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|  | | CAPSTONE PROJECT-1 | | | | |  | |
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|  | | | | Tanisha Mohane |  | | | |
|  | | | | December 2024—COEPD -Traditional Development— Online Agriculture Products Store |  | | | |
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Question No 1)- BPM

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

Answer –

1. Goal

* Create an online platform for farmers in remote areas to buy agricultural products easily.

2. Inputs

* Product Details: Information about products like fertilizers, seeds, pesticides, etc., from manufacturers.
* Customer Orders: Data about what products farmers order.
* Payment Information: Data related to payments made for the products.

3. Resources

* Technology: Website or mobile application, IT infrastructure (servers, databases, etc.).
* Human Resources: Developers (for building the platform), testers (for quality assurance), customer service staff (for handling issues and inquiries).

4. Outputs

* User-friendly platform: A website or app that farmers can navigate easily to browse and purchase products.
* Product Deliveries: The system processes and ensures that products are delivered to the customer.
* Financial Transactions: Managing and processing payments securely.

5. Activities

* Platform Development and Maintenance: Creating, updating, and keeping the website/app functional.
* Product Management: Regularly updating product listings, pricing, and availability.
* Order Management: Processing and tracking customer orders, ensuring products are delivered on time
* Customer Orders: Once an order is placed, it is processed, including verifying product availability, pricing, and shipping details.
* Payment Processing: Securely handling customer payments for orders.
* Delivery: Coordinating the delivery of the ordered products to the customer's location.
* Customer Service: Addressing any questions customers have about products, orders, or the platform.
* Resolving Issues: Assisting customers with issues such as incorrect orders, delivery delays, or product defects.

6. Convenience:

* Farmers can shop for agricultural products from the comfort of their homes, eliminating the need to visit physical stores.
* Farmers no longer need to spend time traveling to purchase products, allowing them to focus on their work.
* Farmers can access products from a variety of manufacturers, including those they might not have had access to locally before.
* By planning their orders and deliveries ahead of time, farmers can optimize their purchases, ensuring they have what they need when they need it and improving their overall productivity.

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Question No 2)- SWOT

Mr. Karthik is doing SWOT analysis before he accepts this project. What Aspects he Should consider

as Strengths, Weaknesses, as Opportunity and as Threats.

Answer – SWOT Analysis for the Online Agriculture Product Store Project

Strengths:

* Alignment with Mission: The project supports the company’s goal of improving lives in rural areas through IT solutions.
* Skilled Team: The company has experienced developers and IT professionals to work on the project.
* Support from Key Stakeholders: The project has backing from Mr. Henry, a successful businessman, and other important stakeholders who can offer resources and advice.
* Growing Market: Online shopping is becoming more popular, which could help the project succeed.

Weaknesses:

* Tight Timeline: The project has a tight 18-month timeline, which might be challenging for a complex system.
* Lack of Experience: The company may not have experience in building online agriculture stores.
* Budget Concerns: The project budget of 2 Crores INR might not be enough to cover all costs.
* Industry Knowledge: The company might not fully understand the agriculture industry’s needs, which could make the project harder to execute.

Opportunities:

* New Business Potential: This project could lead to new opportunities in the agriculture and rural development sectors.
* Improving Farmers' Lives: The project can make it easier for farmers in remote areas to access necessary products.
* Building Reputation: The project can showcase the company's capabilities and improve its reputation for future projects.
* Community Building: The platform can help farmers connect and share experiences, creating a community.

Threats:

* Competition: Existing online agriculture product stores could compete with the new platform.
* Government Regulations: Changes in government rules or policies could affect the project.
* Technical Challenges: The development process might face technical difficulties or delays, leading to higher costs.
* Farmer Adoption: Farmers may be hesitant to adopt new technology or may not trust it, affecting usage of the platform.
* Cost Concerns: Farmers might not want to pay for the service due to lack of trust in the system.

Question No 3)- Feasibility study

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

Answer –

1. Hardware:

* Mr. Karthik should check if the company has the right hardware resources, such as servers, storage, and network infrastructure, to support the project.
* He should also think about whether the hardware can grow with the project in the future if the platform becomes more popular and has more users.

2. Software:

* Mr. Karthik should review the software and systems already being used by the company to make sure they are compatible with Java.
* He should also research if there is any additional software or frameworks that will be needed for the project.

3. Trained Resources:

* Mr. Karthik should check if the company has Java developers who are skilled and available to work on the project.
* He needs to make sure there are enough qualified developers to finish the project on time.

