CAPSTONE WATER FALL PEP 1 PART 3

1. Identify minimum 20 functional requirements?
Ans-

Functional Requirements describe the behaviour and information that the solution will manage. They describe capabilities the system will be able to perform in terms of behaviours or operations-specific information technology application actions or responses.

Requirement ID	Requirement Name	Requirement description
FR0001	Farmer Registration	Farmers should be able to register with the application.
FR0002	Farmer Search for Products	Farmers should be able to search for available products in fertilizers, seeds, pesticides.
FR0003	Manufacture Registration	Manufacturers should be able to register with the application.
FR0004	Manufacturer Product Listing	Manufacturers should be able to list their products in the catalog.
FR0005	Product Details Display	The application should display detailed information about each product, including descriptions, specifications, and pricing.
FR0006	Add to Cart	Users should be able to add products to their shopping cart for purchase.
FR0007	Cart Management	Users should be able to view and manage the contents of their shopping cart, including adding or removing products.
FR0008	Wishlist Management	Users should be able to manage their Wishlist or buy-later list, including adding or removing products.
FR0009	Multiple Payment Gateways	The platform should integrate with multiple payment gateways to facilitate secure and convenient transactions.
FR0010	Order Placement	Users should be able to place orders for selected products, specifying quantity and delivery address
FR0011	Order Confirmation	Users should receive an order confirmation with details such

		as order number, products, quantities, total amount, and estimated delivery date.
FR0012	Order Tracking	Users should be able to track the status and location of their orders in real time.
FR0013	Order History	Users should be able to view their order history, including past orders, order details, and statuses.
FR0014	Customer Support	Users should have access to customer support, either through live chat, email, or phone, for assistance with their orders or inquiries.
FR0015	User Ratings and Reviews	Users should be able to provide ratings and reviews for products they have purchased.
FR0016	Product Recommendations	The platform should provide personalized product recommendations based on user preferences and browsing history.
FR0017	Social Sharing	Users should have the option to share products or their purchase experience on social media platforms.
FR0018	Secure Transactions	The platform should ensure secure transactions by implementing appropriate encryption and security measures.
FR0019	Product Filtering	Users should be able to filter products based on various criteria such as price range, brand, or product type.
FR0020	Account Management	Users should be able to manage their account settings, including profile information, password changes, and email preferences.

Non-functional Requirements capture conditions that do not directly relate to the behaviour or functionality of the solution, but rather describe environmental conditions under which the solution must remain effective or qualities that the systems must have. They are also known as quality or supplementary requirements. These can include requirements related to

capacity, speed, security, availability and the information architecture and presentation of the user interface.

Requirement ID	Requirement Name	Requirement Description
NFR001	Usability	The application should have an intuitive and user-friendly.
NFR002	Performance	The application must load pages within 3 seconds.
NFR003	Security	The application must ensure secure user authentication.
NFR004	Compatibility	The application should be compatible with major web browsers.
NFR005	Response Time	The application should respond to user inputs within 2 seconds.

2. Make wireframe and prototypes

Ans-

Wireframes, prototyping, and mock ups are essential components in the design and development process of digital products, each serving a distinct purpose in visualizing and refining ideas before development.

Wireframes are the most basic and skeletal representations of a user interface. They focus primarily on layout, structure, and functionality without delving into visual details like colours, fonts, or images. Wireframes help outline where elements like buttons, menus, and text boxes will be placed, offering a blueprint that guides the initial stages of design and development. Their simplicity allows designers and stakeholders to focus on the functionality and user flow without being distracted by aesthetics.

Prototypes take wireframes a step further by adding interactivity to simulate how the final product will behave. Prototypes can range from low-fidelity click-through versions to high-fidelity, near-final representations of the product. They allow users to navigate through the interface, interact with buttons, and experience a simplified version of the actual functionality. This stage is crucial for usability testing and refining the user experience, as it helps identify and address potential issues before development begins.

Mock ups represent the visual design of the product in its most polished form. Unlike wireframes, mock ups focus on aesthetics, showcasing the chosen colours, typography, images, and branding elements. They provide a detailed visual representation of the final product but are typically static and lack interactivity. Mock ups serve as a reference for developers and help stakeholders visualize the end result.

In essence:
Wireframes = Blueprint.
Mock ups = Detailed picture.
Prototypes = Interactive demo.

1.Login page

Login credentials

User name

Password

LOGIN

2.Search page

product

Choose Quantity

500 gms

1 kg

2 kg

Add to cart

3.Payment page

Payment options

○ UPI
○ Wallet
○ Credit/Debit Card
○ Cash on Delivery

Price	XXX
Delivery Charges	XXX

Amount payable	XXX

Pay Now

4. Register page

online agriculture store   19:29

First Name

Middle Name

Last Name

Email ID

Password

Confirm password

Register

5.Add to cart

Ans-
MICROSOFT VISIO:
is a diagramming and vector graphics application used to create diagrams, flowcharts, and other visual representations of complex information.
- Easy to use with intuitive drag-and-drop functionality.
- Professional-looking diagrams enhance communication and documentation.
- Seamless integration with other Microsoft Office tools.

Key Features of Visio for BAs
Process Modelling
Create flowcharts, process diagrams, and business workflows.
Helps visualize "as-is" (current) and "to-be" (future) processes for analysis and improvement.
Data Visualization
Connect diagrams to data sources like Excel, SharePoint, or SQL for dynamic data representation.
Useful for dashboards or system designs that reflect real-time changes.
Templates and Shapes
Predefined templates for business processes (e.g., BPMN, flowcharts, org charts).
Drag-and-drop shapes simplify creating structured and professional diagrams.

