Online Agriculture Product Store:
**1. Identify Business process model for Online Agriculture Product Store:**
 **Goal:** To provide an online platform that allows farmers to buy essential agricultural goods like fertilizer, seeds, pesticides etc.
 **Inputs:** Farmers, fertilizer, seeds, pesticides, supplier, vendor, delivery agent, system.
 **Resources:** e commerce platform, delivery system, vendor and supplier system, payment gateways.

**Outputs:** Order confirmations, invoices, delivery, reports.
**Activities:** Product browsing, Order booking, payment, Order tracking, Delivery and logistic, Customer feedback, Supplier and vendor management
**Value created to end customer:** Buying experience made easy, very convenient market place made available for Supplier and vendor, Wide range of variety made available.

**2. SWOT Analysis:**
**Strength:** Farmers can buy the essential things remotely.
 The platform become marketplace for manufacturer.
 No physical shop is needed.
 Farmer can order from home and get it delivered within committed time. **Weakness:** To deliver in remote village will be difficult.
 The trust on online system is big concern from farmer end.
 The internet connectivity is also big problem. **Opportunities:**

More farmers will become comfortable with online shopping.
 On the response we could implement Subscription model
 Along with seed, fertilizers we could sale instruments, new tech services

**Threats (T):** Existing e com portal will be challenge for us.
 Farmers fall for lowest price.
 As it is going to farmer specific, the sales will be very much season specific.

3.Feasibility study:
The proposed business is an e-com platform selling agricultural essentials such as seeds, fertilizers, pesticides. The platform will be built using Java-based technologies, ensuring scalability, security, and efficiency.

**2. Market Analysis**

* 1. Industry Overview

The global agri-tech and e-com sector is growing rapidly due to digitalization. Governments are promoting digital agriculture initiatives, making this a growing market. The demand for high-quality farm inputs is rising due to increased agricultural activities.

2.2 Target Market

1. Small, medium & large-scale farmers
2. Agricultural communities
3. Agricultural retailers & resellers
4. Organic & smart farming communities

2.3 Market Demand

1. Increasing internet usage in rural areas will help to increase market potential.
2. Farmers will prefer convenience & bulk purchasing through online platforms.
3. Growing awareness about certified, high-quality agricultural products boosts demand.

2.4 Competitive Analysis

Competitors include:

* Existing agricultural e-commerce platforms (Amazon Agriculture, AgroStar).
* Traditional brick-and-mortar suppliers with local market dominance.
* Direct manufacturers selling through their own websites.

**3. Technical Feasibility**

 **Software Development Approach**

A well-trained Java developer will build the platform using:

1. Backend: Spring Boot (Java) for scalability & performance.
2. Frontend: React.js / Angular for an interactive UI.
3. Database: MySQL for storing product data & orders.
4. Cloud Hosting: AWS / Google Cloud for high availability.
5. Payment Gateway: Razorpay / PayPal for secure transactions.
6. Security: OAuth2 authentication, SSL encryption for secure transactions.
	1. **Platform Features**

1. Multi-language support (for rural areas).
2. Order tracking & automated delivery scheduling.
3. Mobile-friendly UI & Android app support.
4. Integration with logistics providers & agri-financing solutions
5.. AI-based product recommendations.

**4. GAP Analysis:
Current state:**1. Most farmers still buy agricultural essentials from offline stores due to a lack of online options and local retailor take adv of it and sell at extreme prices.

2.Limited availability of product, high-quality concern and local manufacturer do not allow global products to enter the market

3.Only cash payment is allowed, need cashless payment service and credit options

4.Logistics & delivery challenges in rural areas lead to delayed shipments.
**Future state:**1.Provide reliable and trusted online agriculture store with variety and quality-certified products.

2.Provide competitive pricing, bulk discounts, and seasonal offers to help farmers save money.

3.It will ensure fast & efficient delivery to remote areas via logistics partnerships.

4.Multiple payment options, including digital wallets, bank transfers, and credit-based purchasing**.**

**5.Risk analysis:**Following factors are considered:
**Project Risk**
1. Most of farmers prefer traditional offline buying so number platform user will be lower

2. Competition with established platforms like Amazon Agro, AgroStar etc

3. Sales mostly dependent on season, as the farmer will order product seasonwise.

4. As multiple brands available on platforms farmer might get confuse which one is trustworthy.

5. Access to remote location and delivery at the same place

6. Same with return or refund procedure, if it does not matches the farmer expectations.

7.Farmers may struggle with using platform or with the online payment.

