Capstone Project - Waterfall Model:

Online agriculture Product Store

* Aniket Randive

Q1. Identify Business Process Model for Online Agriculture Store – (Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer)

> Goals: The goal of this project is to facilitate the commerce(buying and selling) of farming related products to aid the farmers located in remote areas.

>Inputs:

* Seller’s Data(Name of the product to be sold, Product stock in weight, Product selling price, Product warehouse address, Contact Number and Address).
* Resources for administration work, before and after sales service.

>Outputs:

* All time availability of products to the farmers.
* Hassle free buying experience for the farmers.

>Resources: Servers, Database Servers, Printer, Internet Connectivity, Storage Warehouse, Shipping Service, Manufacturer.

>Activities:

* Development of Web application.
* Onboarding manufacturing companies on the site.
* Populating the database with the available products.
* Downloading the application by farmers.
* Signing up farmers.
* Procuring farmer data: (Product to be bought, Quantity to be bought, Delivery Address, Mode of Payment).
* Delivery of products by farmers.

>Value created to the end consumer:

* All the important necessities related to farming are made available to farmers irrespective of their geographical location.
* Will save Time and Money for the farmers.
* Will give best value for farmers’ money to them.

Q2.Mr Karthik is doing SWOT analysis before he accepts this project. What aspects he should consider as Strengths, as Weaknesses, as Opportunity and as Threats.

>Strengths:

* Availability of the entire talent pool required for the project.
* The suggested application will bypass the entire middle-men distribution chain thus cutting down on prices at which the products will be made available to the user.
* The suggested application will allow for comparison between various products for farmers to choose from, leading to better prices and products for them.
* The end-users are acting as SME’s in farming to aid the development of the application.

>Weaknesses:

* Shipping the product punctually to farmers, especially in remote areas will be a major concern.
* Impossible to ascertain the quality of the product by the farmers before buying it.
* Huge shipping charges due to remote locations.

>Opportunities:

* E-commerce in farming is a booming sector, and is very poorly penetrated, hence, a large opportunity for growth.
* The target market is a ‘needs’ market and not an ‘accessory’ market, which ensures the demand.

>Threats:

* Internet being the major requirement for a web-based application, a huge chunk of market will be left untapped as they may not have internet connectivity.
* Farmers are a relatively non tech-savvy crowd, adoption of technology will be difficult.
* The demand may fluctuate heavily according to the weather patterns and expected yields of the season.

Q3.Mr Karthik is trying to do feasibility study on doing this project in Technology (Java), Please help him with points (HW SW Trained Resources Budget Time frame) to consider in feasibility Study.

>Since this is a project to develop a software application, the only hardware resources requirement will be the Network Administrator and the Database Administrator, which ATI IT solutions have.

> On the software side:

* The Client is Technology agnostic and the proposed product can be built using Java.
* Java is good technology platform for backend logic programming, it enforces a class based architecture which is good for robust development, is device agnostic (object codes are shared instead of completely compiled code files) which helps in deployment.

>Financial Resources:

* 2 crore rupees for 1.5 years provide a budget of approximately 13 Lakh rupees per month.
* With 7 Development Individuals, 2 Administrators, 1 Project Manager and 1 Business Analysts, we have 11 people working on the project.
* Hence, 13 Lakhs per month seems enough to cover server costs (Considering the highest end servers possible), resource costs and other miscellaneous costs (eg., Meeting costs, Equipment Costs, Office costs, etc.).

>Timeframe:

* APT IT Solutions has a Sr. Java Developer who can handle designing of the application, they also have 4 Java Developers and 2 Testers who can feasibly deliver the given application in 18 months as the application to be developed is a straightforward e-commerce application and the MVP should only have Signup/Login, Product Search Facility, Shopping cart to add products to and a Payment gateway integration.(Further a SME should be consulted to determine the exact timelines, in this case the Sr. Java developer can help as an SME).

Q4. Mr Karthik must submit Gap Analysis to Mr Henry to convince to initiate this project. What points (compare AS-IS existing process with TO-BE future Process) to showcase in the GAP Analysis

> AS-IS: The Farmer finds time in their day-to-day work to travel to the nearest Agriculture Products Store via their favoured form of travel and buys the choice of brand for the product if the choices are available.

Thus, Farmers face issues in terms of time, money and effort just to procure the basic farming equipment.

>TO-BE: The farmer will log-in to the website/mobile application and browse his requirements from the entire catalogue of products made by multiple manufacturers and brands at once, the farmer can simply order by adding the product to the cart and providing delivery details like address and contact number and get the products delivered to them.

Thus, farmers will be able to use the saved time, money and energy in their main task of farming and gaining optimum output from their farms.

Q5.List down different risk factors that may be involved (BA Risks And process/Project Risks)

>BA Risks:

* Improper project planning.
* Improper requirements gathering.
* Frequent changes in requirements from client side.
* Client is not interested or is not able to fully devote to the development of the application.

>Process/Project Risks:

* The project doesn’t align with the stakeholder expectations.
* Key team members leaving the project or the organisation itself.
* The competitor may beat the client to the market.
* Scope Creep.

Q6.Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and who are the influencers

>Project Sponsor : Mr. Henry

>Financial Head : Mr. Pandu

>Project Coordinator : Mr. Dooku

>Key Stakeholders : - Mr. Peter

- Mr. Kevin

- Mr. Ben

>Delivery Head : Mr. Karthik

>Project Manager : Mr. Vandanam

>Sr. Java Developer : Ms. Juhi

>Java Developer : - Mr.Tyson

- Ms. Lucie

- Mr. Tucker

- Mr. Bravo

>Network Administrator : Mr. Mike

>Database Administrator : Mr. John

>Testers : - Mr. Jason

- Ms. Alkeya

>Business Analyst :- Aniket Randive



Q7. Help Mr Karthik to prepare a business case document.

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| Project Manager | Mr. Vandanam |  | |
| Date of Approval: | 28th-Feb | Last Revision:  Date |  |
| Project Summary | Presently the farmers must procure the required material locally which consumes more time and energy. Also, there is a monopoly of local shopkeeper or distributor fire seeking the material. Once the online platform is made available to the farmers, they can order required material online, it will save their time and energy. They will also get competitive rates from the manufacturers due to close competition. Thus, the farers will be benefitted in several ways due to existence of online agricultural product store. | | |
| Problem Statement | Farmers having problem in purchasing seeds / fertilizers / pesticides save time and energy due to formation of online platforms, they will be able to order directly from the manufacturer, resulting in competitive pricing being made available to them, thus procurement of various farming related products can be made easy. | | |
| Solution | The Online Agriculture Requirements store will be able to accept the product details from manufacturers and display the same to farmers. Farmers will get product delivered at their doorstep. | | |
| Cost | 2 Crore INR | | |
| Timescale | 18 Months from the date of approval tentatively. | | |
| ROI | It may take upto 30 to 40 months | | |
| Risk | Being the first mover in the market, there can arise unexpected challenges during implementation as well as deployment. | | |

Q8. The Committee of Mr. Henry , Mr Pandu , and Mr Dooku and Mr Karthik are having a discussion on Project Development Approach. Mr Karthik explained to Mr. Henry about SDLC. And four methodologies like Sequential Iterative Evolutionary and Agile. Please share your thoughts and clarity on Methodologies.

>Sequential methodology –

It is the most common and classic life cycle it is very simple to understand and use, in sequential methodologies each phase must be completed in its entirety before the next phase can begin. In this methodology end of the first phase is the beginning of the second phase. At the end of every phase, a review takes place to determine whether the project is going right path or whether it continues or discard. In this methodology, we follow the below-mentioned steps :

* Requirement Gathering: Information gathered from the client and as per the requirement of the client's Business Requirement has been created.
* Requirement analysis: Once business requirements and stakeholder requirements are gathered analysis is taken place by using MoSCoW and FURPS frameworks and FS/FRS SSD SRS RTM documents are created.
* Design: In the design phase DB designer & architecture design the software boundary and create HDD and CDD and a combination of both solution documents has been created.
* Development and Coding: Once the designer design the software then the developer does the coding of the software and developed the software and create LDD & CDD document.
* Testing: After finishing the coding tester comes into the picture, they perform various testing tasks of the developed program with less error and create the test document.
* UAT: The last phase of this SDLC method is (the user acceptance test). After finished all the phases final product run is done on the user server or UAT server. Deployment and Implementation Release the product to a client.

