**Capstone Prep 1: Online Agriculture Product Store**

**Analysis**:

Henry – Businessman

Henry’s friends – Peter, Kevin and Ben (who lives in remote village and does farming)

Peter and Kevin mentioned – difficulty in procuring fertilizers

Ben mentioned – lack of pesticides

Online web/mobile application

* Farmers and companies can communicate directly with each other
* Facilitate farmers to buy seeds, pesticide and fertilizers from anywhere
* User friendly application

Henry gave this project to SOONY company

Pandu – Financial head

Dooku – Project coordinator

Stakeholders: Henry, Pandu and Dooku formed committee - > gave project to APT IT solutions

Budget – 2 crore INR and 18 months duration

APT IT:

Karthik – Deliver head of APT

Vandanam – Project manager

Juhi, Teyson, Lucie, Tucker, Bravo – developer

Mike -Network admin, John -DB admin

Jason and Alekya – Tester

BA – you

**Question 1 – BPM**

Identify Business Process Model for Online Agriculture Store

**Goal**: Facilitate farmers in remote/village areas to buy agricultural products directly from manufacturers through online platform – Web and App

**Inputs**:

- Demand for agriculture products

- Availability of products from supplier

- Online ordering of products

- Delivery of products to farmers

- Online payment of products

**Resources**:

* Require team to build application: developers, testers network admin, DB admin, Project manager and BA
* Payment gateway integration
* Logistic partnership

**Outputs**:

* Online store to farmers
* Direct communication with suppliers to buy products
* Facilitate farmers to buy seeds, pesticide and fertilizers from anywhere
* User friendly application

**Activities- Value created to the end customer:**

* Easy access to agriculture products
* Time and cost savings
* Improved crop productivity

**Question 2: SWOT**

**Strengths**:

* Strong IT talent pool available at APT IT solutions
* Mr. Henry’s financial banking
* Potential market of farmers facing similar issues
* Digital transformation in agriculture

**Weakness**:

* Lack of digital literacy among farmers
* Limited internet connectivity in remote/village areas
* Logistics challenges in rural areas
* Financial stability of farmers to purchase products

**Opportunities**:

* Expansion to wider range
* Support from government for digital transformation
* Partnership with logistic and banking partners

**Threats**:

* Difficulty in adaption to online portal to farmers
* Cybersecurity risk in online transactions
* Competition from existing ecommerce portal

**Question 3: Feasibility study**

**Hardware requirements:**

* Cloud based hosting: GCP/Azure
* Database servers for storing transactions and user data
* Network and security infrastructure

**Software requirements:**

* Java based backend
* Front end(react/angular)
* Database (Mango DB)
* Payment gateway integration

**Trained resources:**

* Java developers
* UI/UX designer
* Database administrator
* Cybersecurity experts
* Customer support representative

**Budget:**

* Development cost
* Marketing of application
* Training to customers
* Logistic partnership

**Time frame:**

* Planning and requirement gathering: 3 months
* Development and testing: 10 months
* Deployment: 3 months
* Full scale rollout:2 months
* Total duration: 18 months

**Question 4 – Gap Analysis**

**As – Is Current State:**

* Farmers struggle to find fertilizers, seeds and pesticides
* No direct communication with supplier, middlemen required
* Cash transaction, and delay in procuring products

**To-Be Desired State:**

* Agriculture products are available online
* Direct communication with supplier through online portal
* Online transaction and real time order tracking

**Question 5: Risk Analysis**

**Internal Risks:**

* Maintaining stock levels, handling perishable items
* Website downtime, payment gateway failures or data breaches

**External Risks:**

* Competition with larger suppliers and fluctuating market prices
* Transportation delay, weather conditions

**BA Risks:**

* Misunderstanding or different expectations from stakeholders may lead to unclear requirements.
* Incomplete requirement gathering
* Changes to requirements during project can cause delays or scope creep
* Users may not be familiar with the mobile/web applications