8. Delayed delivery, raw material shortage and some restrictions.
**BA risk:**
Domain knowledge
Incomplete requirements
Changes in requirements

**6. Stakeholder analysis:**

|  |  |  |
| --- | --- | --- |
| Role | Name of Person | Designation |
| Responsible | Ms.Juhi, Mr.Tyson, Ms.Lucie, Mr.Tucker, Mr. Bravo,Ms Jason, Mr Akleya | Dev team, QA Team, Support |
|  | Mr.Dooku | Project coordinator |
|  |  |  |
| Accountable | Mr.Vandanam | Project Manager |
|  | Mr.Chinmay | BA |
|  | Peter,Kebin,Ben | Client  |
|  | Mr. Karthik | Delivery head  |
|  |  |  |
| Consulted | Mr. Mike | Network Admin |
|  | John | DB Admin |
|  |  |  |
| Informed | Mr.Henry | Sponsor |
|  | Mr.Pandu | Financial head |
|  |  |  |

**7.Business Case document:
Why this Project:** As we came across many remote farmers problems like seeds, fertilizers and pesticides are not available at right time and in right quantity, along with this the availability of those at retailer’s place is questionable. To solve this concern and achieve efficient, effective and convenient way to make available at remote place.

**Problems it will address:**1. Provide a convenient platform to order seeds, fertilizer and pesticides at remote locations.
2. Digitalization will make farmers digitally literate.
3. Establish the logistics and delivery change at remote place.
4. Global + local manufacture gets the marketplace to sale their product.
 **Resources:**Farmers data, Software development team, Java based Software platform, Domain expert, logistic system, supplier vendors. **Timeframe:**Currently considering all attribute we came with estimates of 18months.
 **Stakeholder:**Will prepare RACI matrix in detailed manner.

**8.Four SDLC methodologies:
 Sequential method:**A sequential, linear approach where each phase (requirements, design, implementation, testing, deployment) must be completed before the next begins.
It is simple to understand and manage, suitable for projects with well-defined requirements.
It is rigid and inflexible, not suitable for projects with evolving requirements.

**Iterative:**A development approach that involves repeating a series of development phases to refine the software. It allows for incremental improvements and feedback, suitable for projects with evolving requirements. Itcan be time-consuming and resource-intensive.

**Spiral:**A risk-driven approach that combines iterative development with risk management. It is continuous process and evolves the process carried away. The project goes through repeated cycles (spirals) of planning, design, build, and evaluation.It is flexible and adaptable, suitable for projects with high levels of risk.
It can be complex to manage, requires strong risk assessment skills.

**Agile:**An iterative and incremental approach that emphasizes flexibility and collaboration. An iterative and flexible approach where the project is broken into small increments (sprints). Teams work in cycles, continuously improving and adapting.
It is adaptable to changing requirements, allows for early feedback and quick delivery.
It can be challenging to manage in large projects, requires strong communication and collaboration.

**9.Discuss Waterfall, RUP, Spiral and Scrum:
Waterfall:**A sequential, linear approach where each phase (Requirement, Design, Implementation, Testing, Deployment, and Maintenance) must be completed before the next begins. It is simple, structured, and easy to manage.
It is simple to understand and manage, suitable for projects with well-defined requirements.
It is rigid and inflexible, not suitable for projects with evolving requirements.

**RUP:**
RUP is a structured and disciplined iterative SDLC model developed by IBM’s Rational Software. It divides development into four phases and focuses on risk management, architecture, and documentation.
Phases of RUP:
Inception: Define scope, business case, and feasibility.
Elaboration: Establish architecture, assess risks, and refine requirements.
Construction: Develop and integrate system components.
Transition: Deploy and support the product.
It well-structured and disciplined model.
Suitable for large and complex problems

**Spiral:**A risk-driven approach that combines iterative development with risk management. It is continuous process and evolves the process carried away. The project goes through repeated cycles (spirals) of planning, design, build, and evaluation.It is flexible and adaptable, suitable for projects with high levels of risk.
It can be complex to manage, requires strong risk assessment skills.

**Scrum:** Scrum is an Agile framework that focuses on flexibility, adaptability, and iterative development through short

development cycles called Sprints (typically 2-4 weeks).

Key Components of Scrum:
Product Backlog: List of features and requirements.
Sprint: A short iteration (2-4 weeks) where a set of backlog items are developed.
Daily Scrum Meetings: 15-minute stand-up meetings for team updates.
Sprint Review & Retrospective: Feedback sessions to improve the next iteration.

It is highly flexible and adaptive.
It is faster time-to-market.

**10.Waterfall Vs V model:**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Waterfall Model** | **V Model** |
| Cost | The waterfall model is relatively low-cost compared to the V Model | V model is highly expensive |
| Simplicity | Highly simplified and straightforward | Intermediate |
| Flexibility | Rigid | More strict compared to a waterfall |
| Backtracking | No way to return to an earlier stage till the development has ended | V model doesn’t restrict backtracking |
| Re-usability | Limited | Most components can be re-used to a certain extent |
| User Involvement | Only during the early planning phase | More involvement compared to a waterfall |
| Guarantee of Success | Low | High |
| Continuation | Continuous process | Simultaneous process |
| Defects | More defects were found in the testing phase | Fewer defects found in the testing phase |
| Debugging | Performed post-development | Can be done between phases |
| Use Frequency | Less used in modern development | Widely used in software development |

**11.Justify your choice:
Waterfall Model:** As we look at the problem we are trying to solve; it looks pretty straight forward and the needs or requirements are crystal clear. Along with that it is lower at cost when cost is concern, very much straightforward approach and highly simplified. Every step and process is well reviewed.