Collaboration
Supports team collaboration through real-time editing and sharing.
Works well with other Microsoft tools like Teams, SharePoint, and Office 365.
Use Case Diagrams
Visualize user interactions with systems or features using UML (Unified Modelling Language) diagrams.

BALSAMIQ:
is a rapid wireframing tool used to create mock ups and prototypes of user interfaces.
Balsamiq is a user-friendly wireframing tool used by Business Analysts to create simple, low-fidelity designs for software applications or websites. It allows you to visually represent ideas and concepts quickly, making it easy to communicate with stakeholders and development teams.
- Saves time in communicating ideas.
- Reduces misunderstandings between stakeholders and development teams.
- Improves project clarity and efficiency.

Key Features for Business Analysts:
Drag-and-Drop Elements:
Use pre-designed UI elements like buttons, text boxes, dropdowns, etc., to build mock ups fast.
Low-Fidelity Design:
Focuses on structure, not detailed design.
Helps stakeholders concentrate on functionality rather than aesthetics.
Collaboration:
Share wireframes with team members for feedback.
Easy export options for presentations.
Ease of Use:
Intuitive interface, even for those with no design experience.
Versioning:
Save multiple versions of mock ups to track changes.
Integration:
Works with tools like Jira, Confluence, and other project management platforms.

AXURE:
is a more advanced prototyping tool used to create high-fidelity, interactive wireframes and prototypes for web and mobile applications.
Axure RP is a powerful prototyping and wireframing tool that helps Business Analysts design and communicate application concepts effectively. It allows BAs to create interactive prototypes, wireframes, and documentation that bridge the gap between business requirements and technical implementation.
- Clarity: Helps BAs visualize complex ideas in an easy-to-understand format.
- Time-Saving: Reduces the need for lengthy explanations or textual requirements.
- Interactive Mock ups: Gives a real-time feel of the application during requirement discussions.

Key Features of Axure for a Business Analyst
Wireframing:
Create static or low-fidelity wireframes to visualize the structure of a web or mobile application.
Use built-in templates and widgets for quick designs.
Interactive Prototyping:
Add interactions, animations, and navigation flows to mimic the behaviour of the actual application.
Simulate user interactions like button clicks, dropdown menus, and data entry.
Requirement Communication:
Combine visuals and notes to describe functional requirements directly in the prototype.
Share designs with stakeholders to gather feedback early in the development process.
Collaboration:
Axure supports team collaboration by allowing multiple users to work on the same project simultaneously.
Stakeholders can view and comment on shared prototypes via Axure Cloud.
Documentation:
Generate specification documents directly from the prototype.
Export details like interactions, workflows, and design elements for developers.
Integration:
Integrates with other tools like Jira, Confluence, or Microsoft Teams for seamless project management and communication.

4. A business analyst's key responsibilities are to keep track of the requirements and make sure that no requirement is missed.
Mr. Henry and peter have approached you regarding the current status of the project. How will you tackle this situation?
Ans-
RTM
It is a document to track the requirements throughout the project lifecycle, ensuring that they are met and that no requirements are overlooked.

Req ID	Req Name	Req description	Design	code	UT(user testing)	CT(component testing)	ST(system testing)	SIT	UAT(user accepting testing)
FR0001	Farmer Registration	Farmers should be able to register withthe application.	complete	complete	complete	complete	complete	complete	Incomplete
FR0002	Farmer Search for Product	Farmers should be able to search for available products in	complete	complete	complete	complete	complete	Incomplete	Incomplete

		fertilizers, seeds, pesticides.							
FR0003	Manufacture Registration	Manufacturers should be able to register with the application.	complete	complete	complete	complete	complete	Incomplete	Incomplete
FR0004	Manufacturer Product Listing	Manufacturers should be able to list their products in the catalog.	complete	complete	complete	complete	Incomplete	Incomplete	Incomplete
FR0005	Product Details Display	The application should display detailed information about each product, including descriptions, specifications, and pricing.	complete	complete	complete	complete	complete	Incomplete	Incomplete
FR0006	Add to Cart	Users should be able to add products to their shopping cart for purchase.	complete	complete	complete	complete	complete	Incomplete	Incomplete
FR0007	Cart Management	Users should be able to view and manage the contents of their shopping cart, including adding or removing products.	complete	complete	complete	complete	complete	complete	Incomplete
FR0008	Wishlist Management	Users should be able to manage their Wishlist or buy-later list, including adding or removing products.	complete	complete	complete	complete	Incomplete	Incomplete	Incomplete

ID	Name	Description							
FR0009	Multiple Payment Gateways	The platform should integrate with multiple payment gateways to facilitate secure and convenient transactions.	complete	complete	complete	complete	complete	complete	Incomplete
FR0010	Order Placement	Users should be able to place orders for selected products, specifying quantity and delivery address	complete	complete	complete	Incomplete	Incomplete	Incomplete	Incomplete
FR0011	Order Confirmation	Users should receive an order confirmation with details such as order number, products, quantities, total amount, and estimated delivery date.	complete	complete	complete	complete	Incomplete	Incomplete	Incomplete
FR0012	Order Tracking	Users should be able to track the status and location of their orders in real time.	complete	complete	Incomplete	Incomplete	Incomplete	Incomplete	Incomplete
FR0013	Order History	Users should be able to view their order history, including past orders, order details, and statuses.	complete	complete	complete	complete	Incomplete	Incomplete	Incomplete
FR0014	Customer Support	Users should have access to	complete	complete	complete	complete	complete	Incomplete	Incomplete

