

Nurturing Process - Capstone Project1 – Part -2/3 V2D2- August 2024

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SH_09_Akash

Batch (10th Aug)

Case Study: Online Agriculture Products Store

Q1. 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?

A1. Audit means inspection of work for quality and progress. Quarterly Audit Reports for BA:

Stage	Q1- Audit Report (Requirement Gathering Phase)
Completed	10 Weeks
Check List	Business Requirement Document (BRD) Template
	Elicitation Result Report
	Grouping of functionalities/features- client signoff
	Email Communication- TO, CC, BCC

Stage	Q2- Audit Report (Requirement Analysis Phase)
Completed	7 Weeks
Check List	Unified Modelling Language (UML) Diagrams
	Business to Functional Requirements mapping
	Client signoff documents
	RTM Documents version control
	Email Communication- TO, CC, BCC

Stage	Q3- Audit Report (Design Phase)
Completed	7 Weeks
Check List	Utilization of tools
	Documented evidence on client communication
	Stakeholder MOM
	Email Communication- TO, CC, BCC

Stage	Q4- Audit Report (Development Phase)
Completed	20 Weeks
Check List	JAD Session Report
	End User Manual Preparation Document
	BA and Developer MOM
	Email Communication- TO, CC, BCC

Stage	Q5- Audit Report (Testing Phase)
Completed	20 Weeks
Check List	Test Case Summary
	Training Report to End Users
	Lessons Learnt Document
	Email Communication- TO, CC, BCC

Q2. BA Approach Strategy - Before the Project is going to Kick Start, The Committee asked Mr Karthik to submit BA Approach Strategy. Write BA Approach strategy (As a business analyst, what are the steps that you would need to follow to complete a project – What Elicitation Techniques to apply, how to do Stakeholder Analysis RACI/ILS, What Documents to Write, What process to follow to Sign off on the Documents, How to take Approvals from the Client, What Communication Channels to establish n implement, How to Handle Change Requests, How to update the progress of the project to the Stakeholders, How to take signoff on the UAT- Client Project Acceptance Form)

A2. As a business analyst, following are the steps that needs to be followed to complete a project:

- **What Elicitation Techniques to Apply:** We have many elicitation techniques to apply to gather requirements. Some of them are- Interview, Brainstorming, Document Analysis, Reverse engineering, Focus Groups, Observations etc. For this Project, we can use Interviews as It provides an opportunity to explore or clarify topics in more detail. Also, we can use Brainstorming for better understanding of the requirements.
- **How to do Stakeholder Analysis RACI/ILS:** Stakeholder Analysis can be done by using the RACI matrix involves identifying stakeholders and defining their roles and responsibilities within a project.

Different Types of Stakeholders in this Project are:

1. Business Stakeholders: Mr. Henry, Mr. Pandu, Mr. Dooku- these 3 are part of SOONY Company while Peter, Kevin and Ben are Mr. Henry's friends helping them by sharing the requirements.
2. Project Stakeholders: Mr. Karthik, Mr Vandanam, Ms. Juhi, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo, Mr Mike, John. Mr Jason, Ms Alekya and I as a **BA**. These are part of AP IT Solutions company working on the project
3. 3rd Party Stakeholders: Government authorities
4. Negative Stakeholders: Competitors.

Different Role & Responsibilities of each stakeholder in the Project can be defined as:

1. Responsible(R): The one who is responsible for carrying out the task. These are the doers.
2. Accountable(A): The one who is accountable for the Task. This is usually a senior person who delegates the work.
3. Consulted(C): The one who is consulted before taking any action. These are the SMEs (Subject Matter Experts).
4. Informed(I): The one who needs to be informed about every action. These are kept in loop but not involved in task's execution.

