**Online Agriculture Products Store**

Q1. Identify Business Process Model for Online Agriculture Store

A1. The Business Process Model for Online Agriculture Store is shown below:

1. Goal: To develop a user-friendly online application (web and mobile) for farmers to purchase agriculture products like fertilizers, seeds, pesticides from manufacturers through online.
2. Input: Manufacturers register and display their products through online application. Farmers register and select the required products through online and purchase. Delivery vendor details.
3. Resources: IT team, Farmers, manufacturers of seeds, pesticides, fertilizers.
4. Activities:
   1. User registration: Any user or manufacturer to register. Mandatory details to be provided are name, username, mobile, email id, address with pin code.
   2. Login: user name/mobile no, password or otp with mobile number access login.
   3. Add products: Only manufacturers can add their products to display like name, description, price, quantity, images.
   4. Search: Users can search variety of pharma products through various filters.
   5. Cart/Buy: Add to cart to purchase items. Buy the products. Add a new address to deliver or modify the existing address or select the address.
   6. Payment: Payment can be done either through cards/UPI/COD(if available).
   7. Acknowledgment to be sent to both users contact details and manufacturers for information.
   8. Manufacturers receives order notifications. Pack the products and ship them to users address.
   9. Customers/users receive their products and provide feedback or ratings to the products.
5. Output: Fully functional online agriculture store (Web and Mobile App). Farmers placing and receiving orders in online seamlessly.
6. Value created:
   1. Farmers can purchase products through online application store and get their problem solved instead visiting to far places to get the pharma products.
   2. Manufacturers can sell their products to remote market and increase their revenues.
   3. Digital transformation in agriculture sector has been empowered.

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.

A2. SWOT analysis by Karthik:

**Strengths:**

1. APT IT solution has well experienced team including developers, testers, network admin, database admin.
2. Online shopping, delivery at their homes.
3. Project is CSR Initiative. It can be new initiation for farmer sector. It helps in developing a positive impact on society.
4. Support from stakeholders, Peter, Kevin, Ben who are direct users, and are close friends to project sponsor Mr.Henry, provide valuable insights and requirements.
5. This project is pioneer in remote market as currently no other online application has provided this facility.

**Weakness:**

1. Digital awareness to farmers.
2. Since the application should be mainly used by remote farmers the location internet access may find difficult.

**Opportunities:**

1. Remote market expansion through digital initiative.
2. Possibility to partner with many manufacturers, distributors, local government bodies.

**Threats:**

1. Online ecommerce developers are competitors, which may reduce our market share.
2. Since farming is a seasonality, during rainy season demand for products might affect.
3. Manufacturers may send low quality products, farmers cannot see the quality of products while purchasing as it is online.

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.

A3. To consider the project feasibility:

Hardware:

1. The compatibility of application with user devices like desktops, laptop, smartphones etc that farmers use to access application.
2. Serves and network infrastructure that support seamless communication and data transfer between users and servers.

Software:

1. Java can be used as a flatform to build this application.
2. Database to be used to store data and retrieve information.
3. Brainstorming with the developers and technical team to decide the feasibility of the software.

Trained resources:

1. Skilled resources available for technology, Java (1 senior developer and 4 developers are available in Java), 2 testers, 1 database, 1 network and a BA who are well trained to develop and implement the application.

Budget & Time frame:

1. Project is budgeted for Rs.2cr. Salaries for all employees who work for project around 10 employees, infrastructure cost, software costs, training cost and some contingent cost is sufficient to complete the project.
2. Time to complete the project is 18months. Given time is sufficient to accommodate the requirement gathering, analysis, developing, testing, UAT and implementation of application.

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.

A4. Current state

1. There is no online application facility available to purchase the pharma products like seeds, pesticides etc in remote locations.
2. Farmers visiting to physical shops to purchase seeds, fertilizers, pesticides which require lot of physical efforts to reach the store.

Desired state

1. With online application store, farmers can directly search the required products and purchase them in online.
2. User easy accessible and can order from any location to deliver to their address.

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

A5. Project Risk factors :

1. Internal employees team might rotate based on different projects necessity or any resignations from team. Need to plan contingency skilled employees in case of emergency to complete the project within time.
2. Market demand and supply for products. Manufacturers should ready to register and sell their product through online.
3. Any delay in project milestones might lead to project delay
4. Adoption of farmers to the new application digitally should improve. Due to lack of awareness project might not reach to maximum users.
5. Time, scope, budget should be monitored and managed well by PM failing which lead to delay or failure in project.