>Iterative -

The iterative methodology is based on a set of building blocks, it describes for production what necessary skills are required and the step-to-step explanation describes how a specific development goal is to be achieved.

Concepts to be followed in iterative Method:

* Role: Role defines a set of related skill competencies and responsibilities.
* Work Items: It represents something meaningful resulting from the task & including all the documents and models produce while working through the process.
* Task: This describes a unit of work assigned to the role and provides a meaningful result.

>Evolutionary-

This method is used for Risk analysis. It has four phases viz. Planning, Risk Analysis, Engineering, and Evaluation. The software Project is repeatedly passed through each phase in iteration, Planning is the baseline of the spiral.

Phases:

* Planning Phase: - Information Gathered.
* Risk Analysis Phase: - To identify the risk and alternate solution of risk and prototype produced.
* Engineering Phase: - Software is produced and Testing done.
* Evaluation Phase: - In this phase allow the customer to evaluate the output of the project to date before the project continues to the next spiral.

>Agile -

Agile Methodologies can be implemented where faster delivery is required, in this method no documentation is required coding is itself formed as documentation, Agile is the faster method to achieve the goal. It satisfies the customer through early and continuous delivery of the valuable software, Changes can easily be accepted and implemented in any phase of SDLC.

* Software is continuously delivered to the customer from a couple of weeks to a month.
* Working software is the primary measure of the life cycle.
* To build the product with motivated individuals.
* Using face-to-face conversation promotes sustainable development.
* The best architecture requirement and Design emerge from the self-organizing team.
* Business and development people should work together throughout the lifecycle of the project.
* To accept no matter how late in the product development lifecycle.
* To tune the team from time to time for better efficiency.

Q9. They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your understanding on these models When the APT IT SOLUTIONS company got the project to make this online agriculture product store, there is a difference of opinion between a couple of SMEs and the project team regarding which methodology would be more suitable for this project. SMEs are stressing on using the V model and the project team is leaning more onto the side of waterfall model. As a business analyst, which methodology do you think would be better for this project?

> Waterfall: A waterfall model is a traditional model in IT companies, the waterfall model is a classical model used in the system development life cycle to create a system with a linear and sequential approach. the output of one phase is used as an input for the next phase, every phase must be completed before the next phase starts and there is no overlapping of the phases. It is a progressive implementation of the project which is divided into different phases of SDLC. As waterfall models have few limitations, still it was used earlier on a wide range of projects.

> RUP Model: - Stands for Rational Unified Model This is a software development process from rational, a division of IBM, it divides the development process into four distinct phases that each involve business modeling, Analysis, and design, implementation, testing, and deployment.

In RUP there are four project life cycles

A) Inception

B) Elaboration

C) Construction

D) Transaction

>Spiral: - This phase starts with a gathering of business requirements in the subsequent spirals as the product matures identification of system requirement are done in this phase. This also includes understanding system requirements through continual communication between the customer and the analyst; at the end of the spiral, the product is deployed

1) Design: The design phase starts with the design in the baseline spiral and involves the architectural, logical design of modules, physical product design, and final design in successive spirals.

2) Construct: Construct phase refers to the development of the final software product at every spiral. In the spiral when the product is just thought and the design is being developed, a Proof of Concept (POC) is developed in this phase to get the users’ feedback. Then in the successive spirals with higher clarity on requirements and design, a working model of the software called to build is developed with a version number. These versions are sent to the users for feedback.

3) Evaluation and Risk Analysis: Risk analysis includes identifying, estimating, and observing technical feasibility such as schedule slippage and cost overrun. After testing the build, at the end of the first iteration, the user evaluates the software and provides feedback. Based on the customer assessment, the development process enters into the next iteration and afterward follows the linear approach to implement the feedback provided by the user. The process of iterations along the spiral carries on throughout the life of the software.

>D) Scrum -

Scrum is not a process technique or definitive method, rather it is a framework within which you can employ various processes and techniques. It has three roles, and every role has clear accountability. The product owner is responsible for maximizing the value of the product resulting from the development teamwork.

The Scrum model suggests that projects progress via a series of sprints. In keeping with an agile methodology, sprints are time-boxed to no more than a month-long, most commonly two weeks.

Scrum is a lightweight agile process framework used primarily for managing software development. Scrum is often contrasted with the so-called “Waterfall” approach, which emphasizes up-front planning and scheduling of activities, followed by execution.

The scrum models have 5 steps also called phases in a scrum.

Step 1: Product Backlog Creation.

Step 2: Sprint planning and creating a backlog

Step 3: Working on sprint.

Step 4: Retrospective and the next sprint planning

The use of the V Model methodology is supposed to be better for this project as all the requirements are well understood and the project simple and relatively small. It is also known as Verification and Validation Model.

V-model is a sequential process in which the next phase begins only after the completion of the present phase.

Q10. Write down the differences between waterfall model and V model.

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| Waterfall Model | V-Model |
| In Waterfall model required budget is low. | V Model is expensive compared to Waterfall model. |
| Simplicity of the water model is simple. | Simplicity of the V Model is intermediate. |
| Flexibility of Waterfall model is rigid. | Flexibility of V model is little flexible. |
| Waterfall model steps progress in a linear way. | V Model’s steps don’t progress in a linear way. |
| In Waterfall model testing activities start after the development activities are over. | In V model testing activities start with the first stage. |
| Guarantee of success through waterfall model is low. | Guarantee of success through V model is high. |
| Waterfall model is a continuous process. | V Model is simultaneous process. |
| Software made using waterfall model the number of defects is less in comparison of V Model. | Software made using V model the number of defects is greater in comparison of software made using waterfall model. |
| Waterfall model is less used now a days in software engineering. | V model is widely used in software engineering. |
| Requirements are clear from the start. | High amount of uncertainty. |
| One of the very old methods and commonly used. | Not so commonly used. |
| Simple to use method steps can be completed alternatively. | Each step should be completed before moving to another step. |
| Defects found at the end | Defects found at the start of the project |

Q11. As a BA, state your reason for choosing one model for this project.

> V Model is based on verification and validation wherein some change requests can be accommodated in the middle of the project development life cycle. Also, programming and testing are performed simultaneously hence defects of the error are less so higher chance of success in this model.

SMEs are stressed about using the V model. And Committee of Mr. Henry, Mr. Pandu, and Mr. Dooku discussed with Mr. Karthik and finalized the V Model approach;

Also, the requirements of the project are very well known and the possibility of change requests is low due to the nature of the project, and the project at the same time is extremely simple; hence, V model is the best choice.

Q12.The Committee of Mr. Henry, Mr Pandu, and Mr Dooku discussed with Mr Karthik and finalised on the V Model approach (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT) Mr Vandanam is mapped as a PM to this project. He studies this Project and Prepares a Gantt chart with V Model (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT) as development process and the Resources are PM, BA, Java Developers, testers, DB Admin, NW Admin.



Q13. The Committee of Mr. Henry, Mr Pandu, and Mr Dooku is now discussing about the funds and how to release the funds for development. They were studying Fixed Bid model and Billing Model. Share your knowledge on Fixed Bid model and Billing Model.

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Fixed bid -

A fixed bid project must have a start and end date and it is billed on a specific amount regardless of the hours worked this fixed bid can be allocated within a month a week or after the completion of the project. This is based on milestones.

Billing model -

The billing model is used for the project based on time and material. It is a simple method where the prices per person per skill per technology are decided and charged based on it, vendor issues monthly insight of work completed this model is agile-oriented, this is based on the time material work hour model.

Q14. Please share Sample Timesheets of a BA in various SDLC Stages RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT, Deployment n Implementation.