FR ID	Name	Description						
		customer support, either through live chat, email, or phone, for assistance with their orders or inquiries.						
FR0015	User Ratings and Reviews	Users should be able to provide ratings and reviews for products they have purchased.	complete	complete	complete	complete	complete	Incomplete	Incomplete
FR0016	Product Recommendations	The platform should provide personalized product recommendations based on user preferences and browsing history.	complete	complete	complete	Incomplete	Incomplete	Incomplete	Incomplete
FR0017	Social Sharing	Users should have the option to share products or their purchase experience on social media platforms.	complete	complete	Incomplete	Incomplete	Incomplete	Incomplete	Incomplete
FR0018	Secure Transactions	The platform should ensure secure transactions by implementing appropriate encryption and security measures.	complete	complete	complete	complete	complete	complete	Incomplete
FR0019	Product Filtering	Users should be able to filter products based on various criteria such as	complete	complete	complete	complete	Incomplete	Incomplete	Incomplete

		price range, brand, or product type.							
FR0020	Account Management	Users should be able to manage their account settings, including profile information, password changes, and email preferences.	complete	complete	complete	complete	complete	Incomplete	Incomplete

5. Prepare 10 Test Case Documents

Ans-

A test case document is a detailed outline used by testers to ensure that a software application or system is working as expected.

1.

Test case ID	XYZ0001	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S1	Tester ID	T12345
Test plan ID	XYZ00P1	Tester Name	Anil
Test schedule ID	XYZ0S1	Date of Test	2/1/2025
Scenario	Search product		
Link to that page:			
Input Data	Pesticide, organic pesticide, 1 quantity, 200 Rs is cost.		
Expected behaviour	90 farmers should visit and order for the above data.		
Actual behaviour	70 farmers visited and orders successfully		
Comments	Tester tested and UAT completed updated comment.		
Result (pass/Fail)	Pass		

2.

Test case ID	XYZ0002	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S2	Tester ID	T12345
Test plan ID	XYZ00P2	Tester Name	Anil
Test schedule ID	XYZ0S2	Date of Test	2/1/2025
Scenario	Register		
Link to that page:			
Input Data	Mail ID, Mobile number, Password.		

Expected behaviour	Mandatory fields are marked with Against the fields. Password making.
Actual behaviour	After entering all the mandatory details register button will appear below and then press register yourself.
Comments	You have been successfully registered.
Result (pass/Fail)	Pass

3.

Test case ID	XYZ0003	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S3	Tester ID	T12345
Test plan ID	XYZ00P3	Tester Name	Anil
Test schedule ID	XYZ0S3	Date of Test	2/1/2025
Scenario	Order placement		
Link to that page:			
Input Data	Image or images of the product, Price of the product, Product specifications.		
Expected behaviour	Select the required product		
Actual behaviour	After selecting the product to buy, the page will take you to the payment page to select the mode of payment		
Comments	Order Placed		
Result (pass/Fail)	Pass		

4.

Test case ID	XYZ0004	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S4	Tester ID	T12345
Test plan ID	XYZ00P4	Tester Name	Anil
Test schedule ID	XYZ0S4	Date of Test	2/1/2025
Scenario	Payment		
Link to that page:			
Input Data	Check different payment options, Enter card details, Payment details		
Expected behaviour	Text confirmation with the order number generated		
Actual behaviour	While making payment, farmer can select their preferred mode of payment after entering the valid payment details press the pay button.		
Comments	Payment done. Order has successfully placed		
Result (pass/Fail)	Pass		

5.

Test case ID	XYZ0005	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S5	Tester ID	T12345
Test plan ID	XYZ00P5	Tester Name	Anil
Test schedule ID	XYZ0S5	Date of Test	2/1/2025
Scenario	Shipping		
Link to that page:			
Input Data	Check placed order is reflected in page, Name and delivery address is correct, Item ordered is same as showing in order page		
Expected behaviour	Item is shipped and will be deliver on date		
Actual behaviour	We have Input that is selection of one order id at a time after selecting Order id press track button.		
Comments	Page will display the shipment status		
Result (pass/Fail)	Pass		

6.

Test case ID	XYZ0006	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S6	Tester ID	T12345
Test plan ID	XYZ00P6	Tester Name	Anil
Test schedule ID	XYZ0S6	Date of Test	2/1/2025
Scenario	Delivery Status		
Link to that page:			
Input Data	Link provided by delivery partner is correct or not, Link is reachable or not		
Expected behaviour	If the farmer clicks on the tracking links, provided by the delivery partner it should be able to open the tracking page		
Actual behaviour	Page should display the correct tracking details		
Comments	Page will display the delivery status		
Result (pass/Fail)	Pass		

7.

Test case ID	XYZ0007	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S7	Tester ID	T12345
Test plan ID	XYZ00P7	Tester Name	Anil
Test schedule ID	XYZ0S7	Date of Test	2/1/2025
Scenario	Order confirmation		
Link to that page:			
Input Data	Cancel the order, Return		
Expected behaviour	Testing of relevant option available after the order is placed change the order		

Actual behaviour	option available after the order is placed change the order
Comments	if any option is selected then next page will display the text confirmation.
Result (pass/Fail)	Pass

8.

Test case ID	XYZ0008	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S8	Tester ID	T12345
Test plan ID	XYZ00P8	Tester Name	Anil
Test schedule ID	XYZ0S8	Date of Test	2/1/2025
Scenario	Questions and Answers		
Link to that page:			
Input Data	Have all the questions and answers covered? Alphanumeric keywords can be entered in the search bar.		
Expected behaviour	Testing of questions and answers available related to product or service can be searched or not		
Actual behaviour	Farmers are searching for a different type of Q & Ans		
Comments	When any Q & Ans is searched then this FAQ page should be able to display the result on the same page.		
Result (pass/Fail)	Pass		

9.

