1. BPM

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

Business Process Model is a systematic approach to improving business processes to achieve organization goals. Th components of a Business Process Model include –

Goal – An Online Store or a Platform where farmers can get high quality agriculture products easily and remotely

Inputs –

* An online platform
* Various products like seeds, pesticides and fertilizers
* A tie up with a reliable and trusted payment gateway
* A tie up with a reliable and trusted courier service partner
* A customer service team

Outputs –

* A working operational online platform
* Orders placed by the farmers
* Payment done by the farmers
* Payment receipt generated
* Order number generated
* Orders delivered to farmers through courier partner

Resources –

* A webpage and developers and testers who will complete it
* Agriculture products from local farmers and distributors
* Payment processing company and their services
* Courier company and their services
* Customer support team for order enquiries

Activities –

* Talk to local farmers and make a list of each category product
* Development team will work on website development
* Set up of payment gateway in online platform for payments
* Talking to courier services for timely delivery of orders
* Setting up a team for customer support
* Setting up a link to trace the order status for customers

Value created to end customer –

* A user-friendly web page
* Access to high quality agriculture products
* Easy delivery of orders
* Link to track the orders
* Customer support team for resolving their queries
* Feedback link after product delivery
1. SWOT

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

SWOT Analysis

Strengths –

* Mr. Henry who took initiative in bridging the gap between farmers and companies, is already a well established and wealthy business man
* His wealth and connections are helpful
* His friends Peter, Kevin and Ben can give many insights on overall product building, as stakeholders
* The huge untapped farmer’s market and demand for agricultural products
* The availability of companies providing high quality agricultural products
* Budget of 2cr INR
* CSR initiative will give good image to APT IT Solutions

Weakneses –

* Duration of 18 months basically a fixed time limit
* The remote area might have logistics issues

Opportunities –

* The huge untapped market where demands are already there
* The collaboration that manufacturing and supplier companies are going to get
* The opportunity to serve the society as it is a CSR initiative
* The opportunity for the whole development team, manufacturers and supplier companies, courier services, customer support team to work on a great project

Threats –

* Some online competitors might be there
* Regulations to follow ensuring quality, safety and efficiency of the products selling on website
* Ensuring timely and secured delivery at remote locations
1. Feasibility Study

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

To conduct a feasibility study in Java, we have to consider following –

1. Hardware and Software requirements
* Identify the hardware and software requirements that is to be used in the project making like servers, tools and technologies used in development, storage and networking
* Identify if there is any need of third party software components or API
* Check if the infrastructure is able to handle a sudden increase in traffic and data storage
1. Trained Resources
* Check the number of expertise available in Java technology
* Check the trained resources in web development, data base management and networking
* Check if any training is required for available resources or if any fresh resources need to be hired for project completion on time
1. Budget
* The budget for the project is given as 2 cr INR
* Divide the budget very precisely for the different areas of project
* Like the cost for hardware, software, salaries of people working, marketing cost, legal and administrative cost
* Keep some funds aside for if something else come up during the working span
1. Time Frame
* The duration is given as 18 months
* Plan the time given as step wise how many months will be given for development, testing and deployment phases
* Ensure the completion of project within the stipulated time
1. Gap Analysis

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.

To showcase GAP Analysis, we have to compare AS-IS existing process with TO-BE future process –

AS-IS Process –

* Currently, farmers are going long distances to the market and physically buying fertilizers, seeds and pesticides
* Farmers are finding it difficult to find the right product and good quality product many times
* Because of suppliers in between manufacturers and farmers, the cost of product goes high

TO-BE Process –

* The online platform will enable farmers with easy online access to various agricultural products
* They can easily order it online and products will be getting delivered. This way they will save their time and effort
* Online store will give them facility to filter and choose their right product
* The products will come directly from manufacturers. So, the cost of products will also be reduced
1. Risk Analysis

List down different risk factors that may be involved (BA risks and Process/Project risks)

Risk analysis for a Business Analyst

BA risks –

* Lack of agriculture knowledge
* Lack of tools and technical knowledge going to be used in development of the project
* Any miscommunication with stakeholders can result in unclear requirements
* Because of stakeholders staying in remote areas, difficult to gather requirements
* Budget and time constraints
* Chance of getting the right resources in case they need to hire any fresh