Please find below Stakeholder analysis (RACI Matrix) for this project:

Task	Requirement Gathering	Requirement Analysis	Development	Testing	UAT	Deployment & Implementation
Mr. Henry-Mr. Pandu, Mr. Dooku	I	I	I	I	I	I
Mr. Karthik	I	I	I	I	I	R
Mr Vandanam	A	A	A	A	A	A
Mr. Aakash Agrawal	R	R	I	C	R	A
, Ms. Juhi, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo	I	I	R	C	C	I
Mr Jason and Ms Alekya	C	C	C	R	R	C
Peter, Kevin and Ben	C	C	I	I	I	I

- **What Documents to Write:**

- **Business Requirement Document (BRD):** Document containing Business requirements as well as stakeholder requirement.
- **Functional Specification Document (FSD):** Document containing Functional requirement of the software.
- **User Stories (US):** User stories focus on the functions each user will perform and the value associated with those functions.
- **Test cases:** It includes the Instructions that the tester needs to follow to achieve the end result during Testing. Test Case Template contains Test Description, Preconditions/Test steps, test data, Expected Result, Actual result, Status, Remarks.
The more the Test cases the better the Product.
- **UAT Plan:** UAT plan outlines the overall strategy scope, objectives, roles for User Acceptance Testing.

- **What process to follow to sign off on the documents.**

- **Documents for sign off:** BRD, FSD

- **Process to follow to sign off on the documents:** Send an email with the document as the attachment. Update the document based on the feedback from the client.

Update version number every time the document is updated like

P1_BRD_V1_D1

If it's a minor change then P1_BRD_V1_D2

If it's a major change then P1_BRD_V2_D1

And also update the changes done in the Document History section in that document. Finally, when received the sign off, attach the document and the sign-off email to the Portal (Jira, ADO etc.) where these can be tracked for future reference.

- **How to take approvals from the client**

- Whenever you have sent an email with an important document, send a text message to the client informing that you have send this email and it needs to get approved so that team can proceed with further process. This will help you to get feedback soon.

- Do follow-up regularly (once in every 24 hrs.) so that the client will take action on it as soon as possible.

- Update the version number on every feedback.

- Sometimes, Documents (BRD, FSD, User stories, Test Cases, UAT Plan) undergo multiple major changes hence it's better to establish a formal meeting with the client and developers' team so that all are aligned and then finally take sign-off from the client on the email and attached the same to the portal (Jira, ADO etc.) for tracking purpose

- **What communication channels to establish n implement**

- Establish weekly meeting with the client to keep them updated about the progress of the Project and take feedback.

- Conduct daily meetings with developers and Testers team to track the progress.

- Use email for communication with the stakeholders.

- **How to Handle Change Requests**

- Initially BA should check the change request whether it's a defect from previous installations or not. If it is a defect then it is assigned to the technical team else BA should do the following

1. **Impact Analysis:** It is the process to understand the potential consequences of change request in a project before making any decisions.

2. **Feasibility Study:** It is a preliminary analysis of solution alternatives or options to determine whether and how each option can provide an expected business benefit to meet the business need.
 3. **Efforts estimation:** It is the process of predicting the time and resources needed to complete a project or task.
 - After doing these 3 steps, upon PM approval, log the CR into the change request tracker.
 - Company and client form a CCB (Change Control Board) to approve the CR.
- **How to update the progress of the project to the Stakeholders**
 - **Weekly Status Reports:** Share Project Status Reports Weekly with the client to keep them updated about the progress of the Project and take feedback.
 - **Monthly Review Meeting:** Prepare Project Progress Report monthly with the ETA of all the pending tasks to the stakeholders so that all are aligned.
 - **How to take signoff on the UAT- Client Project Acceptance Form**
 - **UAT Preparation:** UAT Plan includes all the Test cases.
 - **UAT Execution:** The client should test the system based on the Test cases and share the results.
 - **Fix Issues:** Based on the feedback received from the client, fix all the issues before taking sign-off.
 - **Acceptance Form:** Secure sign off from the client on the Acceptance form that system developed meet their requirements.
 - **Final Review Meeting:** Share the End User Manual with the client and finally the project is closed.

Q3. 3-Tier Architecture - Explain and illustrate 3-tier architecture?