Test case ID	XYZ0009	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S9	Tester ID	T12345
Test plan ID	XYZ00P9	Tester Name	Anil
Test schedule ID	XYZ0S9	Date of Test	2/1/2025
Scenario	Customer care		
Link to that page:			
Input Data	Email & phone number of customer care team, Escalation team contact details.		
Expected behaviour	Testing of have all the Q & Ans has been covered in the example		
Actual behaviour	Any escalation or any query farmer will contact to the customer care team through this page.		
Comments	This page will display the available option to contact the customer care team.		
Result (pass/Fail)	Pass		

10.

Test case ID	XYZ00010	Test case Name	SEARCH QUERY
Project ID	XYZ	Project Name	Oline agriculture shop
PM ID	ABC123	PM Name	Deepa
Test strategy ID	XYZ00S10	Tester ID	T12345

Test plan ID	XYZ00P10	Tester Name	Anil
Test schedule ID	XYZ0S10	Date of Test	2/1/2025
Scenario	Invoice generation		
Link to that page:			
Input Data	Product name & and other detail, Amount paid, Delivery address of farmers, Seller address & and GST number		
Expected behaviour	Testing of invoice generation process		
Actual behaviour	Amount paid by farmer and Invoice generation		
Comments	This page will display the Invoice & there is an option to download the invoice		
Result (pass/Fail)	Pass		

6. After the requirements are thoroughly explained to the entire project team by business analyst, the Database architects have decided to do the database design and also to represent the in-flow and out-flow of data.
Draw database schema and ER diagram

Ans-

DB Schema is a blueprint that outlines the structure of a database, including its tables, fields, relationships, constraints, and other characteristics.

An Entity-Relationship Diagram (ERD) is a visual representation of the relationships between entities in a database. It depicts the entities (such as tables), attributes (properties or fields), and relationships between them.
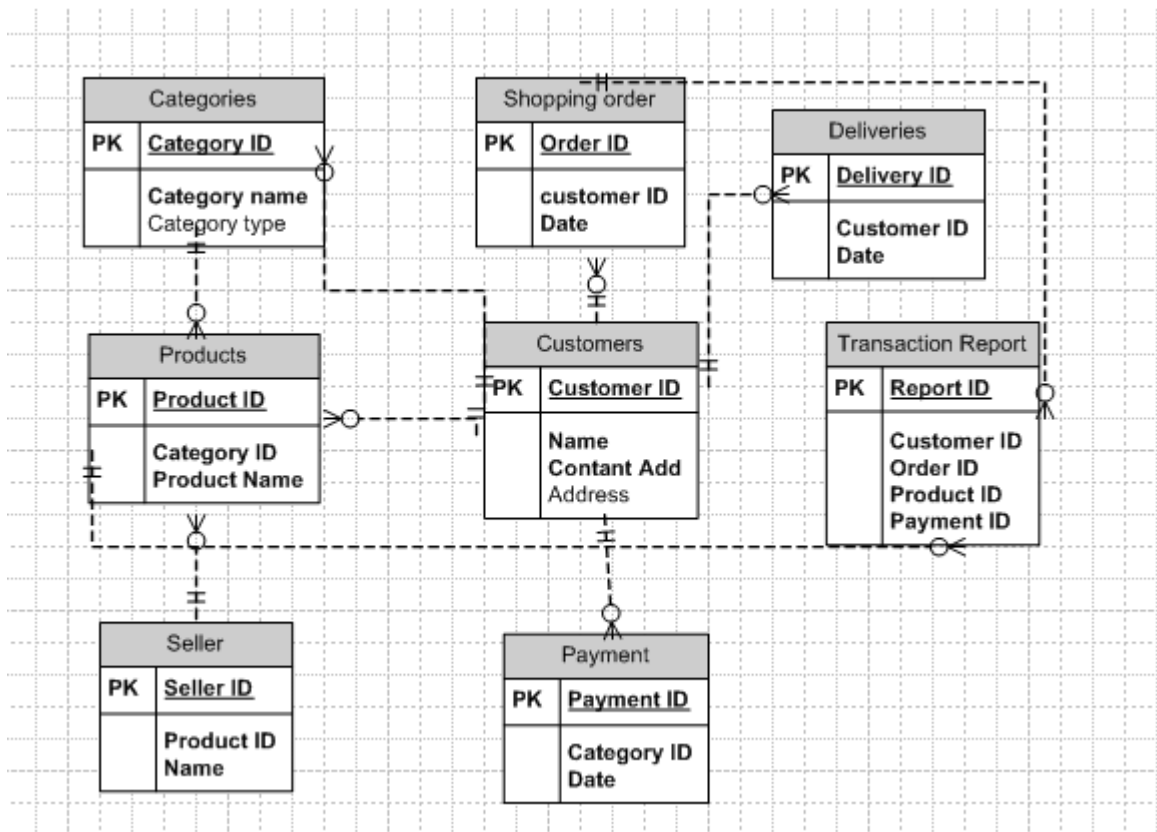
7. What is a data flow diagram? Draw a data flow diagram to represent the in-flow and out-flow of data when a Farmer is placing an order for the product

Ans-

A Data Flow Diagram (DFD) is a graphical representation of the flow of data within a system. It visually shows how data moves from one process to another, how it's stored, and where it ends up.