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| Requirement Gathering Time Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in RG | 9:00 AM | 12:00 PM | 3 | Meet with stakeholders |
| 12:00 PM | 1:00 PM | 1 | Gather and document |
| 2:00 PM | 3:00 PM | 1 | List assumptions and requirements |
| 3:00 PM | 5:00 PM | 2 | Get approval. |
| 5:00 PM | 5:00 PM | 1 | Monitor progress |

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| Requirement Analysis Time Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in RG | 9:00 AM | 12:00 PM | 3 | Identify Key Stakeholders and  End-Users |
| 12:00 PM | 1:00 PM | 1 | Capture Requirements |
| 2:00 PM | 3:00 PM | 1 | Categorize Requirements |
| 3:00 PM | 6:00 PM | 3 | Interpret and Record Requirements. |

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| Design Time Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in Design | 9:00 AM | 1:00 PM | 4 | Preparation of ADD and HDD |
| 2:00 PM | 3:00 PM | 1 | Preparation of ADD and HDD |
| 3:00 PM | 6:00 PM | 3 | Finalize the solution |

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| Development Time Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in Development | 9:00 AM | 1:00 PM | 4 | Preparation of ADD and HDD |
| 2:00 PM | 3:00 PM | 1 | Preparation of ADD and HDD |
| 3:00 PM | 6:00 PM | 3 | Finalize the solution |

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| Testing Time Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in  Testing | 9:00 AM | 1:00 PM | 4 | Review of system test cases. |
| 2:00 PM | 3:00 PM | 1 | Review of system test cases. |
| 3:00 PM | 6:00 PM | 3 | Providing feedback wherever  required. |

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| UAT Time Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in  UAT | 9:00 AM | 1:00 PM | 4 | Run test case with stakeholders |
| 2:00 PM | 6:00 PM | 4 | Run test case with stakeholders |

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| Deployment and Implementation Sheet for BA | | | | |
| Day  Worked | Login  Time | Logout  Time | Hours  Worked | Task Done |
| Day 1 in  UAT | 9:00 AM | 1:00 PM | 4 | Running application on clients  server |
| 2:00 PM | 4:00 PM | 2 | Doubt clearing sessions |
| 4:00 PM | 6:00 PM | 2 | Project closure documentation |

Q21. 5 Quarterly Audits are planned Q1, Q2, Q3, Q4, Q5 for this Project What is your knowledge on how these Audits will happen for a BA?

>An audit is carried out in projects to check the overall working of the project, it helps to minimize the loopholes in the project if any.

Internal and External Audits are the two types of audits companies carry out in a year, Company itself carried out the intern audits and clients may ask for external audits to perform, the checklist & parameters of the audit may vary and be dependent on the current stage of the project. As per my understanding auditor may tend to ask the below queries during the audit.

1) Auditor may ask for the BRD document which we have created at the time of information gathering.

2) Mail communication happened with a client regarding confirmation of various requirements.

3) During the information gathering stage we have created the timesheet auditor may ask the same.

4) Invitation sends to various stakeholders for workshop and their confirmation.

5) Answers received from the attendees in a survey conducted for elicitation technique.

6) SRS (Software Requirement Specification) document signed by the client auditor may ask to check that all requirements are attended to by BA.

7) RTM prepared by the respective team member may ask for inspection purpose.

8) Various user case tests are followed in the project during the testing phase.

9) Completion of the document while deploying the project to a client.

Q22. 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 ).

>1) what are the steps that you would need to follow to complete a project?

Step 1: Identify and meet with stakeholders.

Step 2: Set and prioritize goals.

Step 3: Define deliverables.

Step 4: Create the project schedule.

Step 5: Identify issues and complete a risk assessment.

Step 6: Present the project plan to stakeholders.

2) What Elicitation Techniques to apply?

According to me brainstorming is the best suitable elicitation technique, in this case, presently there is no set process/application for purchasing fertilizers, Seeds, and Pesticides important stakeholders are less in number hence brainstorming can help gathering all the possible ways to approach the problem statement and hence will form a variety of solutions.

3) How to do Stakeholder Analysis RACI/ILS?

Identify the individuals or groups that are likely to affect or be affected by a proposed action, and sort them according to their impact on the action and the impact the action will have on them. RACI categorization will be used for clarifying what

stakeholders’ roles and responsibilities are in a context of a specific task or process.

Responsibility charting in a RACI matrix is straightforward:

1 -Identify all the activities involved and list them on the left-hand side of the matrix

2 -Identify all the roles involved and list them along the top of the matrix

3 -Complete the cells of the matrix: identify who has the R, A, C, and I responsibility for each activity.

4) What process to follow to Sign off on the Documents?

1-Organize the project documents.

2-Prepare the final report.

3-Distribute the sign-off sheet.

4-Review your lessons learned.

5) 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, and How to take signoff on the UAT- Client

Project Acceptance Form.

Finalize the requirement from stakeholder through stakeholder, communicate the requirement to the technical team through UCD and activity diagram, the graphical design will be done by the architecture, and then testing will be done once the coding is finished, & UAT will be done at client server.

Q23. Explain and illustrate 3-tier architecture?

>3 Tier Architecture is basically a software application working process, 3 tier architecture is divided into 3 layers:

A) Application Layer: -Application Layer means the end user interface or communication with the application or system throw screen and pages, the main purpose of the application layer is to display the information and collect the information from the end user.

B) Business Logic Layer: - All the reusable components, governing body rules, changing components, Compliance, rules and regulation are included in the Business logic layer.

C) Data Layer: -In database layer information processed by the application is stored and managed. The database component connecting to the database will be the data layer.

Q24. Business Analyst should keep what points in his/her mind before he frames a Question to ask to the Stakeholder.

>BA should keep in mind to use the below techniques:

SMART

Specific: explaining to the team exactly what outcome is expected [ a properly working application user friendly

• Measurable: the requirement can be measured /tested to determine whether it's been met

• Attainable: checking if the requirement is achievable

• Realistic if the requirement is relevant and realistic

• Traceable/ time-bound: having a clearly defined time frame

5W1H: why, what, who, where, when, and how

RACI: responsible, accountable, consulted, informed which is used to clarify and define roles and responsibilities.

>What should be the timeline to complete the project?

What payment options should be available?

Why there is a need for an online application store?

Where Application should be available for use on Android or desktop?

How will the application help farmers and manufacturers?

How much is the budget?

How many users can use the application at a time?

An activity diagram is drawn to model how the system should function to

Achieve business logic, business functionality, and business objectives.

3 Tier architecture:

It's a software application that organizes applications in 3 logical and physical tiers:

1) Presentation tier: it’s the user interface

2) Application tier: data is being processed in this phase

3) Data tier: data associated with the application is stored and managed

Use case: use case diagrams are designed to explain how

As an external user is interacting with the system it is helpful to identify the requirement

Use case specification: use case name, use case description, actors, primary actors, secondary actors , basic flow , alternate flow ,exceptional flows , pre- conditions ,post- conditions , assumptions ,constraints , dependencies ,inputs and outputs ,business rules ,miscellaneous information.

Models: data model, data flow diagram, ER diagram.

Page design: interface design.

Q25. As a Business Analyst, What Elicitation Techniques you are aware of? (BDRFOWJIPQU).

>As a Business Analyst below is the best elicitation technique

1) Brainstorming: -Brainstorming can be done individually or in a group, in this technique we collect the user ideas, and those ideas are reviewed and analyzed and checked whether given ideas are relevant to include within the system requirement, and user or stakeholders come up with innovative ideas to define their requirement. Brainstorming is effective with a group of 8 to 12 people it helps to get a good number of an idea from users and stakeholders also use to find all possible solution to the problem and understand the new opportunities.

2) Document Analysis: - Document Analysis technique is used where the current system is in place and documents of older systems are used to transfer into new system creation, inputs are taken from an old system to develop a new system, it includes interface details, user manual, and software vendor manuals. Document analysis evaluates the document to know the AS-IS process and performs the GAP analysis to migrate the system.

3) Reverse Engineering: - in the situation where existing software is old and outdated and to know how the system work, usually reverse engineering is used to examine software or software component to figure out how they are processing business rules and how do they take a decision? How does the software support to the business?

4) Focus Group: -A focus group is a group of persons of 6-12 attendees and from this attendee elicit ideas and attitude about a specific product, the participant shares their ideas, preferences, and need about the software. Open-ended questions are asked to the group or participant to encourage responding and interacting freely with other group members.

5) Observation: -User of the system can provide information about the existing process input and outputs of a system. It helps to improve a process or remove unnecessary activity from the new system. There are two approaches are used in this technique passive and active.