A3. The 3-tier architecture is explained below:

- **Application Layer-** It is the topmost layer of the architecture. It is also known as “Presentation Layer”. It is responsible for presenting data to the user and receiving input from the user. Ex- E-Commerce website
- **Business Logic Layer-** It is the middle layer of the architecture. It acts as an intermediary between the presentation layer and the data storage layer. It contains the core logic of the application. It communicates with presentation layer to receive user input and communicates with database layer to retrieve or store data. Ex-Printer, payment gateways, mail servers etc.
- **Database Layer-** It is the bottom-most layer of the architecture. It is responsible for managing and storing data. It is responsible to ensure Data security. Ex- MySQL, Oracle Database.

Q4. Question 4 – BA Approach Strategy for Framing Questions- 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)

A4. Business Analyst should keep points in his/her mind before he frames a Question to ask to the Stakeholder:

- **5W 1H:** The 5W 1H framework is a useful tool for gathering information and understanding a situation by answering questions about who, what, when, where, why, and how.
 - **What:** Focuses on the nature of the problem or situation, including its types and conditions.
 - **Questions:** What's the problem? What are the features of the product?
 - **Who:** Identifies the individuals involved, including those affected and those contributing to the problem.
 - **Questions:** Who is responsible? Who is going to be asked to do the job?
 - **Where:** Includes the location or place of the problem or situation, including the specific process where it occurs.
 - **Questions:** Where is the problem? Where is the issue located on your machine?
 - **When:** Determines the time and duration of the problem or situation, including dates, deadlines and other time -related information.
 - **Questions:** When does it occur? When did it happen?
 - **Why:** Explores the reasons or motivations behind the problem or situation and the need for taking action.
 - **Questions:** Why are you targeting a specific goal? Why have you selected this preparation or materials.
 - **How:** Focuses on the mechanics of how something has happened, including the methods, tools, resources and costs.
 - **Questions:** How is it organized? How much does that cost?
- **SMART:** The SMART technique can help in creating questions
 - **Specific:** A requirement can be termed as specific if it is clear, non-ambiguous and consistent. Validate if a requirement is Specific by asking the questions in a requirement like What? Why? Who? Where?
 - **Measurable:** A requirement can be termed as Measurable if the indicators of completing the requirement is quantifiable. Validate if a requirement is Measurable by asking the questions in a requirement like How much? How many? How will I know when it is accomplished?
 - **Attainable:** Do feasibility and a sanity check on requirement based on: Technical expertise, Scope of the project, Budget. Validate if a requirement is Attainable by asking the following questions in a requirement: Is there a theoretical solution to the problem? Is the requirement previously done?
 - **Reasonable:** Validate the effort is worth the requirement. Validate if the requirement is Reasonable by asking questions in a requirement like Is it worthwhile? Is the timing, right?
 - **Traceable:** Requirements should be able to trace through design, implementation, testing. Validate if a requirement is Traceable by asking questions in the requirement: Can I ensure this requirement has been met in: Design Solution? Implementation? Testing?