**Project Risks:**

* 18 months may not be sufficient in unexpected challenges arise or requirement evolve significantly.
* Missed bugs or defect may lead to failure post launch
* Delays in integration of DB and network systems

**Question 6: RACI matrix**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Task | Henry (Client) | Karthik (Delivery lead) | Vanaman (PM) | Developer | Testers | DB and Network admin | BA |
| Requirement gathering | I | A | C | C | C | C | R |
| Design | I | I | A | C | C | C | C |
| Development | I | C | A | R | C | C | C |
| Testing | I | I | A | I | R | C | C |
| Deployment | I | A | A | R |  | C | C |
| Training to end user | I | A | I | I | I | I | R |

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**Question 8: Business case document**

Title: Business for online agriculture products store

Prepared by: Karthik

1. Summary: The goal is to create a digital platform where framers, wholesalers and consumers can directly connect to buy and sell agriculture products.
2. Background: Farmers often face challenges in reaching their markets and getting fair prices for their products. Traditional supply chains can be inefficient, with middlemen reducing farmers earnings. Additionally end customers often struggle to access high quality products at affordable prices. An online platform bridges these gaps, enabling direct transactions.
3. Objectives: Enable direct interactions between farmers and consumers. Ensuring fair pricing for farmers and use of digital technology in the agricultural sector.
4. Proposed solution: Proposed solution is an online agriculture products store offering user friendly interface, segmentation by product type, payment gateway, delivery logistics for seamless product distribution.
5. Benefits:
* Farmers: Fair pricing, wider market access and reduced dependence on middlemen
* Consumers: Access to high quality products directly from farms at competitive prices.
* Economy: Boost in rural income and adoption of digital technology in agriculture.
1. Risks:
* Lack of digital literacy among farmers.
* Logistics challenges in rural areas.
* Initial resistance to online transactions.
1. **Why is this project initiated?**

The project is initiated to address the significant challenges faced by farmers in remote areas, such as difficulties in procuring fertilizers, seeds and pesticides essential for farming

1. **What are the current problems**?
	* Lack of access to fertilizers, seeds and pesticides for farmers in remote areas
	* Limited communication channels between farmers and agricultural product companies
2. **With this project, how many problems could be solved?**
	* Fair pricing, wider market access and reduced dependence on middlemen
	* Consumers: Access to high quality products directly from farms at competitive prices.
	* Economy: Boosts in rural income and adoption of digital technology in agriculture.
3. **What are the resources required?**

Project managers, Java Developers, Network admin, Database admin, Testers and Business analyst

1. **How much organization change is required to adapt this technology?**

Farmers learning to use web/mobile application for purchasing. Training sessions can be organized for both farmers and suppliers

1. **What is the time frame to recover ROI?**

The expected time frame for recovering the RIO is approximately 12 to 24 months post launch depending on adoption rate by farmers and companies and revenue generated from transactions.

1. **How to identify stakeholders?**

Stakeholders can be identified by RACI matrix

Primary Stakeholders: Employees, Product owner, BA, Suppliers, Investors

Secondary Stakeholders: Government agencies, Competitors

**Question 9: Explain four SDLC methodologies**

Following are the SDLC methodologies:

1. **Waterfall Model**: Structured methodology where each phase like requirement, development, testing and deployment must be completed fully before moving to the next phase.
* Best for projects with clear and stable requirements
* Pros: Easy to understand and mange due to its step-by-step process. Works well for small projects with defined outcomes.
* Cons: Not flexible to changes and testing happens at last stage which can delay issue discovery.
1. **Iterative Model:** The project is developed in cycles or iterations. Each iteration includes planning, designing, developing and testing, allowing gradual refinement.
* Pros: Best for projects with unclear or evolving requirements. Changing request is welcomed in every iteration.
* Cons: Requires more resources and more budget.
1. **Evolutionary model:** It’s a methodology where the product evolves through multiple versions or prototypes based on continuous user feedback.
* Pros: Best for complex projects where user input is crucial, and users are involved ensuring the solution meets expectations
* Cons: Frequent changes can be challenging
1. **Agile model:** Highly flexible, iterative and incremental methodology emphasizing collaboration, customer feedback and rapid delivery of small, functional components.
* Best for dynamic projects where quick adaption is needed
* Pros: Delivers value quickly with each iteration. Welcomes and adapts to changing requirements
* Cons: Requires a disciplined and experienced team

**Question 9: Waterfall, RUP Spiral and Scrum Models**

Choice between V – model and waterfall model depends on the specific requirements and context of the project.