4. Budget:

* Mr. Karthik should analyze the costs for hardware, software, and developer salaries to see if the project’s budget of 2 Crores INR will be enough.
* If the budget isn’t enough, he may need to adjust the project’s scope or find other ways to reduce costs.

5. Time Frame:

* Mr. Karthik should assess if the 18-month timeline is realistic for completing the project, given its complexity.
* He should also consider any possible delays and challenges during development and ensure the company has enough resources to meet the deadline.

Question No 4)- GAP Analysis

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

Answer –In the context of the gap analysis for the online agriculture products store project, Mr. Karthik can highlight the following points to show the differences between the (AS-IS) existing process and the future Process (TO-BE), helping to convince Mr. Henry to move forward with the project:

1. Ease of Access:

(AS-IS): Farmers in remote areas struggle to find and purchase fertilizers, seeds, and pesticides, often facing long travel times and limited access to local stores.

(TO-BE): The online store would offer farmers the convenience of purchasing these products from anywhere with internet access, removing the need for travel and improving their access to essential goods.

2. Improved Communication:

(AS-IS): Farmers have limited or no direct communication with manufacturers of agricultural products. They usually rely on intermediaries like local vendors to buy the products.

(TO-BE): The online store would create a direct communication channel between farmers and manufacturers, enabling farmers to ask questions, get product information, and negotiate directly, eliminating the need for intermediaries.

3. Better Pricing:

(AS-IS): Due to the involvement of multiple intermediaries, farmers often pay higher prices for products.

(TO-BE): By cutting out intermediaries and allowing direct communication, the online store could help farmers secure better prices for fertilizers, seeds, and pesticides.

4. Increased Product Availability:

(AS-IS): In remote areas, farmers often face a limited selection of agricultural products, and some may not be available at all.

(TO-BE): The online store would expand product availability, giving farmers access to a wider range of agricultural products, even those not available locally.

5. Increased Efficiency:

(AS-IS): The process of purchasing agricultural products is manual, time-consuming, and prone to errors. Farmers must visit physical stores or rely on local vendors, which is inefficient.

(TO-BE): The online store would automate many steps of the process, such as order placement, payment, and delivery, reducing human errors and speeding up the procurement process, thus improving overall efficiency.

6. Increased Transparency:

(AS-IS): The current system is opaque, making it hard for farmers to track where their money goes or where the products come from. This lack of transparency can cause trust issues.

(TO-BE): The online store would provide a transparent system where all transactions are clearly documented, allowing farmers to track their orders and payments, thereby increasing trust in the system.

Summary of Benefits:

The gap analysis clearly shows how the online agriculture products store would address the current challenges farmers face in remote areas, offering:

Convenience through easy access to products.

Improved communication with direct connections to manufacturers.

Better pricing by cutting out middlemen.

Increased product availability with access to a wider range of products.

Increased efficiency by automating processes.

Increased transparency in tracking transactions and products.

Question No 5)- Risk Analysis

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

Answer – There are several risks that can affect both the Business Analysis (BA) and Project/Process aspects of the online agriculture products store project.

Business Analysis (BA) Risks-

Requirements Gathering:

Risk: Inadequate or unclear requirements gathering may result in misunderstandings or missed requirements, which could impact the final product.

Impact: The platform may fail to meet the needs of farmers or manufacturers, leading to dissatisfaction and poor adoption.

Stakeholder Management:

Risk: Different stakeholders (e.g., farmers, manufacturers, project team) might have conflicting needs or expectations, making it difficult to get agreement on the project’s goals.

Impact: This can lead to delays, changes in scope, or mismatched solutions that do not satisfy the key parties involved.

Communication:

Risk: Miscommunication between the Business Analyst (BA), project team, and stakeholders could lead to incorrect assumptions or misunderstandings regarding requirements.

Impact: This could result in the delivery of a product that doesn't align with what was needed, causing frustration and project failure.

Change Management:

Risk: Changes in requirements or stakeholders' expectations during the project could lead to scope creep, delays, and unexpected costs.

Impact: The project may exceed its budget or timeline due to the need to accommodate these changes, impacting overall success.

Project/Process Risks-

Budget:

Risk: The project budget of 2 Crores INR may be insufficient to cover the entire development and implementation costs, leading to financial strain.

Impact: Insufficient budget could result in incomplete features, reduced quality, or project delays.

Technical:

Risk: There may be technical difficulties during the development or implementation of the online store, such as software bugs, system errors, or compatibility issues.

Impact: These technical challenges could delay the project or negatively affect the user experience, leading to customer dissatisfaction.