- **RACI: It clarifies roles and responsibilities for each task or deliverable.**
- **Responsible(R):** The person or team directly responsible for doing the work related to a specific requirement.
 - **Question:** Who will enter product details in the app?
- **Accountable (A):** The person who is ultimately accountable for the completion and quality of requirement.
 - **Question:** Who is accountable for project's success?
- **Consulted(C):** Individuals or groups whose input and expertise are needed before a decision or action is taken regarding a requirement.
 - **Question:** Who should be consulted for feedback?
- **Informed(I):** People who need to be kept informed about the progress and status of requirement.
 - **Question:** Who should be informed about the daily project updates?
- **3-tier architecture:** A software application architecture that organizes applications into three logical tiers: Application Layer, Business logic layer and Database layer
- **Application Layer:** Focus on User interaction, data display and overall user experience.
 - **Question:** What should the interface look and feel like?
- **Business logic layer:** Focus on implementing business rules and coordinating interactions between the Application and Database Layer.
 - **Question:** what logic will the application follow?
- **Database layer:** Focus on storing and managing the application's data, ensuring data integrity and consistency.
 - **Question:** What type of database to be used?
- **Use Case specs:** Use Case Specification describes the flow of events in detail, including how the use case starts, ends, modifies the system and interacts with actors.
- Identify the Use case: Focus on different scenarios.
 - **Question:** Describe the process of User placing Order in the system.
- Identify the Users: Focus on the Users and their roles.
 - **Question:** Who will be using the system and what will be their role?
- Identify the goals: Focus on goals of the users with the system.
 - **Question:** What Users want to achieve with the system?
- **Activity Diagram:** An activity diagram is a type of Diagram in Unified Modelling Language (UML) that visually represents the flow of activities within the system.
- Identify the elements: All elements available in a process
 - **Question:** What are the different methods of payment?
- **Page Designs:** After the requirement gathering and requirement analysis process, we can start the page design along with the software designing process.
- Identify the position of the icons required in each screen
 - **Question:** Where the Filter and search icon be located in the screen?

Q5. Elicitation Techniques -As a Business Analyst, What Elicitation Techniques you are aware of?

A5. Different Requirement elicitation Techniques are following:

- **Document Analysis:** Document Analysis is done through reading a document and understanding the product, project and process.
- **Reverse Engineering:** Reverse Engineering is also called back engineering, is the process of extracting Knowledge or design information from anything man-made and re-producing it or re-producing it based on the extracted information.
- **Focus Groups:** Focus Groups is a means to elicit ideas, attitudes about a specific product, service or opportunity in an interactive group environment
- **Observations:** Observing, shadowing users or doing their part of the job can provide information of existing process, inputs and outputs.
- **Workshop:** A requirement workshop is a structured approach to capture requirements. A workshop may be used to scope, define, discover, prioritize and reach closure on requirements for the Target system.
- **JAD (Joint Application Development):** Application developed through JAD has higher customer satisfaction and a smaller number of errors as user are involved directly in the development process.
- **Interview:** An Interview is a systematic approach where interviewee is going to ask relevant question related to the software and documenting the responses.
- **Prototyping:** Prototyping is an attractive idea for complicated and large systems where there is no manual process or existing system to help determining the requirements.
- **Survey/Questionnaire:** Survey/ Questionnaire can be useful for obtaining limited system requirements details from the users who have minor input or are geographically remote.
- **Brainstorming:** Brainstorming is an effective way to generate lots of ideas on a specific issue and then determine which idea is the best solution.
- **Use Case Specs:** A Use case specific Document provides a detailed description of a use case, outlining how users(actors) will interact with the system to achieve a specific goal.

Q6. Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques?

- **Prototyping**
- **Use case Specs**
- **Document Analysis**
- **Brainstorming**

A6. Together, these techniques can provide a comprehensive and adaptable approach to gathering requirements for complex systems or projects. Each has its strengths depending on the stage of the project and the nature of the requirements.

- **Prototyping-** Prototyping is an attractive idea for complicated and large systems where there is no manual process or existing system to help determining the requirements. This Prototype is continuously refined based on user feedback, allowing stakeholders to interact with the system and clarify their needs.
- **Use case specs-** A Use case specific Document provides a detailed description of a use case, outlining how users(actors) will interact with the system to achieve a specific goal. Creating use cases with stakeholders helps to define functional requirements in a structured way by detailing system actions, user interactions, and expected outcomes.
- **Document Analysis-** Document Analysis is done through reading a document and understanding the product, project and process. This technique is useful for understanding current systems, regulations or workflows that impact the project
- **Brainstorming-** Brainstorming is an effective way to generate lots of ideas on a specific issue and then determine which idea is the best solution. Brainstorming will be suitable as it's a new project so all stakeholders can contribute and suggest ideas on how to make this app user friendly for the farmers and this way we can find a better solution.

Q7. Identify at least 10 Business Requirements.

A7. Business Requirements are the specific needs or conditions that a business must meet to achieve its objectives.