6) Workshop: -Workshop technique is used to identify the requirement of a user or stakeholder, in this method 6-10 or more users or stakeholders attend the session for a defined duration, it is a structured way to capture the requirement, it is used to scope, discover, define, prioritize, and reach closure on the requirement.

7) JAD Workshop: - A software development approach that engages the end user or stakeholder to design and develop the system, this technique provides a large amount of high-quality information in a short period to develop the system

8) Interview: -An interview is the systematic approach to elicit information from a person or group of persons with formal or informal communication, interviewer ask the attendees relevant question and document the responses, in this technique less planning is required.

9) Prototyping: -Prototyping means Mockup. Generally, mean a representation of a computer screen and examples of how the user will interact with the application to accomplish a task to solve business problems, it is a process of creating a working model to test various aspects of a design, and it helps to reduce the project risk and cost. Prototyping has also been proposed as a technique for obtaining the software requirement from the stakeholders.

10) Questionnaire/Survey: -Questionnaire is used to elicit information about customer products, work practices, and attitudes from a group of people in a structured way and a relatively short period, a questioner is used to present a set of the questioner to the stakeholder whose response collected and analyzed to understand the subject matter. There are two types of questionnaires used in the technique Open Ended and Close Ended.

Q26. Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques?

>As their isn’t any preset supply chain or process to buy agricultural products online, we need to explore each and every possible solution there can be, and hence brainstorming is a good requirement elicitation technique to be used in this project.

Q27. Make suitable Assumptions and identify at least 10 Business Requirements.

>

BR001) All users (manufacturers and Farmers) should be able to log in to the application using their phone numbers using OTP as.

BR002) Users should be able to browse through the products catalog once they visit the website.

BR003) Farmers should be able to add products to the buy-later list.

BR004) Users need to have an easy-to-use payment gateway that should include cash-on-delivery (COD), Credit/Debit card, and UPI options so that the user’s experience should be better.

BR005) A user should get an email confirmation regarding their order status.

BR006) Users should get a delivery tracker to track the whereabouts of their orders.

BR007) User should be able to reset the password if forgot or wrongly inputted it more than 3 times.

BR008) Help Section.

BR009) A new user should be able to create a new account using email and password.

BR0010) Manufacturers should be able to list their products easily.

BR0011) There should be a system to add reviews and ratings for the products.

BR0012) Application should also be available in local languages.

Q28. List your assumptions.

>

1) All users/Farmers have a valid email ID.

2) Users have android/apple mobile if they are not using a computer or laptop.

3) Availability of internet connection while using the application

4) Availability of Printing and stationery material with the manufacturer.

5) Transportation system available for delivery of products.

6) Sufficient manpower availability.

Q29. 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 | Login credentials | All users (manufacturers and Farmers) should be able to log in to the application using their Email id and password. | 10 |
| BR002 | Browse application | Farmer should be able to browse through the products catalog once they visit the website. | 6 |
| BR003 | Wishlist | Farmers should be able to add products to the buy-later list. | 7 |
| BR004 | Payment gateway | Farmers need to have an easy-to-use payment gateway that should include cash-on-delivery (COD), Credit/Debit card, and UPI options so that the user’s experience should be better. | 9 |
| BR005 | Order confirmation | A user should get an email confirmation regarding their order status. | 5 |
| BR006 | Delivery Tracking | Farmers should get a delivery tracker to track the whereabouts of their orders. | 4 |
| BR007 | Login credentials  reset | User should be able to reset the password if forgot or wrongly inputted it more than 3 times. | 9 |
| BR008 | Search option | Users should have a search option to search for different products. | 5 |
| BR009 | New account | A new user should be able to create a new account using email and password. | 6 |
| BR010 | Product listing | Manufacturers should be able to list their products easily. | 7 |
| BR011 | User Interface | User Interface should be easy to user friendly and easy to use. | 5 |
| BR012 | Language | Application should also be available in local languages. | 8 |

Q30. Draw use case diagram.

>



Q31. Prepare use case specs for all use cases

>

|  |  |
| --- | --- |
| USE CASE NAME | New user registration |
| USE CASE DESCRIPTION | 1) New user will be able to register to the application using there register Email and Password or register mobile number and OTP.  2) New user will fill up the required information in the application.  3) New user should be receiving the OTP on Email and register mobile number |
| ACTORS | Farmer |
| PRE CONDITION | 1) Active network available.  2) New user have valid Email id availability of android mobile is the application must be used on mobile.  3) New user should know the registration option in the application. |
| POST CONDITION | Successful registration done |
| BASIC FLOW | 1) New user logging to the application and click on registration tab in application.  2) By inputting valid Email id / Register Mobile no and Password/OTP, user register himself in application.  3) New user will be go to the next page filled up the required information which asked in application.  4) New user should be input the OTP once registration done and pop up will appear.  5) New user should set the password in given format.  6) New user will successfully get registered |
| ALTERNATE FLOW | 1) New user should register himself with valid email id.  2) New user should receive the otp on registered email id or mobile number.  3) New user should have information which need to filled while registering on application. |

|  |  |
| --- | --- |
| USE CASE NAME | Login |
| USE CASE DESCRIPTION | 1. Users will be able to log in to the application using their registered email and password or registered mobile number and OTP.  2. User will be able to reset the user id/password using forgot user id/password option. |
| ACTORS | Farmer |
| PRE CONDITION | 1) Active network available.  2. Users have valid account. |
| POST CONDITION | The user logged in successfully |
| BASIC FLOW | 1. Farmer trying to login into the application by inputting valid email id / registered mobile number and password /  OTP.  2. Farmer will be able to go to the next page if user id and password are entered or mobile number and OTP matches with  the database.  3. Farmer can reset the user id/password using forgot option for user id/password. |
| ALTERNATE FLOW | If the User id is correct and password is incorrect / user id is incorrect and password is correct/ both user id and  password are incorrect the system will pop up the error message 'Invalid User Id / Password . |

|  |  |
| --- | --- |
| USE CASE NAME | Place Order |
| USE CASE DESCRIPTION | 1. Farmer will be able to select the product from available product catalogue.  2. The selected product will get added to cart.  3. Farmers will be able to place order. |
| ACTORS | Farmer |
| PRE CONDITION | 1. Farmers have sufficient balance available for purchasing the product.  2. Stock availability with the manufacturer.  3. Farmers are ready to wait for the delivery of the product as per TAT. |
| POST CONDITION | Farmers placing order successfully. |
| BASIC FLOW | 1. Farmer will choose the product from available product catalogue.  2. The chosen product will get added to the cart and farmer place order. |
| ALTERNATE FLOW | 1. Same product will not get selected in cart if already selected by the farmer. Instead a pop up to select the number of said items will appear. |

|  |  |
| --- | --- |
| USE CASE NAME | Make Payment |
| USE CASE DESCRIPTION | 1) Farmer will be able to view the payment option once buy now option is selected from the cart list.  2) Farmer should be select payment type from various payment option  3) Farmer should be able to make the payment from various available options |
| ACTORS | Farmer |
| PRE CONDITION | 1) Farmers should have the facility to make a payment from the various payment options.  2)Farmers should have knowledge that how to pay the payment though various options |
| POST CONDITION | Farmers placing order successfully. |
| BASIC FLOW | 1) Farmers will choose the product from available product catalogue.  2) Farmer will view the payment option in payment option.  3) Farmers choose the payment options as per there convince.  4) Farmer make the payment.  5) Farmers will receive the confirmation of the payment done. |
| ALTERNATE FLOW | 1) Farmer should be able to view the payment option.  2) No response from bank server.  3) Fund should be available in farmer account. |

|  |  |
| --- | --- |
| USE CASE NAME | Cancel the order |
| USE CASE DESCRIPTION | 1) Farmer will be able to cancel the order once booked and if they are not required.  2) Farmer should be able cancel the order under return policy.  3) Farmer should cancel the product within TAT.  4) Once order is cancelled farmer should receive the refund amount in provided bank account. |
| ACTORS | Farmer |
| PRE CONDITION | 1) Order should be cancel within replacement time.  2) Farmer should not open the product if want to return and not required.  3) Farmer should have the bank account for received the refund amount in their account. |
| POST CONDITION | Farmers cancel the product successfully |
| BASIC FLOW | 1) Farmers should visit the application and view the order cancelation option.  2) Farmer should be able to select the product which they want to cancel.  3) Farmer should select the product and cancel the product.  4) Farmer should receive pop up before submitting the cancelation request.  5) Product cancel and repayment should be processed to the farmers account.  6) Farmers should receive the fund in their account. |
| ALTERNATE FLOW | 1) Farmer will not be able to cancel the order if TAT is over.  2) Cancelation option is disabled.  3) Could not be able to process the repayment option.  4) Farmer does not receive the fund in their account. |

Q33. Activity diagrams

>1) Registration



2) Login

3) Payments:



4) Cancel Order

5) Buying Cart Finalization

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Q33. Identify minimum 20 functional requirements.