User Acceptance:

Risk: The success of the online store depends on farmers and businesses being willing to use the platform. If user adoption is low, the project may fail to achieve its goals.

Impact: Without enough users, the platform might not generate enough revenue or provide value, undermining the entire project’s purpose.

Integrations:

Risk: The online store needs to integrate with various systems like payment gateways, logistics systems, and inventory management. Issues with these integrations (e.g., compatibility, delays) could affect the project’s schedule and overall quality.

Impact: Integration issues could prevent smooth operations of the platform, leading to operational inefficiencies, transaction errors, or delays in deliveries.

Question No 6)- Stakeholder Analysis (RACI Matrix)

Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take

Decisions and Who are the influencers

Answer –

|  |  |
| --- | --- |
| Responsible | Mr. Karthik - Delivery Head - APT IT Solutions |
| Mr. Vandanam - Project Manager - APT IT Solutions |
| Ms. Juhi - Senior Java Developer - APT IT Solutions |
| Mr. Teyson, Ms. Lucie, Mr. Tuker, Mr. Bravo - Java Developer - - APT IT Solutions |
| Mr. Mike - Network Admin - - APT IT Solutions |
| Mr. John - DB Admin - APT IT Solutions |
| Mr. Jason and Ms. Alekya - Testers - - APT IT Solutions |
| Accountable | Mr. Henry - Client - Soony Company |
| Mr. Pandu - Financial Head - Soony Company |
| Mr. Dooku - Project Coordinator Soony Company |
| Consulted | Peter, Kevin and Ben - Stakeholders (Formers from the remote village) |
| Informed | Formers & Companies (Manufacturers of fertilizers, seeds & Pesticides) |

Question No 7)- Business Case Document

Help Mr. Karthik to prepare a business case document

Answer –

1)Executive Summary: The online agriculture product store is a proposed solution to the difficulties faced by farmers in procuring fertilizers, seeds and pesticides. The store will be a platform for farmers and product manufacturers to communicate directly, making the procurement process easier and more efficient. The proposed project has an estimated budget of 2 crores INR and a duration of 18 months.

2)Problem Statement: Farmers in remote areas face several difficulties in procuring essential agriculture products such as fertilizers, seeds and pesticides. These difficulties result in a decrease in crop yield and a loss in income for the farmers.

3)Solution: The proposed solution is to create an online agriculture product store that will make the procurement process easier and more efficient for farmers. This store will be accessible through internet connectivity and will be user-friendly.

Business Requirements: The solution must have the following features:

* Product listing: The ability to list products such as fertilizers, seeds and pesticides with detailed information.
* Order placement: Farmers must be able to place orders for products they need through the platform.
* Delivery: The platform must have the ability to arrange for delivery of the products to the farmers.
* User-friendly interface: The platform must have a user-friendly interface for easy navigation.
* Benefits: The online agriculture product store will bring the following benefits:
  + Increased access to agriculture products: Farmers will have access to a wider range of products through the platform, increasing their options for procurement.
  + Improved efficiency: The procurement process will become more efficient, reducing the time and effort needed to purchase products.
  + Increased income: Improved access to essential agriculture products will result in increased crop yields, leading to an increase in income for the farmers.
  + Costs and Funding: The estimated budget for the project is 2 crores INR. The funding for the project will come from Mr. Henry's Company SOONY under their CSR initiative.
  + Project Schedule: The project is expected to take 18 months to complete. Key milestones include project initiation, requirements gathering, development, testing and deployment.

Risks and Mitigation: The following risks have been identified:

* Technical Risks: Risks related to the technology used for the platform.
* Delivery Risks: Risks related to delivering the products to the farmers.
* Adoption Risks: There are risks related to farmers adopting the platform, such as reluctance to change. To manage these, the project team will review the technical design, partner with reliable delivery companies, and provide training for farmers. In conclusion, the online agriculture product store will significantly benefit farmers in remote areas by improving access to essential products like seeds, pesticides, and fertilizers. This will enhance farm productivity and efficiency. The business case outlines the project’s goals, budget, timeline, risks, and stakeholder involvement. The project will follow a suitable development methodology, ensuring effective delivery and success, with a focus on improving the lives of farmers.

Question No 8)- Four SDLC Methodologies

The Committee of Mr. Henry, Mr. Pandu, and Mr. Dooku and Mr. Karthik are having a discussion on the 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

Answer –

Sequential: This approach follows a straight, step-by-step process where each phase of the Software Development Life Cycle (SDLC) is completed before moving on to the next. It's ideal for projects with clear and stable requirements, low risk, and predictable results.