BR001- The application should be accessible via both desktop and mobile.

BR002- The application should be easy to use for all the farmers and manufacturers.

BR003- The application should have multiple language as per the user's convenience.

BR004- The user should be able to search all the available options and add a filter to it.

BR005- The manufacturers should be able to upload all the details into the application.

BR006- The application should update the details about the availability of the products real time.

BR007- The application should be able to protect all the personal data uploaded by the users.

BR008- The application should support the method to track the order and provide the delivery date/day update

BR009- There should be a system to provide pre-sales and post sales support to users for the effectiveness of the application.

BR010- The application should be able to send the notification and important updates such as system errors, approval requests, or order status change.

Q8. List your assumptions

A8. Assumptions:

- 1:** Farmers must have user-friendly interface so that it's easy to use.
- 2:** Manufacturers must be able to upload product details easily.
- 3:** Farmers must have valid email accounts so that they can receive notifications.
- 4:** The system must send email notification so that farmers can easily track different activities.
- 5:** The users of the application will increase with time.

Q9. This project Requirements Priority - Give Priority 1 to 10 numbers (1 being low priority – 10 being high priority) to these Requirements after discussions with the stakeholders

Req ID	Req Name	Req Description	Priority
BR001	Accessibility	The application should be accessible via both desktop and mobile.	1
BR002	Ease of Use	The application should be easy to use for all the farmers and manufacturers.	2
BR003	Language	The application should have multiple language as per the user's convenience.	3
BR004	Search and filter	The user should be able to search all the available options and add a filter to it.	4
BR005	Data logging	The manufacturers should be able to upload all the details into the application.	7
BR006	System update	The application should update the details about the availability of the products real time.	6
BR007	Privacy	The application should be able to protect all the personal data uploaded by the users.	5
BR008	Tracking	The application should support the method to track the order and provide the delivery date/day update	8
BR009	Support and feedback	There should be a system to provide pre-sales and post-sales support to users for the effectiveness of the application.	10
BR010	Notification and Alert	The application should be able to send the notification and important updates such as system errors, approval requests, or order status change.	9

Q10. Use Case Diagram- Draw use case diagram

A10. A use case diagram is a visual representation of the interactions between users(actors) and a system.



Q11. Use Case Specs -Prepare use case specs for all use cases

A11. A Use case specific Document provides a detailed description of a use case, outlining how users(actors) will interact with the system to achieve a specific goal.\

1. Use case Document for User create Login for Online Agriculture Store

Use Case ID	US001
Use Case Name	User Create login
Created by	Aakash Agrawal
Date Created	23/06/2025
Actors	Farmers, Manufacturer
Description	This Use case allows the new user to create an account by entering details like name, email id, password.
Pre-condition	User should not have an account already existed with that email id.
Post-condition	User can login by newly created account
Basic Flow	1. User selects 'Create Account' option. 2. User enter the details like name, email id, password. 3. User receives confirmation mail on the email id.
Alternate Flow	If the email entered by User is already existing in the system, then it will display error message as 'Account already existing'.
Exceptions	If the details provided by user are invalid then user will get prompt to correct it.
Frequency of Use	Medium
Assumptions	The User must have valid email id to create an account.

2. Use case Document for User Login for Online Agriculture Store

Use Case ID	US002
Use Case Name	User login into the system
Created by	Aakash Agrawal
Date Created	23/06/2025
Actors	Farmers, Manufacturer
Description	This Use case allows the user to login into the system by entering the credentials.
Pre-condition	User should already have an account created in the system
Post-condition	User can login successfully into the system.
Basic Flow	1. User selects 'Login' option. 2. User enter the details like Username and password. 3. User login successfully into the system.
Alternate Flow	If the credentials entered by User is incorrect, then error message displays as' Invalid Login credentials. Then, User have to enter again credentials.
Exceptions	If the system is not working due to some technical issues. It might be due to some new deployment then User needs to wait for some time.

Frequency of Use	High
Assumptions	The User must have credentials to login into the system.