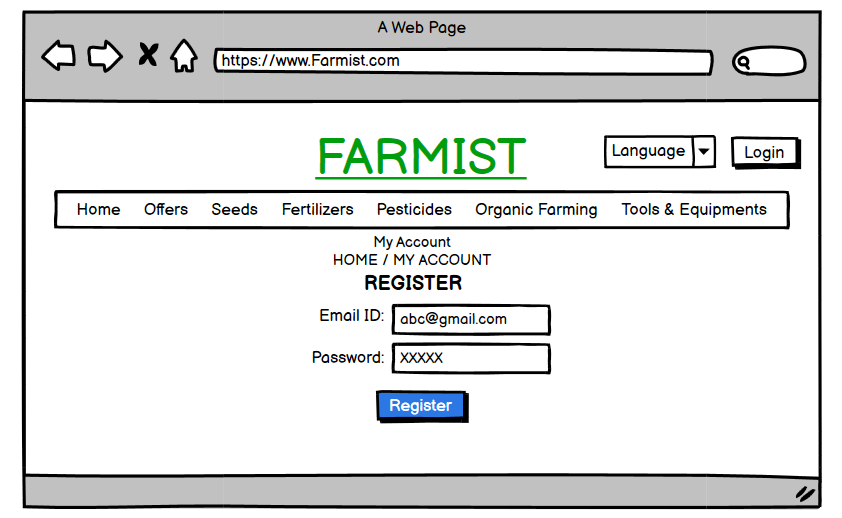
>

|  |  |  |  |
| --- | --- | --- | --- |
| ID | Req. Name | Req. Description | Priority |
| FR001 | Farmer Registration | Farmer should be able to register with the application | 10 |
| FR002 | Search option | Farmer should be able to search for the available products in fertilizers, Seeds, Pesticides | 8 |
| FR003 | Product comparison | Farmer should be able to view various product on same screen for comparison purposes the product with other manufactures | 5 |
| FR004 | Place order | Farmer should be able to place the order from his cart list | 8 |
| FR005 | Payment option | System should pop up the available payment option like Cash, card UPI etc. | 8 |
| FR006 | Summary | Summary of the purchase order should be display on screen | 7 |
| FR007 | Order received | Upon receipt of order system will pop up message alerts to the manufacturer. | 7 |
| FR008 | Delivery tracking system | Execution of the dispatch tracking system will get activated for further alerts | 7 |
| FR009 | Payment system | Once farmer received the goods farmers can do the payment and manufacturer will receive the payment confirmation. | 6 |
| FR010 | Login error | Error message will appear if incorrect credential is used | 9 |
| FR011 | Duplicate alert | Availability of pop-up message in case of duplicate selection of same product by the user if any | 8 |
| FR012 | Notification of new  Product | Farmers should be able to receive the notification for newly launched or arrived product from the manufacturer | 6 |
| FR013 | Return Policy | Availability of product return option /Cancelation of product in the application | 6 |
| FR014 | No duplicate Registration | If the mail id is already registered with system, it should pop up the message | 6 |
| FR015 | Taxes | Product price should be inclusive of government taxes | 5 |
| FR016 | Review column | Review and feedback column should be available for each product | 5 |
| FR017 | Queries | If any queries, then should be able to interact with the BOT | 7 |
| FR018 | Address update | Update Address and save options for delivery | 5 |
| FR019 | Order cancel | Cancel order option and money return | 8 |
| FR020 | Language | Farmer should be able to browse in their local language | 8 |
| NFR001 | Time limit for OTP | Max 120 sec time allowed for inputting OTP while registration or login process | 3 |
| NFR002 | Responsive Web Application | Application can be used on any android mobile. | 5 |

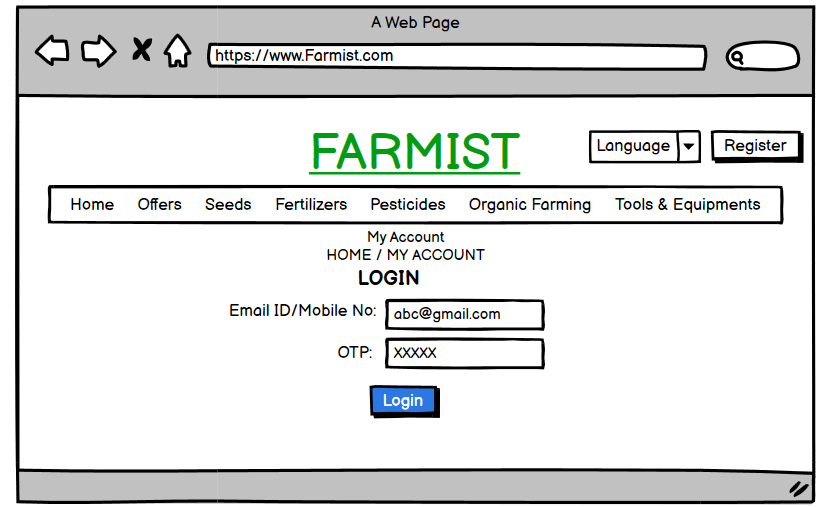
Q34. Make wireframe and prototypes.

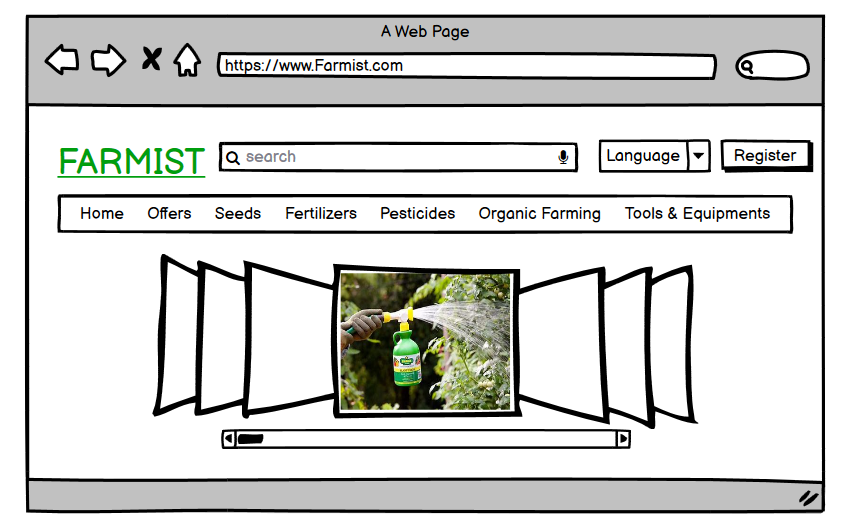
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1) Register