V – Model is an extension of the Waterfall model where testing activities are planned parallel to corresponding development stages.

Waterfall model: It’s a sequential methodology where each phase of the project flows logically to the next.

Recommendation for Online Agriculture product store:

V – model would be beneficial if the application involves complex functionalities like payment, inventory management. The early focus on testing could reduce risks.

**Question 10: Difference between Waterfall and V-model**

|  |  |
| --- | --- |
| **Waterfall**  | **V- model** |
| Sequential flow | Sequential flow with parallel testing |
| Testing happens after the development phase | Testing is integrated with each development phase |
| Best for projects with stable, clearly defined requirements | Ideal for projects requiring high quality assurance and early error detection |
| Works well for straight forward projects | Works well for complex and critical projects |
| Issues are identified late | Risks are mitigated early due to continuous testing throughout |

**Question 11: As a BA, state your reason for choosing one model for this project?**

As a Business analyst I will choose Agile model for its development as agile model is flexibility to accommodate changes. Agile delivers features in short sprints this helps to identify and address risk in early development stage.

**Question 12: Gantt Chart**

**The Committee of Mr. Henry, Mr. Pandu, and Mr. Dooku discussed with Mr. Karthik and finalized 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**

|  |  |  |  |
| --- | --- | --- | --- |
| Phases | Start date | End date | Duration |
| Requirement gathering | Apr-25 | May-25 | 30 |
| Requirement Analysis | Jun-25 | Jul-25 | 30 |
| Design | Aug-25 | Oct-25 | 61 |
| Development 1 | Nov-25 | Jan-26 | 61 |
| Testing 1 | Feb-26 | Mar-26 | 28 |
| Development 2 | Mar-26 | Jun-26 | 92 |
| Testing 2 | Jun-26 | Jul-26 | 30 |
| Development 3 | Aug-26 | Oct-26 | 61 |
| Testing 3 | Nov-26 | Dec-26 | 30 |
| Development 4 | Dec-26 | Feb-27 | 62 |
| Testing 4 | Mar-27 | Apr-27 | 31 |
| UAT | Apr-27 | Jun-27 | 61 |

**Question 13: Explain the difference between Fixed Bid and Billing projects**

Fixed bid: The price is determined upfront, based on a set scope of work. The client pays a predetermined upfront, based on a set scope of work. The client pays a predetermined amount regardless of the actual hours worked or costs incurred.

Billing projects: Payments are based on the actual hours worked and resources used. Cost may fluctuate depending on project duration, scope changes, or unexpected needs.

**Question 14: Preparer Timesheets of a BA in various stages of SDLC**

* Design Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Date | Hours spent | Comments |
| Requirement gathering |  |  |  |
| Wireframe design |  |  |  |

* Development Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Date | Hours spent | Comments |
| BRD |  |  |  |
| Supporting development |  |  |  |

* Testing Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Date | Hours spent | Comments |
| Test case design |  |  |  |
| Test Execution |  |  |  |
| Logging defects |  |  |  |

* UAT Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Date | Hours spent | Comments |
| Supporting UAT |  |  |  |
| Coordination with stakeholders |  |  |  |
| Feedback analysis |  |  |  |

* Deployment and Implementation Timesheet of a BA

|  |  |  |  |
| --- | --- | --- | --- |
| Task | Date | Hours spent | Comments |
| Assisting with Go Live |  |  |  |
| User Training |  |  |  |