3. Use case Document for Search the Products for Online Agriculture Store

Use Case ID	US003
Use Case Name	Search the Products
Created by	Aakash Agrawal
Date Created	23/06/2025
Actors	Farmers
Description	This Use case allows the user to search the products and the relevant details in the system.
Pre-condition	Products updated by the Manufacturer
Post-condition	User search the products they need to buy
Basic Flow	1. User selects 'Login' option. 2. User enter the details like Username and password. 3. User login successfully into the system. 4. User clicks the Products menu. 5. User apply filters and search the product. 6. User selects the products to be bought and add them to the cart.
Alternate Flow	If the products are not available then those are shown in RED.
Exceptions	If the system is not working due to some technical issues. It might be due to some new deployment then User will not be able to search the Products.
Frequency of Use	High
Assumptions	The Products are updated by Manufacturer in the system.

4. Use case Document for Place Orders for the Products for Online Agriculture Store

Use Case ID	US004
Use Case Name	Place Order for the Products
Created by	Aakash Agrawal
Date Created	23/06/2025
Actors	Farmers
Description	This Use case allows the user to place Order for the products.
Pre-condition	Products must be available for Ordering.
Post-condition	User successfully places Order for the products they need to buy
Basic Flow	1. User selects 'Login' option. 2. User enter the details like Username and password. 3. User login successfully into the system. 4. User clicks the Products menu. 5. User apply filters and search the product. 6. User selects the products to be bought and add them to the cart.

Alternate Flow	If the products are not available then those are shown in RED and user is asked to remove them with an option to select similar available products
Exceptions	If the system is not working due to some technical issues. It might be due to some new deployment then User will not be able to place Order for the Products. And asked to Retry.
Frequency of Use	High
Assumptions	The Products are updated by Manufacturer and payment methods are also available.

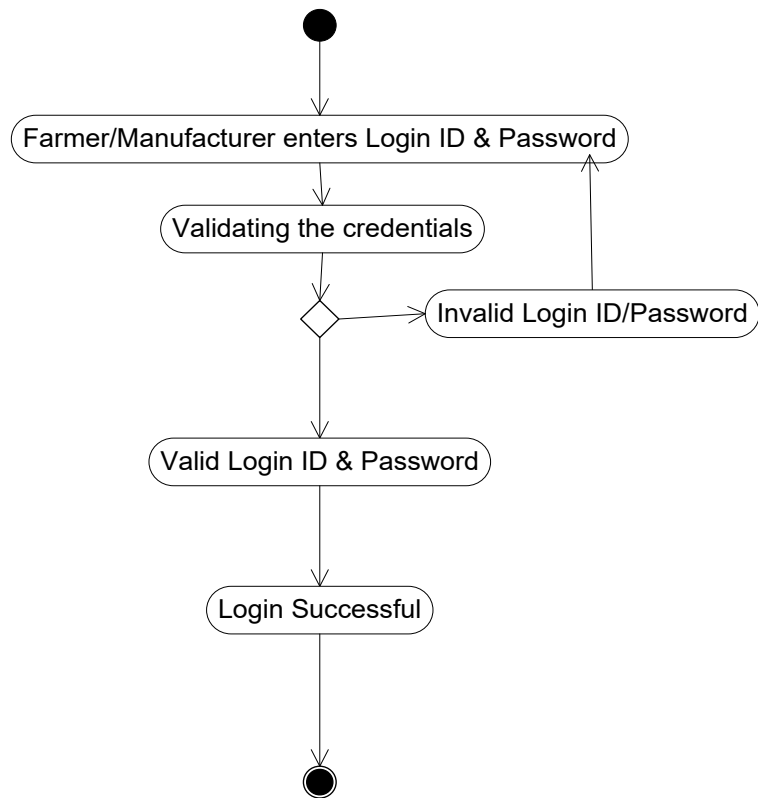
5. Use case Document for Making a Payment for Online Agriculture Store