Process/Project risks –

* Technical glitches that may occur during the course of the project
* Teaching or training farmers to use online platform
* Training to be given to resources in case it is required
* The delivery of orders on time
* Some online and offline competitors
* Availability of electricity and network for farmers to use mobile and laptop for placing orders
1. Stakeholder Analysis (RACI Matrix)

Perform Stakeholder Analysis (RACI Matrix) to find out the key stakeholders who can take decisions and who are the influencers

Stakeholders analysis can be done by RACI Matrix

R- Responsible

1. Accountable

C- Consulted

I- Informed

In this project, the stakeholders and their roles as below –

1. Mr. Henry – Accountable – He has been owner of this project by initiating it. He is accountable for its success till the end
2. Mr. Pandu – Accountable – As financial head, he is accountable for project finance
3. Mr. Dooku – Consulted – He is Project Coordinator. He provides good coordination with everybody in the project
4. Peter, Kevin & Ben – Consulted – Consulted for requirement gathering and other information as stakeholders
5. APT IT Solutions – Responsible – Responsible for project delivery
6. Mr. Karthik – Responsible – Responsible for project delivery
7. Mr. Vandanam – Responsible – Responsible for managing the project and its successful completion
8. Juhi, Teyson, Lucie, Tucker, Bravo – Responsible – Responsible for the development of the project
9. Mr. Mike – Responsible – Responsible for network infrastructure required for the project
10. Mr. John – Responsible – Responsible for database management of the project
11. Mr. Jason and Ms. Alekya – Responsible – Responsible for testing of the final project as running well without any bug or error
12. Business Case Document

Help Mr. Karthik to prepare a business case document

Executive Summary – The main idea here is to plan for an online agricultural store where manufacturing companies can list their agricultural products like fertilizers, seeds and pesticides, and farmers can easily choose their right product and order it remotely just using a mobile or a web application. The project is a CSR initiative with a budget of 2 Cr INR and 18 months duration.

Problem Statement – Farmers in the remote areas are facing difficulties in procuring fertilizers, seeds and pesticides. They have to travel far distances for getting there stuff, which is a waste of time and effort.

Solution – An online store for agricultural products. It has to be a mobile or a web application which can allow manufacturers to showcase their products and farmers can choose them easily as per their needs.

Benefits –

* Easy access
* Quality products
* Saved cost of travel
* Lesser price of products
* Home delivery of products
* Various options to choose from

Costs – 2 Cr INR

Key Stakeholders –

* Mr. Henry – Initiator of the project
* Mr. Pandu – Financial Head
* Mr. Dooku – Project coordinator
* Peter, Kevin & Ben – Stakeholders
* APT IT Solutions – Company doing the project
* Mr. Karthik – Delivery Head
* Mr. Vandanam – Project Manager
* Juhi, Teyson, Lucie, Tucker, Bravo – Java Developers
* Mr. Mike – Network admin
* Mr. John – Database Admin
* Mr. Jason and Ms. Alekya – Tester

Risks –

* Technical glitches that may occur during the course of the project
* Teaching or training farmers to use online platform
* Training to be given to resources in case it is required
* The delivery of orders on time
* Some online and offline competitors
* Availability of electricity and network for farmers to use mobile and laptop for placing orders

Conclusion – An Online Agricultural Products Store

1. Four SDLC Methodologies

Sequential – Sequential methodology is also known as Waterfall model. It is a linear approach where each phase must be completed before moving on to the next phase. This methodology can work wel in the projects where requirements are clear and the project is simple. Not with the project that looks unclear and too many changes are expected.

Iterative – Iterative is RUP Rational Unified Process is a process of developing a software product. RUP is based on a set of building blocks describe what is to be produced, the skill required and step by step explanation on how can we achieve the goal. It has four project life cycle phase. 1. Inception – what we build 2. Elaboration – Design need to deliver 3. Contraction – Implementation 4. Transition – delivery, correction of any defect, UAT.

Evolutionary – This spiral model gives more emphasis on risk analysis. The spiral model has four phases : 1. Planning 2. Risk Analysis 3. Engineering 4. Evaluation. This model is suitable for large and critical projects where requirements are not fully defined or may change frequently.

Agile – Agile is a scrum model, it works on sprints, breaking the project into many sprints. It emphasizes on customer collaboration, continuous feedback, and flexibility in response to changing requirements. It is suitable for projects where requirements will frequently change or where client is looking to see a software with at least basic requirements.