It Help analysts and designers to understand the flow of data within a system, identify potential bottlenecks or inefficiencies, and communicate system requirements to stakeholders.
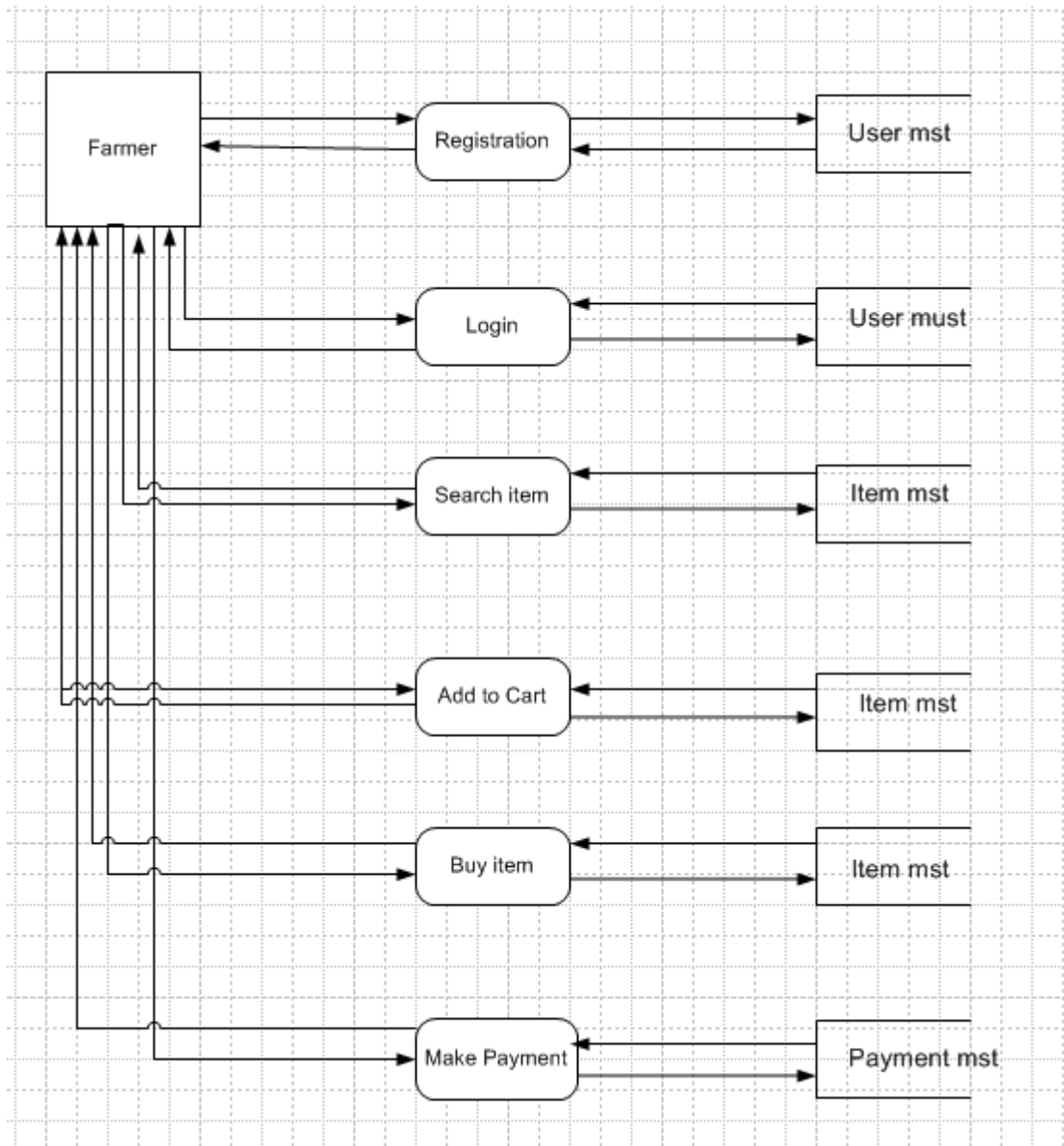
8. How do you handle change requests in a project?

Ans-

A **Change Request** (CR) is a formal proposal to modify a project or system. It can arise due to changes in business needs, market dynamics, regulatory requirements, or technological advancements. As a Business Analyst (BA), handling change requests effectively is crucial to ensuring project success while balancing time, budget, and quality constraints

Steps to Handle a Change Request

1. Assess the Scope

Define the Nature of the Change: Identify what the change request entails. Is it an addition, removal, or modification?

Align with Project Objectives: Ensure the requested change aligns with the project's original goals and vision.

Documentation: Maintain a well-documented record of the change request, including who raised it, the purpose, and any supporting documents.

Example: In an Online Agriculture Product Store project, a farmer committee requests the addition of a feature to compare product prices. Clearly define this feature and how it fits into the current scope.

2. Conduct Impact Analysis

Technical Feasibility: Collaborate with developers, network administrators, and testers to evaluate the technical complexity of the requested change.

Cost and Time: Work with the project manager to assess how the change will affect the budget and schedule.

Dependencies: Identify any dependencies or ripple effects on other functionalities, teams, or processes.

Risks: Analyse risks introduced by the change, such as increased complexity or potential delays.

Example: Adding a price comparison feature may require integrating third-party APIs, which could affect the project timeline and budget.

3. Prioritize the Change Request

Urgency: Determine if the change is time-sensitive or can be deferred.

Value Addition: Evaluate how the change contributes to the project's objectives or stakeholder satisfaction.

Stakeholder Importance: Consider the priority level of the stakeholder requesting the change.

Effort vs. Benefit: Use tools like a Priority Matrix (High Impact/Low Effort vs. Low Impact/High Effort) to rank changes.

Example: If the price comparison feature is deemed a competitive necessity, prioritize it over a less critical enhancement.

4. Seek Approvals

Prepare a CR Document: Create a detailed change request document including:

Description of the change.

Rationale behind the request.

Results of the impact analysis.

Cost, timeline, and resource implications.

Present to Stakeholders: Share the CR document with relevant stakeholders (e.g., steering committee, project sponsors, or delivery head) for review.

Obtain Sign-offs: Secure formal approvals to proceed with the change.

Example: Present the CR for the price comparison feature to Mr. Karthik, the delivery head, and the steering committee for approval.

5. Communicate the Change

To the Team:

Share the approved change with developers, testers, and administrators, clearly explaining their roles and tasks.