Iterative: In this approach, the software is developed in cycles, with each cycle building upon the previous one. It's most effective for projects that involve complex requirements and higher risk, as it allows for continuous improvement and refinement.

Evolutionary: This method starts by creating a basic version of the software, which is then gradually enhanced over time. It is best for projects with rapidly changing needs and high uncertainty, as it allows for flexibility and quick adjustments based on new information.

Agile: This approach is a combination of iterative and incremental development, with frequent communication between the development team and stakeholders. It works well for projects that have dynamic requirements, high risks, and complex conditions, as it allows for frequent updates and quick responses to change.

Question No 9)- 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.

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 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?

Answer –

They discussed models in SDLC like waterfall RUP Spiral and Scrum.

You put forth your understanding on these models

* Agile: This methodology is based on an iterative and incremental approach and involves close collaboration between the development team and stakeholders. This method is best suited for projects with rapidly changing requirements, high risk, and complex environments.
* Waterfall: This model is a sequential approach where each phase of development must be completed before moving on to the next phase. It is best suited for projects with well-defined requirements and clear project goals.
* RUP: This model is a unified and iterative approach that uses a set of best practices for software development. It is best suited for complex projects with changing requirements.
* Spiral: This model is a combination of both the sequential and iterative approaches, where each iteration builds upon the previous one. It is best suited for high-risk projects with uncertain requirements.
* Scrum: This model is an agile approach that emphasizes teamwork, collaboration, and adaptability. It is best suited for projects with rapidly changing requirements and complex problem-solving

Based on the recommendation of the Subject Matter Expert (SME), the V-Model seems to be a better fit for this project because it offers greater flexibility. This approach allows for some adjustments to be made during the project's course, which is important since the project is likely to require modifications as it progresses.

Question No 10)- Waterfall Vs V-Model

Write down the differences between waterfall model and V model.

Answer –

Waterfall Model: The Waterfall Model is a linear, step-by-step development approach where each phase is completed in sequence before moving to the next one. It’s a traditional and simple methodology, ideal for projects with clearly defined and unchanging requirements. Testing is done only after the development phase is finished, and each phase must be fully completed before starting the next.

V Model: The V Model is an adaptation of the Waterfall Model, where each development stage is paired with a corresponding testing phase. This approach integrates testing and development into a continuous process. It works well for projects that require high quality and regulatory compliance. The V Model helps identify and fix defects early, reducing the cost of later corrections. It also provides a clear, traceable process for validating the software development stages.

Question No 11)- Justify your choice

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

Answer –

The V Model has been chosen for this project based on the recommendation of the SME, as it is better suited to the project's needs. This model allows for adjustments during the project, making it ideal for situations where changes may occur due to regulatory requirements.

Question No 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. Vandana 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.

Answer –

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| Project Timeline | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |  |
| UAT |  |  |  |  |  |  |  |  |  |  | Client/BA/PM |
| Testing 4 |  |  |  |  |  |  |  |  |  | TES |  |
| Design 4 |  |  |  |  |  |  |  |  | DEV |  |  |
| Testing 3 |  |  |  |  |  |  |  | TES |  |  |  |
| Design 3 |  |  |  |  |  |  | DEV |  |  |  |  |
| Testing 2 |  |  |  |  |  | TES |  |  |  |  |  |
| Design 2 |  |  |  |  | DEV |  |  |  |  |  |  |
| Testing 1 |  |  |  | TES |  |  |  |  |  |  |  |
| Design 1 |  |  | DEV |  |  |  |  |  |  |  |  |
| Requirement Analysis |  | BA/PM |  |  |  |  |  |  |  |  |  |
| Requirement Gathering | BA |  |  |  |  |  |  |  |  |  |  |
|  | 1 Month | 1 Month | 3 Month | 1 Month | 3 Month | 1 Month | 3 Month | 1 Month | 3 Month | 1 Month | Deployment |

Question No 13)- Fixed Bid Vs Billing

Explain the difference between Fixed Bid and Billing projects

Answer –

Fixed Bid Model: The Fixed Bid Model is a project delivery method where the price for the entire project is set and agreed upon at the beginning. In this model, both the client and the vendor agree on the scope of the project. The vendor is then responsible for completing the project within the specified budget and timeline. If there are any cost overruns or delays, the vendor bears the responsibility and risk.