1. Waterfall RUP Spiral and Scrum Models

They discussed models in SDLC like waterfall RUP Spiral and Scrum. You put forth your understanding on these models.

SMEs are stressing on using the V model and the project team is leaning more onto the side of waterfall model. As a BA, which methodology do you think would be better for this project?

Waterfall – where each phase must be completed before moving to the next phase. And a review will take place at the end of each phase.

Rational Unified Process – is based on a set of building blocks or content elements describing what is to be produced, the necessary skills required and the step by step explanation describing how specific development goals are to be achieved.

Spiral – model gives more emphasis on risk analysis. It has four phases : 1. Planning 2. Risk Analysis 3. Engineering 4. Evaluation.

Agile - is a scrum model, it works on sprints, breaking the project into many sprints. It is suitable for projects where requirements will frequently change or where client is looking to see a software with at least basic requirements.

Although keeping the simple requirements in consideration, as there are clear requirements and not too many to & fro changes required. V model is best suited model for this project where testing can be done at the end of each phase to ensure the work has been done right.

1. Waterfall vs V Model

Write down the differences between waterfall and V model

Waterfall Model – is a methodology that breaks down a project into a series of linear phases that are completed one after the other. It is also a sequential and linear approach to software development. The steps involved would be requirement gathering, design, implementation, testing and deployment.

V Model – is a type of SDLC model where the process executes sequentially in a V shape. It is also known as the verification and validation model. It is based on the association of a testing phase for each corresponding development stage. The development of each phase is directly associated with the testing phase. The next phase starts only after the completion of the previous one.

1. Justify your choice

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

As a BA, I would prefer choosing V model for this project and the reasons are mentioned below :

as the project is small and requirements are clear. Also, v model is flexible and at the end of each phase testing would be done.

* V model is based on verification and validation of each phase of developing online agricultural product store.
* The model allows us to complete each phase before going to next phase.
* Testing of developing online agricultural product store is planned in parallel with a corresponding phase of development in V model.
* V model rightly works with small projects like developing online agricultural product store where requirements are clear.
* V model also helps in the project when in case of any changes occur in midway, then the test documents along with requirement documents has to be updated.
* In V model, testing activities like planning, test designing happens well before coding. This saves a lot of time. Hence higher chance to get success model.
1. Gantt Chart – Prepare 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.

|  |  |  |  |
| --- | --- | --- | --- |
| **Task Name** | **Start Date**  | **End Date** | **Duration (in days)** |
| Requirement Gathering | 1/2/2025 | 25/3/2025 | 53 |
| Requirement Analysis | 16/3/2025 | 20/4/2025 | 36 |
| Design | 10/4/2025 | 5/6/2025 | 55 |
| Development 1 | 20/5/2025 | 1/8/2025 | 73 |
| Testing 1 | 12/7/2025 | 15/9/2025 | 65 |
| Development 2 | 25/8/2025 | 10/11/2025 | 78 |
| Testing 2 | 1/10/2025 | 15/12/2025 | 76 |
| Development 3 | 1/12/2025 | 15/2/2026 | 77 |
| Testing 3 | 1/2/2026 | 20/4/2026 | 79 |
| Development 4 | 1/4/2026 | 1/6/2026 | 61 |
| Testing 4 | 15/5/2026 | 15/7/2026 | 62 |
| UAT | 1/7/2026 | 1/8/2026 | 31 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Process** | **Feb** | **Mar** | **Apr** | **May**  | **Jun** | **Jul** | **Aug** | **Sep** | **Oct**  | **Nov** | **Dec** | **Jan** | **Feb** | **Mar** | **Apr** | **May**  | **Jun** | **Jul** | **Aug** |
| **RG** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **RA** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Design 1** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Testing 1** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Design 2** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Testing 2** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Design 3**  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Testing 3** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Design 4**  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Testing 4** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **UAT** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **Deployment** |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

1. Fixed Bid Vs Billing

Under fixed bid the sponsor can give the budget and estimated time. The project is expected to be completed within the given budget and time.