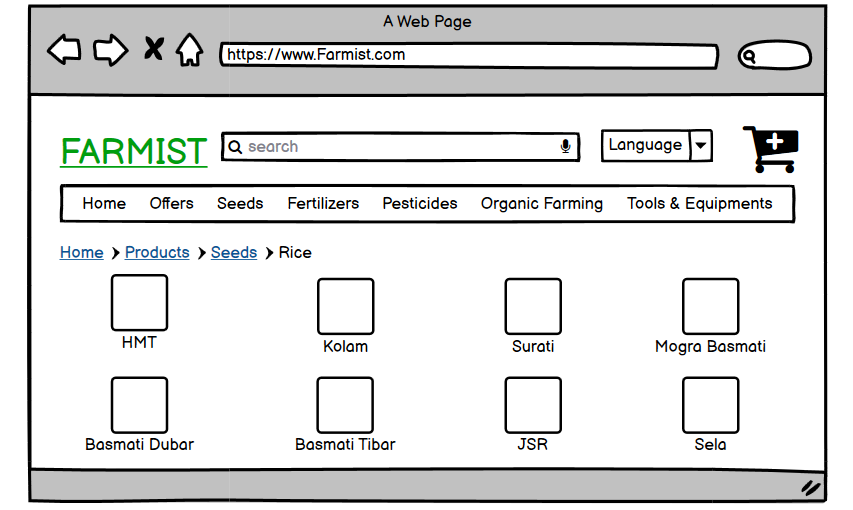


2)Login

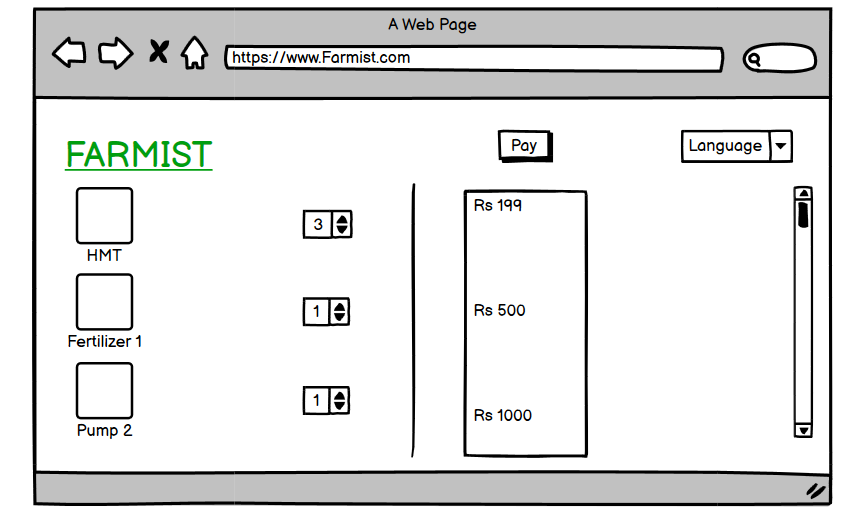


3)Home Page

4) Browsing



5) Cart



Q36) 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?

>

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Req Name | Req Description | Design | D1 | T1 | D2 | T2 | D3 | T3 | D4 | T4 | UAT |
| FR001 | Farmer Registration | Farmer should be able to register with the application. | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR002 | Search  Option | Farmer should be able to search for the available products in fertilizers, seeds, pesticides. | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR003 | Product  Comparison | Farmer should be able to view various product on same screen for  comparison purpose the product with other  manufacturers. | NA | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR004 | Place Order | Farmer should be able to place the order from his cart list. | NA | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR005 | Payment Option | System should pop up the available payment option like Cash, Card, UPI etc. | NA | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR006 | Summary | Summary of the purchase order should be displayed on screen. | NA | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR007 | Order  Received | Upon receipt of order  system will pop up  message alerts to the  manufacturer. | NA | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR008 | Delivery  Tracking  System | Execution of the  dispatch tracking system will get activated for further alerts. | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR009 | Payment  System | Once farmer received  the goods farmers can  do the payment and  manufacturer will  receive the payment  confirmation. | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR010 | Login Error | Error message will appear if incorrect  credentials are used. | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR011 | Duplicate  Alert | Availability of pop-up  message in case of  duplicate selection of  same product by the  user if any | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| FR012 | Notification  Of New Product | Farmers should be able  to receive the notification for newly  launched or arrived  product from the  manufacturer | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | PASS |
| FR013 | Return Policy | Availability of product  return option/cancelation of product in the application. | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | PASS |
| FR014 | No Duplicate  Register | If the mail id is already  registered with system,  it should pop up the  message. | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | PASS |
| FR015 | Taxes | Product price should be  inclusive of government  taxes. | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | PASS |
| FR016 | Review  Column | Review and feedback  column should be  available for each  product. | NA | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | PASS |
| FR017 | Queries | If any queries, then  should be able to  interact with the BOT. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| FR018 | Address Update | Update address and save options for delivery. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| FR019 | Order Cancel | Cancel order option and money return. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| FR020 | Language | Farmer should be able to browse in their local language. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| FR021 | Support Helpline | Farmer should have  option on website to call  support helpline for any  help. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| NFR001 | Page  Loading  Timing | Each page should load  within 2 second time. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| NFR002 | All product  Catalog | Catalog on the web page preview maximum 5 products are display of manufacturing  companies’ catalog. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| NFR003 | Technical  Supported  System | Application can be used  on any android mobile. | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| NFR004 | Time Limit  For OTP | Max 120 sec time  allowed for inputting  OTP while registration or login process | ✔ | ✔ | ✔ | ✔ | NA | NA | NA | NA | NA | PASS |
| NFR005 | Stock  Available | Availability of stock with the manufacture and should get updated on  real time basis. | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| NFR006 | Payment  Receipt | Generation of payment  details on white paper  receipt of 4” 6 | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| NFR007 | Theme | Website should have  greenery based theme. | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| NFR008 | Disable  Policy | User id should be disable if not login for 90 days. | NA | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | PASS |
| NFR009 | Taxation | 15% government taxes  should be added to the  product finale price. | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | NA | NA | PASS |

Q37. Prepare 10 Test Case Documents.

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|  |  |  |  |
| --- | --- | --- | --- |
| Test Case ID: | AEC786TS003 | Test Case Name: |  |
| Project ID: | PQ786 | Project Name: | Online Agriculture E-commerce system. |
| PM ID: | 4869 | PM Name: | Mr. Vandanam. |
| Test Strategy ID: | AEC786TS001 | Tester ID: |  |
| Test Plan ID: | AEC786TS001 | Tester Name: |  |
| Test Schedule ID: | AEC786TS001 | Date of Test: |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Scenario  1) | Verify on entering valid user id and password, the customer can login | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Go to OAEC site | Site should open | Site opened | Pass |
| 2. | Enter wrong user id & wrong  password | Credentials can be entered. | Login Failed. | Fail |
| 3. | Enter valid user id & valid  password | Customer is  logged in. | Login Successful | Pass |

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| --- | --- | --- | --- | --- |
| Test  Scenario  2) | Maximum 5 product should be displayed on page | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Open product list | List should open | List opened | Pass |
| 2. | 5 products browsed | Maximum 5  product should be displayed on the page | 5 products  displayed | Pass |
| 3. | 6 products browsed | Maximum 5  product should be displayed on the page. | 5 products  displayed | Pass |

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| --- | --- | --- | --- | --- |
| Test  Scenario  3) | After selecting the product, it must show in Cart. | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Open Product List | List should open | List opened | Pass |
| 2. | 2 Products is selected from browsed products. | Products displayed  in the cart list. | Product are not  displayed in cart list. | Fail |
| 3. | 6 Products is selected from the browsed products. | Products displayed  in the cart list. | Product are  displayed in the cart list. | Pass |

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| --- | --- | --- | --- | --- |
| Test  Scenario  4) | Manufacturer stock should be reduced once product order is confirmed by the buyer. | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to site. | Site should open | Site opened | Pass |
| 2. | Farmer buys the product  online with COD option. | Stock should be reduced from manufacturer  stock | Stock is not  reduced from  manufacturer  stock | Fail |
| 3. | Farmer buys the product online. | Stock should  reduce from  manufacturer  stock | Stock is reduced from  manufacturer  stock | Pass |

