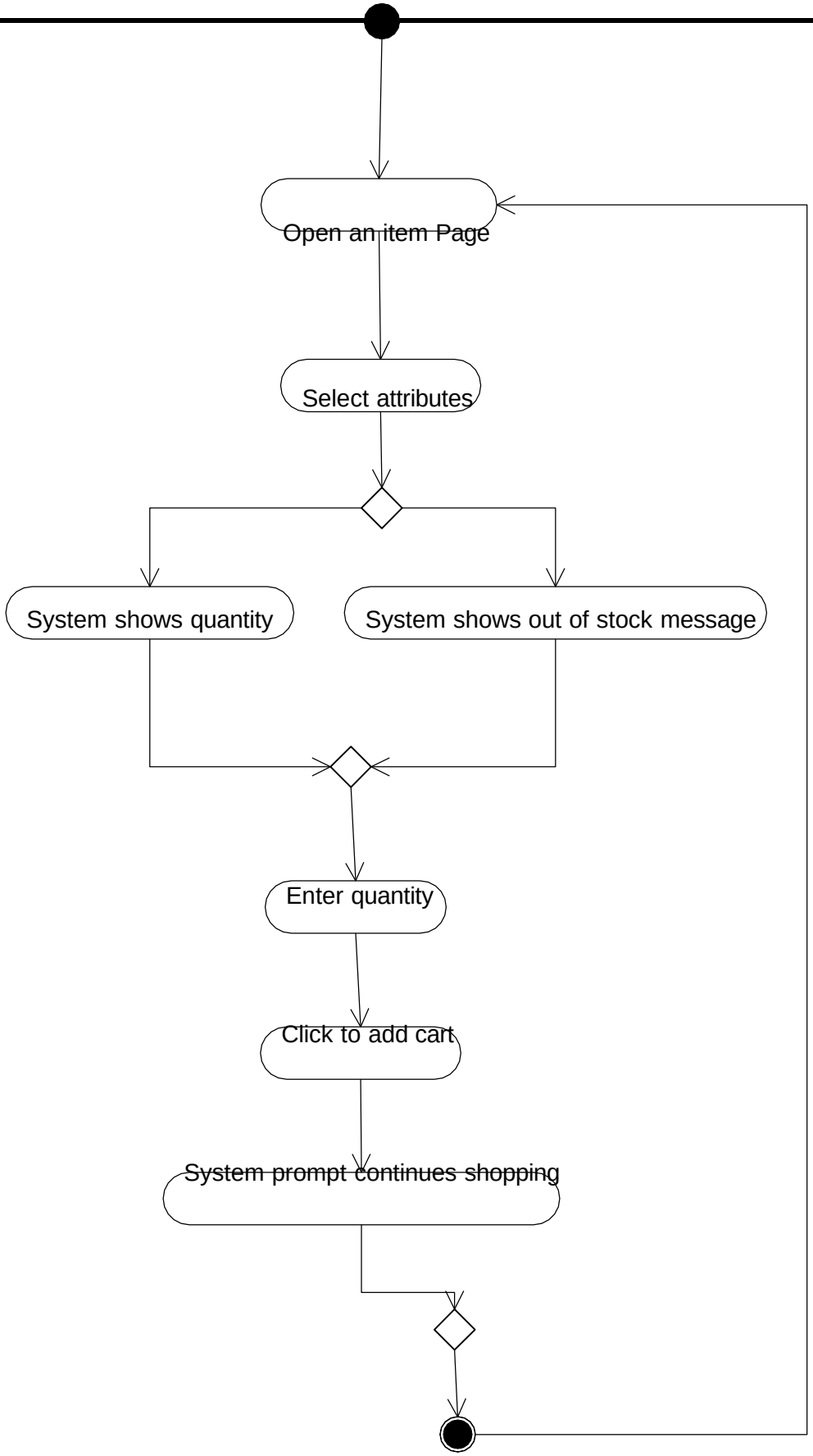
Registered Customer Login



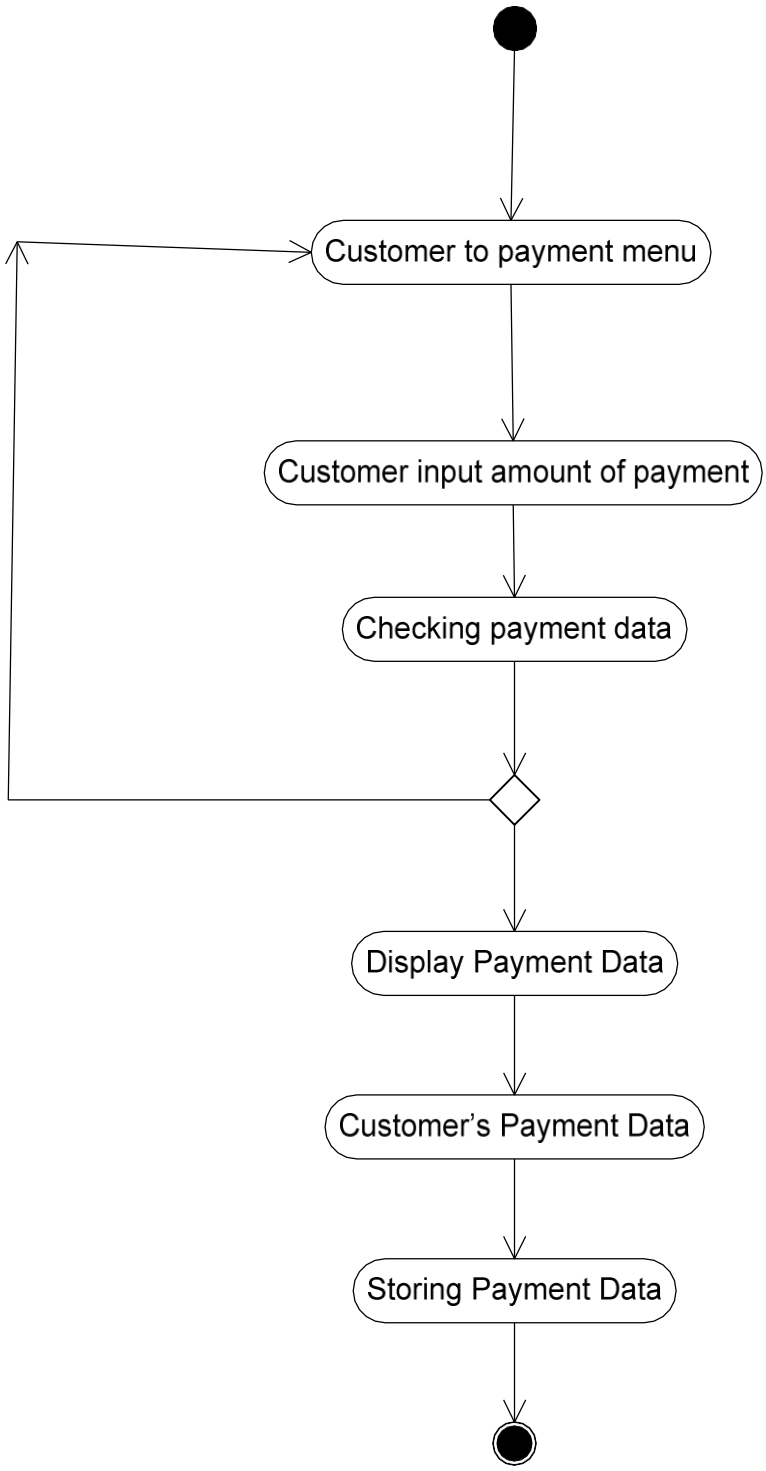