Update project plans and timelines accordingly.

To Stakeholders:

Provide regular updates about the change's implementation, status, and challenges.

To End-Users (if applicable):

Inform users about the upcoming feature or change, its benefits, and how it will work.

Example: Notify the project team about the addition of the price comparison feature, update task assignments, and communicate with farmers on how this will help them make informed decisions.

6. Implement and Monitor

Development: Ensure the change is implemented as planned, with regular check-ins on progress.

Testing: Conduct thorough testing to ensure the change does not introduce defects or disrupt existing functionalities.

Deployment: Roll out the change in alignment with project milestones and communicate its availability to stakeholders.

Feedback: Gather feedback post-implementation to assess satisfaction and identify further improvements.

Example: After implementing the price comparison feature, collect feedback from farmers and monitor its impact on user engagement.

Challenges in Handling Change Requests

Scope Creep: Continuous changes without proper analysis and approval can lead to uncontrolled project growth.

Resource Constraints: Managing changes within limited resources can be challenging.

Stakeholder Disagreements: Conflicting stakeholder priorities may delay decision-making.

Technical Risks: Complex changes might introduce risks like system instability or integration issues.

9. As the project is in process, Ben and Kevin have contacted you. The reason is to inform you that they want the Farmers to sell their crop yields through this application i.e. Farmers should be able to add their crop yields or products and display to general public and should be able to sell them. They also want to introduce Auction system for their Crop yields. As a BA, what will be your response?

Is this a change request or an enhancement???

Ans-

Difference Between Change Request and Enhancement

Change Request

A change request is when there is a deviation from the original scope, requirements, or functionality already approved in the project.

It typically arises due to unanticipated needs, missed requirements, or evolving business scenarios.

Implementing a change request often impacts the project's schedule, cost, and resources.

Enhancement

An enhancement is a request to add additional features or functionalities that improve the application's value but do not alter the agreed-upon baseline scope.
Enhancements are usually optional and are considered after the current scope is delivered.

This would be considered an enhancement rather than a change request.

Additional Features: The ability for farmers to sell their crop yields and the introduction of an auction system are new features that expand the current scope of the application. Enhancements typically involve adding new features rather than altering the existing functionality.

Scope Expansion: The original project focuses on enabling farmers to purchase fertilizers, seeds, and pesticides. Introducing the ability to sell crop yields and participate in auctions moves the project into a new domain, which classifies it as an enhancement to the application's capabilities.

Business Value Increase: The new feature can potentially add more value for the farmers and the marketplace, improving their engagement with the platform. It aims to attract more users (both farmers and buyers), which is an enhancement of the product's business value.

User Experience Improvement: Allowing farmers to sell their yields and auction products would create a more dynamic and interactive experience for users. This type of feature enriches the user experience, which is characteristic of enhancements.

Additional Stakeholder Input: This change comes as a suggestion from stakeholders (Ben and Kevin), which typically leads to an enhancement rather than a revision of initial requirements. The feature will provide a new avenue for farmers to utilize the platform, broadening its utility.

No Significant Alterations to Original Functionality: The core function of the application— helping farmers purchase supplies—remains unchanged. Adding selling and auction features is supplementary, meaning the existing application does not require a fundamental redesign, which would be typical of a change request.

Not Addressing an Issue or Bug: Change requests are often triggered by issues or necessary fixes within the current system. Since there is no indication of a problem with the original requirements, this is better classified as an enhancement to the existing project to expand its reach and functionality.

10. Come up with estimations – How many Manhours required
Ans-
Man-hours are a key metric used in project management to determine the total amount of work needed to complete a project. It represents the cumulative time and effort of all the resources (team members) involved in the project. When calculating man-hours, it's important to consider the size, complexity, team composition, and the tasks that need to be

performed over the course of the project. The goal is to ensure that the right amount of work effort is planned, tracked, and allocated to each resource and task to meet deadlines and project objectives.

In this analysis, we will focus on estimating the man-hours required for a project with a defined scope, duration, and team size. The case study under discussion involves a project with a duration of 18 months and a team of 15 members. It is categorized as a medium-sized project based on the estimated number of man-hours.

Project Size Categorization
To begin the estimation of man-hours, it's important to classify the project based on its size. The project size is typically categorized into three broad categories:

Small Project: Up to 500 man-hours
Medium Project: Up to 1000 man-hours
Large Project: Up to 1500 man-hours
This classification helps in determining the scale and effort required for project completion, influencing resource allocation and planning. The project in question is categorized as a medium project, which requires up to 1000 man-hours.

Project Duration and Team Size
The case study mentions that the project has a duration of 18 months and a team size of 15 members. The duration and team size are important factors in estimating the total man-hours.

To calculate the total number of man-hours, the following formula can be used:

Total Man-Hours = Number of Resources × Work Duration (in hours per month) × Duration of the Project (in months)
Total ManHours=Number of Resources×Work Duration (in hours per month) ×Duration of the Project (in months)
Where:
- **Number of Resources** refers to the total number of team members working on the project.
- **Work Duration** is the average number of hours each resource works per month.
- **Duration of the Project** is the total length of the project, in this case, 18 months.

Let's break down these components:
Team Size: 15 resources (including business analysts, developers, testers, and other technical staff).
Work Duration: On average, a full-time employee works around 160 hours per month (based on a standard 40-hour work week and 4 weeks per month).
Project Duration: The project will last 18 months.
Thus, the total man-hours for this project would be:
Total Man-Hours=15×160×18=43,200 man-hours
Total Man-Hours=15×160×18=43,200 man-hours
This is the estimated total effort for the 15-member team over the 18-month duration.