Use Case ID	US005
Use Case Name	Making a Payment
Created by	Aakash Agrawal
Date Created	23/062025
Actors	Farmer
Description	This Use case describes how the farmers would make payment for the products available in the cart.
Pre-condition	The application should have secure option to make the payment
Post-condition	The farmer has successfully made the payment for the products
Basic Flow	1. The user searched and added the products to the cart. 2. The system displays the total amount to be paid for all the products added to the cart. 3. The user clicks on option “proceed to pay” 4. The application shows different methods to make the payment as- Cash on Delivery, Card & UPI 5. The user selects one method and click on the pay now button. 6. The system processes the payment and displays the message “Payment Successful”.
Alternate Flow	The user can change the payment method by selecting back option to go to the previous page
Exceptions	If the system is not working due to some technical issues. It might be due to some new deployment then Farmer will not be able to make the payment and asked to Retry.
Frequency of Use	High
Assumptions	The User have sufficient balance in the bank account to make the payment.

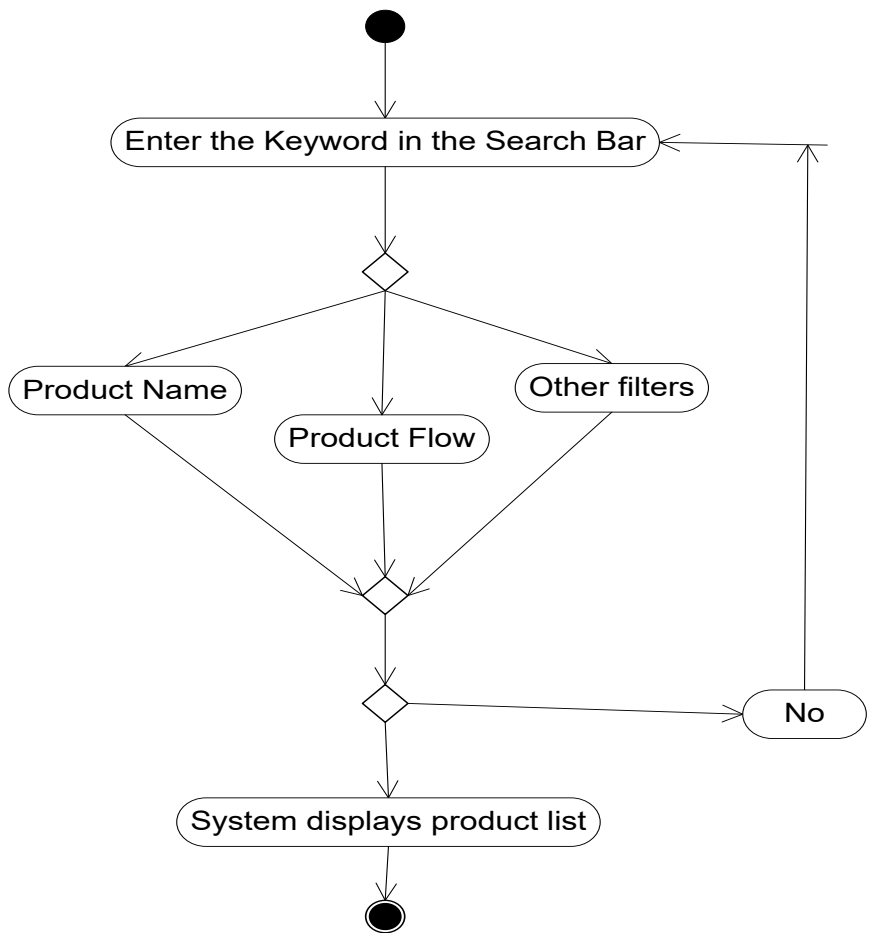
Q12. Activity Diagrams – Draw Activity diagrams

A12.An activity diagram is a type of Diagram in Unified Modelling Language (UML) that visually represents the flow of activities within the system.