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| --- | --- | --- | --- | --- |
| Test  Scenario  5) | Various payment option will provide the user after finalize the product to buy COD, Card 16 number card not expired debit card credit card, UPI. | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to | Site should open | Site opened | Pass |
| 2. | Farmer selects the card  payment option | Payment should be  done through Card | Payment option  redirected to Card gateway. | Pass |
| 3. | Farmer selects the UPI payment option | Payment should be  done through UPI | Payment done  through UPI | Pass |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Scenario  6) | If the user is not active for 10 min log out the user automatically | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to site | Site should open | Site opened | Pass |
| 2. | Farmer Login using password | After 10 mins of inactivity user should log out | User logging out failed  after 10 min | Fail |
| 3. | Farmer Login using OTP | After 10 mins of inactivity user should log out | User logged out after  10 min | Pass |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Scenario  7) | OTP should be received on customer’s email and sms within 10 seconds for OTP registration. | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to the site | Site should open | Site opened | Pass |
| 2. | Farmer clicks on register button | SMS & Email sent to farmer. | Email as well  as Mobile  Number not received | Fail |
| 3. | SMS & Email with OTP sent to farmer | OTP received | OTP received on email as well as Mobile number | Pass |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Scenario  8) | Validity of the OTP is maximum 60 seconds | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to the site | Site should open | Site opened | Pass |
| 2. | Otp Send on farmers Email id  and Mobile number | Max 60 second  otp should active | user not logout  after 10 min | Fail |
| 3. | SMS & Email send to farmer | Max 60 second  otp should active | Otp valid till 60  sec | Pass |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Scenario  9) | Addition of government tax price of the product. | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to the site | Site should open | Site opened | Pass |
| 2. | Addition of Govt. tax price of  product 15 % | Govt. tax should  add 15% | Govt. Tax added  30 % | Fail |
| 3. | SMS & Email send to farmer | SMS & Email send to farmer | Sent | Pass |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test  Scenario  10) | Unique email id for registration | | | |
| Step No. | Step Details | Expected Results | Actual Results | Pass / Fail /  Not  executed /  Suspended |
| 1. | Farmer navigates to the site | Site should open | Site opened | Pass |
| 2. | Existing id  entering | Redirecting to enter unique email address | Email accepted | Fail |
| 3. | Unique id  Entering. | Register successfully. | Email accepted. | Pass. |

Q38. 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 diagram.

> ER- Diagram



DB – Schema



Q39. Data Flow Diagram

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

> Dataflow Diagram is a graphical representation of data. It is method of representing a flow of data through a process or system. It helps in providing information about the output and input of each entity. It’s a symbolic visualization of the data flow from one stage to another.



Q40. Change Request

Due to a change in the Government Taxation structure we should change the Tax structure. How do you handle change requests in a project?

> A change request can be initiated by customers intentionally or forcefully. Change request needs to be handled carefully depending on the stage of the project. The change request should be approved by the concerned authorities like the project manager. Once approved, change request needs to be documented and signed by the customer. Budgeting/ time is one of the crucial parameters in case of a change request. An additional budget may be required, and approval should be taken before implementing any changes.

Steps in change request we can take -

1) We will convey the clients change request to the concerned team,

2) After receiving the change request discuss with PM & SME

3) Extension of period or budget can be asked for approval from the client if required

4) Necessary documentation for change request will be prepared and a sign should be obtained from the customer

5) Once the extension or budget is approved by the client the change request is shared with the technical team for making necessary changes in the application.

6) Modify the RTM done as per the change request.

Q41. Change Request Vs an Enhancement

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 them to the public and should be able to sell them. They also want to introduce an Auction system for their crop yields. As a BA, what will be your response? Is this a change request or an enhancement?

>

We as BA will treat this request as a change request, not enhancement because the display of farmer products or availability of farmer sell of crop yields was not given by the client initially it’s a totally new requirement.

Enhancement: - Whenever there is a modification in the initial requirement given by the customer it is known as an enhancement request. In short, whenever an initial requirement gets modified it will be treated as an enhancement.

Example: -Changes in % of GST while calculating the price of the product. In this case formula of calculation, the price of a product already exists in the original requirement. The only modification to be done is in the % of GST

Change Request: - In case of change requires the total new requirement given by the customer which initially doesn’t exist, whenever a customer gives a fresh requirement that was not given by him initially will be treated as a change request for implementing such type of request major changes need to be done.

Example: - Farmers should be able to add their crop yields or products and display them to the public and should be able to sell them.

Q42. Estimations

Come up with estimations – How many Man hours required.

>

This is a totally new requirement no provision has been made initially no such requirement provision was made for farmer products earlier for utilizing this change in application.

We need to revisit all the app parameters once again it is as like adding one more application to existing one hence the estimated cost and men hours will be almost equivalent to the present one.

Consider 8 hours a day for 5 days for a week for a total 18-month project.

11 x 8x 5 (4 weeks in a month) x 18 months = 31680-man hours

Q43.UAT

The project has finally completed all the stages i.e., design, development, testing, etc. Now, it is the role of a business analyst to contact the client for testing the final product and to successfully complete it. How are you going to handle this situation? And once it is done, what will be the process to close the project?

Explain the UAT Acceptance process

>

The user Acceptance process UAT is the final stage of any software development or changes request lifecycle before going live. Actual users test the software to determine if it does what it was designed to do in real-world situations, validating changes made and assessing adherence to their organization’s business requirements.

UAT Process

Step 1) Analysis of Business Requirements - One of the most important activities in the UAT is to identify and develop test scenarios. These test scenarios are derived from the following documents:

· Project Charter

· Business Use Cases

· Process Flow Diagrams

· Business Requirements Document (BRD)

· System Requirements Specification (SRS)

Step 2) Creation of UAT Plan: - The UAT test plan outlines the strategy that will be used to verify and ensure an application meets its business requirements. It documents entry and exit criteria for UAT, Test scenarios and test cases approach, and timelines of testing.

The UAT test plan outlines the strategy that will be used to verify and ensure an application meets its business requirements. It documents entry and exit criteria for UAT, Test scenarios and test cases approach, and timelines of testing.

Step 3) Identify Test Scenarios and Test Cases:

Identify the test scenarios with respect to high-level business processes and create test cases with clear test steps. Test cases should sufficiently cover most of the UAT scenarios. Business Use cases are input for creating the test cases.

Step 4) Preparation of Test Data:

It is best advised to use live data for UAT. Data should be scrambled for privacy and security reasons. A tester should be familiar with the database flow.

Step 5) Run and record the results:

Execute test cases and report bugs if any. Re-test bugs once fixed. Test Management tools can be used for execution.

Step 6) Confirm Business Objectives met:

Business Analysts or UAT Testers need to send a sign-off mail after the UAT testing. After sign-off, the product is good to go for production. Deliverables for UAT testing are Test Plan, UAT Scenarios and Test Cases, Test Results, and Defect Log.

As a project has completed all the stages of SDLC, first as a BA will do a dry run of the project, wherein all the systems with each option will be tested and once satisfied, will consult the project manager.

After doing the testing analysis the project manager will send an official email to the client for UAT and will fix up a meeting date and time with the client, stakeholders, and all our team members.

BA will showcase the project with live go screens and will welcome suggestions from clients or stakeholders if any and will take the sign-off from the client to close the project.

After this, we will start the process of handing over the application to the client and we will give all documentation to the client for future help.

Q44.Project Closure Document

Explain the Project closure document

>

The purpose of the Project Closure document is to formally close a project and authorize the handoff from project to operations. It would include final information about the project deliverables, scope, milestones, and budget, as well as lessons learned.

Steps to Closing a Project

The close of the project is the final phase of your job, it’s the last turn of the project life cycle, and like any other aspect of a project, it requires a process. The following are five steps you should take to make sure you’ve dotted all the I’s and crossed all the T’s, as well as taken full advantage of the experience.

A project closure document comprises of :

1. Acceptance Criteria:

* Acceptance Criteria is a set of features, capabilities and other needs that must be present during the UAT for the client to accept the project and signoff the acceptance criteria. It is the most crucial part of the document.

|  |  |  |
| --- | --- | --- |
| **Category** | **Criteria** | **Achieved** |
| Objectives | * To have developed a working online ecommerce system for farmers. * To have integrated the shipping service into the ecommerce site. | *Y*  *Y* |
| Benefits | * The agricultural products are being delivered to the farmers. | *Y* |
| Deliverables | * Registration and Login System * Product browsing capabilities in the system. * Buying cart should be available in the system. * Payment system has to be integrated into the system. * Confirmation for the order has to be given to the customer via email. | *Y*  *Y*  *Y*  *Y*  *Y* |

1. User Manual.

* A user manual describes how the end user and administrator should make the full use of the system and its capabilities, also commonly occurring errors are listed out and procedures to sort them out is also explained.

It usually comprises of an index which lists out all the features in the system for easy navigation of the user of the system. Each feature is the explained out in detail.