Factors Influencing Man-Hours Estimation
Several factors influence the accuracy and estimation of man-hours in a project:

1.Team Composition and Expertise: The project has a mix of resources including business analysts, developers, testers, network administrators, and database administrators. This diverse team composition plays a crucial role in dividing tasks and allocating time. For instance, the business analyst may require fewer hours compared to the developers and testers, who will spend a significant amount of time coding and testing the application.

2.Availability of Resources: The project benefits from the availability of trained resources. Since the team already consists of skilled professionals, the learning curve associated with new tools or technologies is minimized. The team will be able to complete tasks more efficiently, reducing the total man-hours needed.

3.Project Structure: The project follows a well-defined structure with specific phases such as Requirements Gathering (RG), Requirements Analysis (RA), Design, Development, and User Acceptance Testing (UAT). Having a structured approach helps in better task allocation and time management, ensuring that resources work efficiently without unnecessary delays or rework.

4.No Additional Infrastructure Requirements: The case study mentions that new infrastructure is not required, and the existing infrastructure is sufficient for the project. This reduces the overall effort needed for setup and deployment. If new infrastructure were required, additional man-hours would be needed for setup, configuration, and testing.

5.No Trainer Requirement: The project has trained resources, so trainers are not required. If the team had been unfamiliar with the technologies or processes involved in the project, additional time and effort would have been spent on training. The absence of trainers means the resources can directly focus on their tasks, improving productivity and reducing the overall man-hours.

11. Explain UAT Acceptance process
Ans-
User Acceptance Testing (UAT) is the final phase of the software testing process, where the software application or product is tested by the end users or stakeholders to ensure that it meets the business requirements, is functional, and is ready for deployment. It serves as the last checkpoint to validate the system's functionality, performance, and usability before it is released to production. UAT is crucial as it helps verify that the software aligns with the user expectations and delivers the intended business value.

UAT Process
The UAT process typically involves several stages, including planning, designing test cases, conducting the tests, identifying and fixing bugs, and obtaining sign-off. Below is a detailed explanation of the UAT process:

1. Planning

Planning is the first step in the UAT process. It involves defining the scope, objectives, roles, resources, and timeline for the UAT. The main goal during this phase is to ensure that all stakeholders are aligned and that the right tests are planned to cover the key functionality of the software.

Key activities in the planning stage include:

Define Objectives: Understand what the business is trying to achieve through UAT. The objectives should focus on validating the business requirements and ensuring that the software can handle real-world scenarios.

Identify UAT Testers: Select the appropriate users who are familiar with the business processes and will perform testing based on their domain knowledge. These testers are typically not the development or QA team members, but actual users or stakeholders.

Create UAT Schedule: Develop a timeline that includes all major activities, from test case creation to bug fixing and sign-off. This schedule should be realistic and account for potential delays or issues.

Risk Management: Identify potential risks and challenges that may affect the UAT process, such as resource unavailability, hardware/software issues, or insufficient test cases.

By clearly establishing the scope, resources, and timeline, the planning phase ensures that the UAT process runs smoothly and efficiently.

2. Designing UAT Test Cases

Once the planning phase is complete, the next step is to design the UAT test cases. UAT test cases are typically based on the business requirements and user stories. These tests should cover a wide range of real-world scenarios that the software will encounter in production.

Key activities in designing test cases include:

Understand Business Requirements: Review the documented business requirements or user stories to ensure the test cases align with the expectations of the end-users and stakeholders.

Create Test Scenarios: Develop test scenarios that simulate actual business processes or workflows. These scenarios should test both expected and unexpected system behavior.

Write Detailed Test Cases: Test cases should be detailed enough for the UAT testers to follow. Each test case should include a description of the test, expected outcomes, steps to execute, and any specific data or configurations required.

Prepare Test Data: UAT testers will need realistic test data to perform their tests. This data should reflect the actual business environment and use cases.

A good test case design ensures that UAT covers all critical aspects of the application and that the results are meaningful for stakeholders.

3. UAT Testers

UAT testers play a critical role in the testing process. These testers are often actual end-users or business stakeholders who are familiar with the business processes and requirements. UAT testers are responsible for executing the test cases and reporting any discrepancies or issues they encounter.

Key activities for UAT testers include:

Test Execution: UAT testers follow the designed test cases and execute them in the system, interacting with the software as they would in real-world scenarios. They must ensure that all business requirements are met and verify that the system behaves as expected.

Record Results: After each test case, testers must record the results, noting any discrepancies or failures, and providing feedback on the system's functionality, performance, and usability.

Report Issues: When issues or defects are found, testers should document them thoroughly, including steps to reproduce the bug, expected behaviour, and actual behaviour. Clear and concise bug reports help developers fix the issues efficiently.

UAT testers are the eyes and ears of the business during the testing process, providing critical insights into how well the application meets user needs.

4. Bug Fixing

Once UAT testers report bugs or issues, the development team begins the process of bug fixing. This phase may involve collaboration between developers, UAT testers, and business analysts to ensure the issue is correctly understood and addressed.

Key activities in bug fixing include:

Bug Analysis: Developers review the bug reports to understand the root cause of the problem. They prioritize bugs based on severity and impact on the system.

Fix the Issues: Developers implement fixes and updates to the software to address the identified bugs. After each fix, they perform unit tests to ensure the changes do not break other parts of the application.

Re-testing: Once the bugs are fixed, UAT testers re-execute the tests to verify that the issues have been resolved and that no new issues have been introduced. This process may involve several rounds of bug fixing and re-testing to ensure the software is fully functional.

The bug fixing phase ensures that any identified issues are resolved before the software is released to production.

5. Sign-off

Once all test cases have been executed, bugs have been fixed, and the software meets business requirements, the final step is obtaining UAT sign-off from stakeholders. The sign-off process formally indicates that the software is ready for deployment.