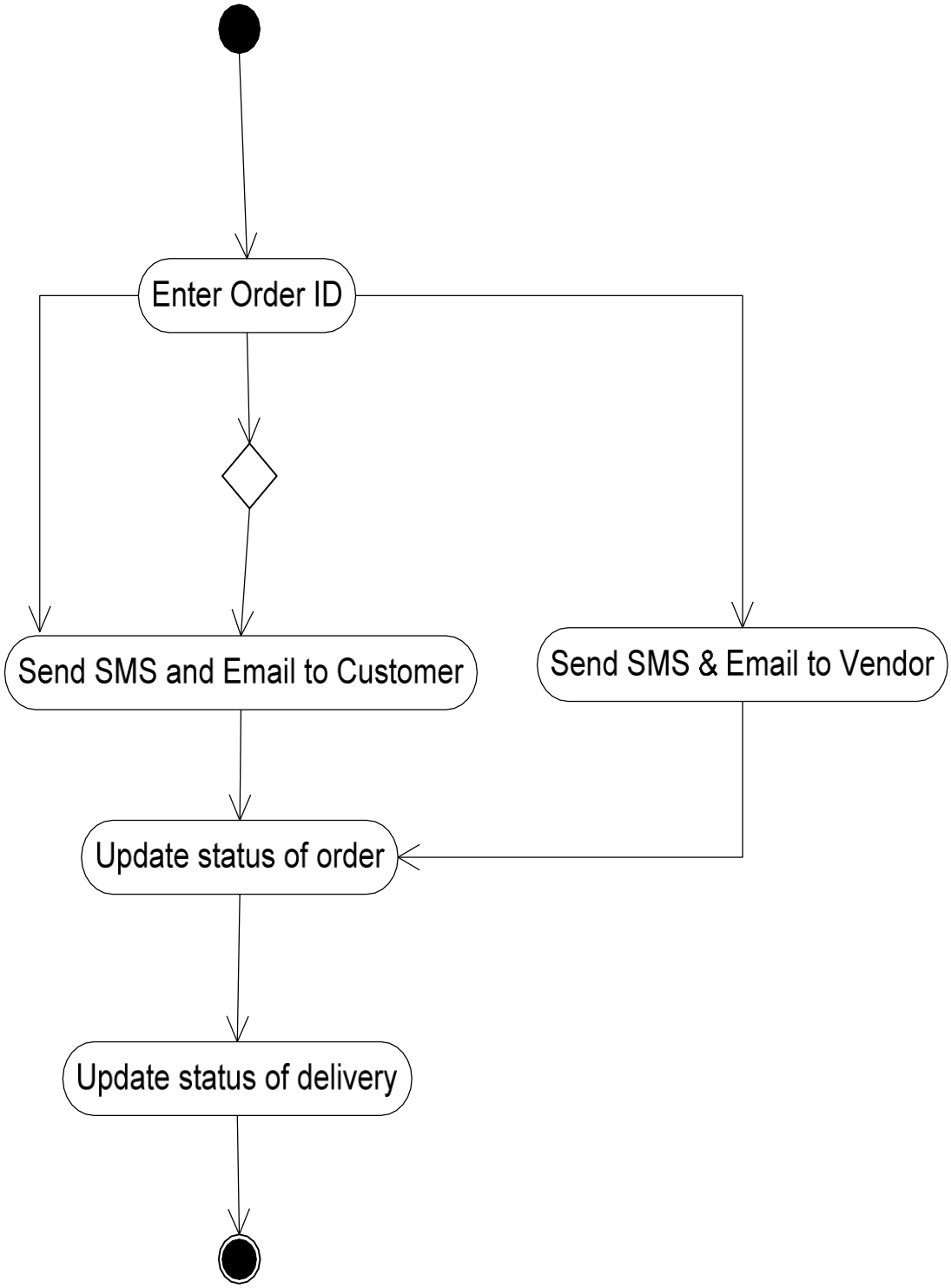
Search for product



Add to Cart


Open an item Page
Select attributes
System shows quantity
System shows out of stock message
Enter quantity
Click to add cart
System prompt continues shopping

Making Payment



Order for delivery