Billing Model: The Billing Model is a method where the client is billed based on the actual time and resources spent on the project. In this case, the scope of the project is not fixed, and any changes in the scope can lead to adjustments in both the budget and the timeline. This model provides more flexibility as it allows for adjustments and changes to the project as it progresses.

Question No 14)- Preparer Timesheets of a BA in various stages of SDLC

* Design Timesheet of a BA
* Development Timesheet of a BA
* Testing Timesheet of a BA
* UAT Timesheet of a BA
* Deployment n Implementation Timesheet of a BA

Answer –

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| --- | --- | --- | --- | --- |
| Design | | | | |
| Date | Activity | In time | Out Time | Total Hours |
| 01-01-2025 | Reviewing User Requirements | 11:00 | 19:00 | 8 Hours |
| 02-01-2025 | Creating use cases and workflows | 11:00 | 15:00 | 4 Hours |
| 03-01-2025 | Designing Data Base Schema | 11:00 | 19:00 | 8 Hours |
| 04-01-2025 | Creating Wireframes | 10:00 | 16:00 | 6 Hours |
| 05-01-2025 | Reviewing and Refining Designs | 11:00 | 15:00 | 4 Hours |
| 06-01-2025 | Creating Design Specification | 11:00 | 15:00 | 4 Hours |
| 09-01-2025 | Meeting With Development Team | 11:00 | 14:00 | 3 Hours |
| 10-10-2025 | Updating Design Based on the Feedback | 10:00 | 16:00 | 6 Hours |
| 11-10-2025 | Finalizing Design documents | 11:00 | 19:00 | 8 Hours |
| 12-10-2025 | Reviewing and Approving Designs | 11:00 | 18:00 | 7 Hours |
| Total |  |  |  | 58 Hours |

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| Development | | | | |
| Date | Activity | In time | Out Time | Total Hours |
| 01-02-2025 | Meeting With Developers | 10:00 | 16:00 | 6 Hours |
| 02-02-2025 | Conduct a session to elucidate design of software | 11:00 | 19:00 | 8 Hours |
| 03-02-2025 | Conduct a session for design and development | 10:00 | 15:00 | 4 Hours |
| 04-02-2025 | Review test plans for upcoming release | 10:00 | 16:00 | 6 Hours |
| Total |  |  |  | 29 Hours |

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| Testing | | | | |
| Date | Activity | In time | Out Time | Total Hours |
| 01-03-2025 | Conducted Functional Testing of Feature X | 10:00 | 12:00 | 2 Hours |
| 02-03-2025 | Collaborate with the testing team on issue Y | 10:00 | 15:00 | 4 Hours |
| 03-03-2025 | Conducted Regression testing of Module Z | 10:00 | 15:00 | 4 Hours |
| 04-03-2025 | Reviewed test plan for upcoming release | 10:00 | 12:00 | 2 Hours |
| 05-03-2025 | Analyzed test Results and reported issues | 10:00 | 15:00 | 4 Hours |
| 06-03-2025 | Tested integration of module A with module B | 10:00 | 13:00 | 3 Hours |
| Total |  |  |  | 19 Hours |

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| UAT | | | | |
| Date | Activity | In time | Out Time | Total Hours |
| 01-04-2025 | Prepare UAT test plans and test cases | 10:00 | 15:00 | 4 Hours |
| 02-04-2025 | Review UAT test plan with the stakeholders | 10:00 | 16:00 | 6 Hours |
| 03-04-2025 | Execute UAT test cases | 11:00 | 19:00 | 8 Hours |
| 04-04-2025 | Troubleshoot and report defects found during UAT | 10:00 | 15:00 | 4 Hours |
| 05-04-2025 | Retest defects after they have been fixed by development team | 10:00 | 12:00 | 2 Hours |
| 06-04-2025 | Obtain sign-off from stakeholders on UAT completion | 11:00 | 12:00 | 1 Hours |
| Total |  |  |  | 25 Hours |

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| Deployment | | | | | |
| Date | Activity | In time | Out Time | Total Hours | Responsible person |
| 01-05-2025 | Create Deployment Plan | 11:00 | 19:00 | 8 Hours | John smith |
| 02-05-2025 | Deploy application to test environment | 12:00 | 19:00 | 7 Hours | Jane Doe |
| 03-05-2025 | Deploy application to Production | 10:00 | 19:00 | 9 Hours | John Smith |
| 04-05-2025 | Perform User acceptance testing | 11:00 | 12:00 | 12 Hours | Jane Doe |
| 05-05-2025 | Finalize implementation | 10:00 | 11:00 | 11 Hours | John Smith |
| Total |  |  |  | 47 Hours |  |