1. Project Milestones

* Milestones can note the start and finish of a project, and mark the completion of a major phase of work. Milestones can be used to symbolize anything that has started or finished, though it’s primarily used as a scheduling tool.

1. Project approval
2. Start and end of project phases
3. Securing financing, equipment or resources
4. Assembling a project team
5. Getting your project plan approved
6. Project kick-off meeting
7. Completing critical tasks
8. Producing key project deliverables
9. Reaching project goals and objectives
10. Project completion
11. FRD:

* An FRD or Functional Requirements Document serves as a contract for formal statement, between the business stakeholders and the technology team, on an application’s functional requirements. The Functional Requirements Document (FRD) is one way to express functional specifications and define the requirements and functional solution direction of software solution.

1. BRD:

* It restates the business requirements in terms of functional features and capabilities to be supported by the new system or platform.  This ensures the project team understands the business requirements and are on their way to implement a solution which addresses the business needs or problems.

-Aniket Randive

**Online Agriculture Products Store**



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# Document Changes

|  |  |  |
| --- | --- | --- |
| Date | Version Number | Document Changes |
| 19/03/2023 | 0.1 | Initial Draft |
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# Approvals

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Role** | **Name** | **Title** | **Signature** | **Date** |
| Project Sponsor | Mr. Henry | BRD | Mr. Henry | 18/3/2023 |
| Financial Head | Mr. Pandu | BRD | Mr. Pandu | 18/3/2023 |
| Project Coordinator | Mr. Dooku | BRD | Mr. Dooku | 18/3/2023 |
| Project Manager | Mr. Vandanam | BRD | Mr. Vandanam | 18/3/2023 |
| Development Lead | Ms. Juhi | BRD | Ms. Juhi | 18/3/2023 |

# RACI Chart for This Document

### RACI Chart



# Introduction

## Business Goals

The Online Agriculture Requirements store should be able to accept the product details from manufacturers and display the same to farmers. Farmers will get product delivered at their doorstep.

## Business Objectives

To achieve the business goals the proposed IT solution is incorporated with needed functionalities.

These functionalities which are present in software are listed below:

* Customer can check and buy all agricultural products through online e-commerce system which remove the existing manual process where customer comes to the offline vendors manually.
* If the customer is new then the system asks for registration
* System generates unique username and password which can be used for making reservation
* System allows customer to search and buy products.
* System allows customer to pay online or can pay personally
* Customer can make payments using different payment methods like cash, credit card, debit card or COD.
* System allows customer to view details of order.

## Business Rules

* System should allow only admin to initiate refunds and confirm orders.
* Only admin can complete manufacturer verification.
* Orders can be returned if the conditions of return are met.

## Background

Presently the farmers must procure the required material locally which consumes more time and energy. Also, there is a monopoly of local shopkeeper or distributor fire seeking the material. Once the online platform is made available to the farmers, they can order required material online, it will save their time and energy. They will also get competitive rates from the manufacturers due to close competition. Thus, the farers will be benefitted in several ways due to existence of online agricultural product store.

Farmers having problem in purchasing seeds / fertilizers / pesticides save time and energy due to formation of online platforms, they will be able to order directly from the manufacturer, resulting in competitive pricing being made available to them, thus procurement of various farming related products can be made easy.

## Project Objective

* The system captures the personal details of the customer and generates unique username and password.
* It reduces the existing manual process of reservation tour
* Customers can select tour schemes of their choice
* It simplify the payment process
* Customer can update personal details or view reservation details or cancel reservation
* The system allows administrator to add, modify or delete tour scheme.
* Project saves both time and energy for the customer by providing all the tour details like accommodation, duration and cost.

## Project Scope

### In Scope Functionality

BR001) All users (manufacturers and Farmers) should be able to log in to the application using their phone numbers using OTP as.

BR002) Users should be able to browse through the products catalog once they visit the website.

BR003) Farmers should be able to add products to the buy-later list.

BR004) Users need to have an easy-to-use payment gateway that should include cash-on-delivery (COD), Credit/Debit card, and UPI options so that the user’s experience should be better.

BR005) A user should get an email confirmation regarding their order status.

BR006) Users should get a delivery tracker to track the whereabouts of their orders.

BR007) User should be able to reset the password if forgot or wrongly inputted it more than 3 times.

BR008) Help Section.

BR009) A new user should be able to create a new account using email and password.

BR0010) Manufacturers should be able to list their products easily.

BR0011) There should be a system to add reviews and ratings for the products.

BR0012) Application should also be available in local languages.

### Out Scope Functionality

* Generating email or SMS about new products added to the online store and sale offers.

# Assumptions

* All users/Farmers have a valid email ID.
* Users have android/apple mobile if they are not using a computer or laptop.
* 3) Availability of internet connection while using the application
* 4) Availability of Printing and stationery material with the manufacturer.
* 5) Transportation system available for delivery of products.
* 6) Sufficient manpower availability.

# Constraints

* The shipping of the products to remote areas.

# Risks

## Technological Risks

We have the team who have worked on the technologies being used in the project and hence there aren’t any technology related risks.

## Skills Risks

Farmers are a relatively non tech-savvy crowd, adoption of technology will be difficult.

## Business Risks

Cancelling the project not only incur loss in terms of cost and time already dedicated towards it up till cancelation point and cannot improve the quality of service provided to customers.

## Requirements Risks

* Improper project planning.
* Improper requirements gathering.
* Frequent changes in requirements from client side.
* Client is not interested or is not able to fully devote to the development of the application.

## Other Risks

* The project doesn’t align with the stakeholder expectations.
* Key team members leaving the project or the organisation itself.
* The competitor may beat the client to the market.
* Scope Creep.

# 8. Business Process Overview

This process begins when customer access the system through online, system asks for registration if the customer is new and for registered customer login details If he wants to browse through the various products that are listed. To complete the registration customer gives personal details and then system provides with unique user Id and password to customer. Customer checks the available of the required product that he wants to buy and then chooses payment by online or goes personally to office and pays through staff by cash, credit, debit or COD and receives a confirmation email with the link from tracking his order. After buying some product the customer can view his order and can also cancel his reservation if the conditions for the same are met.

## 8.1 Legacy System (AS-IS)

The Farmer finds time in their day-to-day work to travel to the nearest Agriculture Products Store via their favoured form of travel and buys the choice of brand for the product if the choices are available.Thus, Farmers face issues in terms of time, money and effort just to procure the basic farming equipment.

## 8.2 Proposed Recommendations (TO-BE)

In the proposed system manual process is completely removed. The customer access system online and check availability of the tour package. If the customer is new then he has to complete registration process. The system generates unique username and password. The existing customer can login and select tour package and if satisfied make payment by selecting any payment method like cash, credit card, debit card or cheque, customer can even make payment by going personally to the valid staff. Existing customer can update his personal details, view reservation details or cancel reservation. Administrator can add, modify or delete tour scheme.



# 9. Business Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Req. ID | Req. Name | Req. Description | Priority. |
| BR001 | Login credentials | All users (manufacturers and Farmers) should be able to log in to the application using their Email id and password. | 10 |
| BR002 | Browse application | Farmer should be able to browse through the products catalog once they visit the website. | 6 |
| BR003 | Wishlist | Farmers should be able to add products to the buy-later list. | 7 |
| BR004 | Payment gateway | Farmers need to have an easy-to-use payment gateway that should include cash-on-delivery (COD), Credit/Debit card, and UPI options so that the user’s experience should be better. | 9 |
| BR005 | Order confirmation | A user should get an email confirmation regarding their order status. | 5 |
| BR006 | Delivery Tracking | Farmers should get a delivery tracker to track the whereabouts of their orders. | 4 |
| BR007 | Login credentials  reset | User should be able to reset the password if forgot or wrongly inputted it more than 3 times. | 9 |
| BR008 | Search option | Users should have a search option to search for different products. | 5 |
| BR009 | New account | A new user should be able to create a new account using email and password. | 6 |
| BR010 | Product listing | Manufacturers should be able to list their products easily. | 7 |
| BR011 | User Interface | User Interface should be easy to user friendly and easy to use. | 5 |
| BR012 | Language | Application should also be available in local languages. | 8 |