Key activities in the sign-off process include:

Review Test Results: Review the results of the UAT, including whether the software meets the business requirements, the severity of any bugs, and how well the application performs under real-world conditions.

Stakeholder Approval: Business stakeholders or UAT testers confirm that the software meets the expected business goals and give their approval for the product to proceed to the next stage, which is typically production.

Documentation: Document the entire UAT process, including the test cases, test results, issues identified, and any resolutions. This documentation serves as a record of the testing process and is useful for future reference.

Sign-off Agreement: The business stakeholders or UAT testers sign off on the UAT process, formally accepting the software for release to production.

The sign-off process ensures that all parties involved are satisfied with the software and that it is ready for deployment.

12. Explain Project closure document

Ans-

A project closure document, also known as a project closure report is a formal document that summarizes the key outcomes, lessons learned, and final details of a completed project.

It serves as a comprehensive record of the project's accomplishments, challenges, and overall performance, providing valuable insights for stakeholders and future projects.

Project Overview

The Online Agriculture Product Store initiative aimed to create a web and mobile application designed to assist farmers in remote areas to purchase fertilizers, seeds, and pesticides directly from manufacturers. The project followed the V-Model methodology, which includes stages like Requirements Gathering, Requirements Analysis, Design, Development, Testing, and User Acceptance Testing (UAT). The initiative was executed by APT IT Solutions, with a project team that included developers, network administrators, database administrators, testers, and project managers.

The project was funded with a budget of 2 Crores INR and had a duration of 18 months. The goal was to help improve the accessibility of agriculture products for farmers who often struggle with middlemen and supply chain inefficiencies. The project's scope involved designing an easy-to-use interface and ensuring robust back-end systems for inventory management, order processing, and payment systems.

Achievements

The project successfully delivered an online platform tailored to the needs of farmers. It achieved the primary objective of enabling farmers to order agricultural products directly from manufacturers. Key achievements included the successful development of both the web and mobile applications, integration with payment gateways, and user-friendly interfaces designed specifically for the target demographic. The application also featured functionalities for order tracking and inventory management, which were crucial for the efficient supply of products.

Additionally, the project team worked collaboratively and delivered the project on schedule, which was a major success given the complexity of the project and the integration of multiple technologies. Regular communication and feedback from stakeholders, including Mr. Pandu and Mr. Dooku, ensured that the project met the requirements of farmers and manufacturers alike.

Lessons Learned

The project offered valuable lessons for future initiatives, particularly in terms of stakeholder management and the need for continuous testing throughout the development cycle. One significant lesson learned was the importance of engaging with end-users early in the process to ensure that the product meets their real-world needs. In this project, feedback from remote farmers was invaluable in shaping the application's features.

Another important lesson was the need for flexibility and agility within the V-Model. While the V-Model is structured and methodical, accommodating changes in requirements and

priorities during the project's lifecycle is essential. The project team learned that maintaining regular touchpoints with stakeholders helped to quickly identify and address issues.

Moreover, ensuring adequate resource allocation and monitoring was crucial. The project initially experienced delays due to misalignment in resource availability and shifting timelines. Managing these resources effectively allowed the team to overcome bottlenecks and meet deadlines in the latter stages of the project.

Quality Assurance

Quality assurance (QA) was a cornerstone of the project's success. The project team implemented a robust QA process that involved continuous testing from the early stages of development. The development team, consisting of Ms. Juhi, Mr. Teyson, Ms. Lucie, Mr. Tucker, and Mr. Bravo, collaborated closely with the testing team, including Mr. Jason and Ms. Alekya, to ensure that all functional and non-functional requirements were met.

Automated testing tools were used for regression testing, which helped to identify and address issues early in the development cycle. The use of detailed test cases and rigorous quality checks ensured that the application was free from critical defects at launch. Additionally, the project adhered to industry standards and best practices in software development and testing, guaranteeing that the application met the quality benchmarks expected by the stakeholders.

Resource Utilization

Resource utilization was a key factor in the project's successful completion. The project had a large team with various skills and expertise, including Java developers, network administrators, database administrators, and testers. Efficient utilization of these resources was critical in keeping the project on track.

Throughout the project, resource allocation was continuously monitored by Mr. Karthik (the Delivery Head) and Mr. Vandanam (the Project Manager). While there were initial concerns regarding overutilization of key team members, adjustments were made to ensure that workloads were balanced, and no team member was overstretched. Resource optimization was also supported by the project's flexible timelines and the coordination between the technical team and business stakeholders.

Risk Management

Risk management was another important aspect of the project's success. The project team conducted regular risk assessments to identify potential issues early on. Risks such as delays in resource allocation, unexpected changes in technology, and external market factors were identified and mitigated proactively. A risk register was maintained throughout the project, and mitigation strategies were put in place for each identified risk.

One significant risk encountered was related to network connectivity issues in rural areas, which could affect the usability of the application. The team worked with network specialists to optimize the platform for low-bandwidth environments, which helped reduce this risk. By continuously monitoring risks and applying mitigation measures, the team ensured that the project proceeded smoothly despite external challenges.

Challenges

The project faced several challenges during its lifecycle. One of the most significant challenges was understanding the unique needs of farmers in remote areas and translating these requirements into a digital product. The diversity of user backgrounds and the lack of internet connectivity in some rural locations required the team to adapt the application to work with limited resources. Overcoming these challenges required flexibility in the design and constant feedback loops with farmers to ensure the product was relevant and accessible.

Another challenge was maintaining effective communication across a large team, particularly in a remote working environment. Time zone differences, especially when collaborating with stakeholders like Mr. Pandu and Mr. Dooku, occasionally caused delays in decision-making and feedback processing. However, with the right project management tools and regular virtual meetings, these challenges were managed.