Whereas, In Billing mode the sponsor will give funds as per the working hours completed in each stage or on weekly or monthly basis.

|  |  |
| --- | --- |
| Fixed Price Contract | Time & Material Contract |
| Software Requirements |
| The requirements are frozen at the start of the project and estimates are based on those requirements. | The requirements for the MVP are defined at the beginning. This MVP can be broken down into user stories for clarity. These requirements can evolve as the software gets created. |
| Resource Estimation |
| The Resource Estimation for the entire project is done beforehand. Based on the wireframes designed the number of resources required at each stage of the project is decided. | The resource requirements vary based on the user stories and changes introduced. They can extend in case a complex feature-intensive delivery and can reduce when the changes are simplistic. |
| Budget |
| The cost of developing the entire project is estimated once the requirements are frozen. Costs are revisited in a Fixed price project when a change is introduced, each change would involve a plan realignment. | Efforts are estimated, based on the resources required to develop each User Story. The combination of these deliverables can be used for the budget estimation. Hence, as each User Story is taken up, (parallelly and subsequently) the resources and utilities on each can be defined. |
| Development model |
| A Standard waterfall development model gives a Fixed Price Contract the predictability it needs. In a few cases, iterations are introduced to improve software quality. Each stage is executed linearly with predefined timelines. | Time & Material can work with both a standard or an agile development process. |
| Change Management |  |
| A Change cannot be accommodated by this model. Some Organizations initially agree on the price of each change that will be introduced, and a Change Request is created for it to be executed.  | Can accommodate change requests easily. Resources and timelines are flexible and can be adjusted based on the revised course. |
| Timelines |
| The timelines for the development of the entire software are predefined and the development firm should | Timelines for individual iterations are defined. The timelines for delivery of MVP are defined considering no dynamic changes in the requirements. |

1. Prepare Timesheets of a BA in various stages of SDLC

|  |
| --- |
| **Design Time Sheet** |
| **Date** | **Activity**  | **In-Time** | **Out-Time**  | **Total Hours** |
| 10/4/2025 | Created Use Case | 10:00 | 16:00 | 6 |
| 11/4/2025 | Created Work Flow | 10:00 | 17:00 | 7 |
| 14/4/2025 | Designed DB Schema  | 10:00 | 18:00 | 8 |
| 15/4/2025 | Created Wireframes | 10:00 | 18:00 | 8 |
| 16/4/2025 | Meeting with Developers Team | 11:00 | 14:00 | 3 |
| 16/4/2025 | Changed Design based on Feedback | 15:00 | 17:00 | 2 |
| 16/4/2025 | Sent Finalized Design document for approval | 17:00 | 18:00 | 1 |
|  |  |  |  |  |
| **Development Time Sheet** |
| **Date** | **Activity**  | **In-Time** | **Out-Time**  | **Total Hours** |
| 17/4/2025 | Meeting with Developers Team | 10:00 | 16:00 | 6 |
| 18/4/2025 | Explained expected design by client | 10:00 | 17:00 | 7 |
|   |   |   |   |   |
| **Testing Time Sheet** |
| **Date** | **Activity**  | **In-Time** | **Out-Time**  | **Total Hours** |
| 21/4/2025 | Conducted functional testing with testers | 10:00 | 16:00 | 6 |
| 22/4/2025 | Conducted regression testing along with testers | 10:00 | 17:00 | 7 |
| 23/4/2025 | Analyzed test results and reported the issue to PM | 10:00 | 18:00 | 8 |
| 24/4/2025 | Developed test plan for upcoming release | 10:00 | 18:00 | 8 |
|  |  |  |  |  |
| **UAT Time Sheet** |
| **Date** | **Activity**  | **In-Time** | **Out-Time**  | **Total Hours** |
| 25/4/2025 | Prepared UAT Test Plan | 10:00 | 16:00 | 6 |
| 28/4/2025 | Prepared Test cases | 10:00 | 17:00 | 7 |
| 29/4/2025 | Reported defects found during UAT | 10:00 | 18:00 | 8 |
| 30/4/2025 | Retest defects after troubleshooting by developers | 10:00 | 18:00 | 8 |
| 2/5/2025 | Taken sign-off from stakeholders on UAT completion | 11:00 | 14:00 | 3 |
|  |  |  |  |  |
| **Deployment Time Sheet** |
| **Date** | **Activity**  | **In-Time** | **Out-Time**  | **Total Hours** |
| 5/5/2025 | Created execution plan | 10:00 | 16:00 | 6 |
| 6/5/2025 | Deployed application to test environment | 10:00 | 17:00 | 7 |
| 7/5/2025 | Deployed application to real time environment | 10:00 | 18:00 | 8 |
| 8/5/2025 | Taken sign-off for successful project completion | 10:00 | 14:00 | 4 |