**12.Gantt Chart:
Gantt Chart prepared development phase wise so that progress can be displayed:


13.Fixed bid vs Billing:
Fixed Bid (Fixed Price )A set price is agreed upon before work begins.**The contractor or service provider completes the work for the agreed amount, regardless of the actual time or effort required. The client knows the total cost upfront, reducing financial uncertainty.
Typically used for well-defined projects where the scope is clear.
Risk: If the project takes longer than expected, the service provider absorbs the cost.

**Billing (Time & Materials or Hourly Billing)**

|  |
| --- |
| Design phase |
| Sr no  | Tasks | Action taken | Start time | End time  | Duration(Hrs) |
| 1 | Take a meeting with Dev Architect | Brief the requirements | 10:00 | 11:00 | 1 |
| 2 | Set up call and get clarification on queries  | Sort the queries  | 11:30 | 12:30 | 1 |
| 3 | Prepare some Solution structure | Discuss the solution structure with Dev team | 1:30 | 3:30 | 2 |
| 4 | Document the Mom | Work on the documentation and design | 4:00 | 5:00 | 1 |
| 5 | Client interaction | Update on progress and clarification | 5:00 | 6:00 | 1 |
| 6 | Team meeting | Team update | 6:00 | 6:30 | 0.5 |
|   |   |   |   |   | 6.5 |

The client pays based on actual hours worked.
More flexible, allowing for changes and scope adjustments.
The final cost is uncertain at the beginning, but the client only pays for actual work done.
Commonly used when the project scope is unclear or expected to evolve.
Risk: If the project takes longer, the cost can exceed initial estimates.

**14. Design Time sheet of BA**

**14.b.Development time sheet of BA:**

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| --- |
| Development phase |
| Sr no  | Tasks | Action taken | Start time | End time  | Duration(Hrs) |
| 1 | Take a meeting with Dev team | Brief the requirements and prioritize | 10:00 | 11:00 | 1 |
| 2 | Set up call and get clarification on queries  | Sort the queries and answer back to team | 11:30 | 12:30 | 1 |
| 3 | Prepare & update documents | Discuss the solution with Dev team | 1:30 | 3:30 | 2 |
| 4 | Document the Mom | Work on the documentation and design | 4:00 | 5:00 | 1 |
| 5 | Client interaction | Update on progress and clarification | 5:00 | 6:00 | 1 |
| 6 | Team meeting | Team update | 6:00 | 6:30 | 0.5 |
|   |   |   |   |   | 6.5 |

 **14.c Testing timesheet of BA:**

|  |
| --- |
| Testing phase |
| Sr no  | Tasks | Action taken | Start time | End time  | Duration(Hrs) |
| 1 | Take a meeting with test team | Brief the requirements and provide test env and data | 10:00 | 11:00 | 1 |
| 2 | Set up call and get test data  | help to set up test data | 11:30 | 12:30 | 1 |
| 3 | Prepare & update documents | Review the test cases  | 1:30 | 3:30 | 2 |
| 4 | Document the Mom | Work on the documentation and design | 4:00 | 5:00 | 1 |
| 5 | Client interaction | Update on progress and clarification | 5:00 | 6:00 | 1 |
| 6 | Team meeting | Team update | 6:00 | 6:30 | 0.5 |
|   |   |   |   |   | 6.5 |

|  |
| --- |
| UAT phase |
| Sr no  | Tasks | Action taken | Start time | End time  | Duration(Hrs) |
| 1 | Take a meeting with Client | Brief thetest steps and how set up test data | 10:00 | 11:00 | 1 |
| 2 | Set up call and plan UAT | Decide the UAT time and env | 11:30 | 12:30 | 1 |
| 3 | Prepare & update documents | Review theUAT test cases with Client | 1:30 | 3:30 | 2 |
| 4 | Document the Mom | Work on the documentation and design | 4:00 | 5:00 | 1 |
| 5 | Client interaction | Update on progress and clarification | 5:00 | 6:00 | 1 |
| 6 | Team meeting | Team update | 6:00 | 6:30 | 0.5 |
|   |   |   |   |   | 6.5 |

 **14.d UAT timesheet of BA:**

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| --- |
| Deployment and implementation phase |
| Sr no  | Tasks | Action taken | Start time | End time  | Duration(Hrs) |
| 1 | Take a meeting with Hosting team | Brief theset up env and env requirement | 10:00 | 11:00 | 1 |
| 2 | Set up call and plan Deployment | Verify the set up env and all packages are ready | 11:30 | 12:30 | 1 |
| 3 | Prepare & update documents | Prepare deployment & implementation document | 1:30 | 3:30 | 2 |
| 4 | Document the Mom | Work on the documentation and design | 4:00 | 5:00 | 1 |
| 5 | Client interaction | Update on progress and clarification | 5:00 | 6:00 | 1 |
| 6 | Team meeting | Team update | 6:00 | 6:30 | 0.5 |
|   |   |   |   |   | 6.5 |

 **14.d Deployment and Implementation timesheet of BA:**