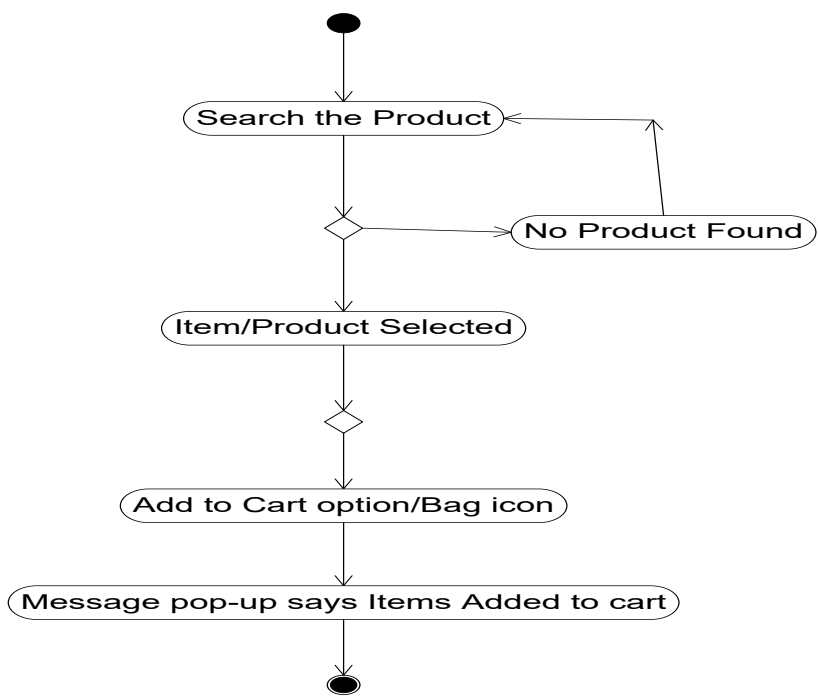
1. Activity Diagram1- User Login



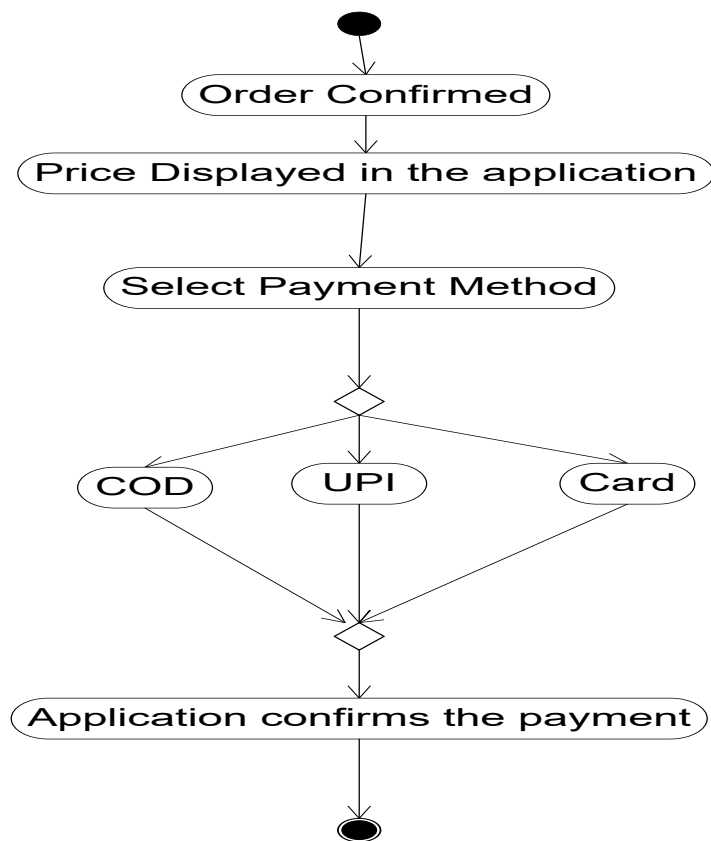
Activity Diagram2- Search the Product



Activity Diagram3- Add Products to Cart



Activity Diagram4- Making a Payment



Activity Diagram5- Order confirmation