BA risk factors:

1. Incomplete requirement gatherings lead to failure in project
2. Lack of proper communication on timely basis between external and internal stakeholders might lead to failure.
3. Frequent change requests handling might impact project scope, timeline, budget.
4. Inaccurate documentation lead to improper implementation.
5. Stakeholder conflicts about project priorities and requirements.

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

A6. RACI Matrix:

Responsible:

1. BA-Yashwanth,
2. Developers- Juhi, Teyson, Lucie, Tucker, Bravo,
3. Testers – Jason, Alekhya
4. DB admin – John
5. Network admin - Mike

Accountable:

1. PM-Vandanam,
2. Delivery Head- Karthik
3. Sponsor-Henry,
4. Financial head-Pandu,
5. Project coordinator – Dooku.

Consulted:

1. Stakeholders/End users – Peter, Kevin, Ben,

Informed:

1. Manufacture companies and farmers.

Q7. Help Mr Karthik to prepare a business case document

A7. Business case:

1. Reason for Project Initiation: To facilitate remote farmers to purchase or supply products directly through online and deliver to their locations.
2. Current Problems: Remote village farmers are finding it difficult to purchase or procure products for their agriculture activity.
3. With the proposed project, online application store will enable all remote users to procure products through online. Comfortable, easy and quick delivery to remote users.
4. Resources: required are skilled IT resources, IT infrastructure, servers, database, stakeholder’s inputs who are direct users.
5. Organization should train employees who can use this project and provide support on users’ issues and resolutions. To adopt this project using Java technology, organization should have required infrastructure software to maintain after implementation of the project.
6. As the project budget is Rs.2cr, and this is an CSR initiative, the ROI may take a little time approximately 2 years, as the products usage will be seasonal as per the crops. Seeds, pesticides, fertilizers will be purchased based on their cropping.
7. Stakeholder: Internal stakeholders are developers, testers, DB, network admin, PM, Delivery head. External stakeholders are end users, project sponsor, distribution delivery vendors, local government bodies, Manufacturers who display their products in store. Also by doing stakeholder analysis, RACI matrix we can identify which user is responsible and accountable for which purpose.
8. By adopting the above project, this is a pioneer project as CSR which will give good returns in longer run and as social responsibility it helps many farmers. Company will get good brand image in the market which may increase their current business revenue too.

Q8. 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

**A8.** SDLC is a process in which IT company follows to develop the software application. SDLC (software development life cycle) can be understood by methodologies and models. SDLC methodologies are set of guidelines to follow, SDLC Models are those guidelines which are followed and achieve the functionality. There are 4 types of methodologies: 1. Sequential, 2. Iterative, 3. Evolutionary, 4. Agile.

**Sequential:** It is a linear sequential life cycle model. Every phase completes one after the other in a sequential manner. Delivery of the project happens only at the end after completing all phases in a linear model. There are 2 types of sequential models: a. Waterfall, b. V-Model.

1. Waterfall: In waterfall model, each phase must be completed entirely before going to the next phase. At the end of each phase a review takes place to determine whether the project is in right direction or not.
2. V-model: In V-model model, an extended version of waterfall model, each phase must be completed before going to next phase. Main advantage of V-model, testing is planned in parallel to the corresponding phase of development. This could detect the defect at an early stage. Also, V-model means verification and validation model.

**Iterative:** Iterative model is an approach that breaks the project into smaller parts and iteratively enhances the next versions until full system is implemented. RUP(Rational Unified Process) is an iterative software development process framework. Phase wise application is developed. We can track defects at an early stage. This model is used for more budgets, larger projects, more resources.

**Evolutionary:** The evolutionary model is a combination of the Iterative and Incremental models of the software development life cycle. Spiral model is an evolutionary model. It has four phases planning, risk analysis, engineering and evaluation. Majorly it emphasis on the risk analysis in each spiral. This model is used for complex type of projects where risk is more.

**Agile:**  Agile model is a combination of iterative and incremental process. In Agile, the project breaks into smaller tasks, each task is divided into small time frames called sprints to deliver specific features for release to customer. Agile Manifesto has four main values and 12 principles. This is most commonly used method to deliver the projects, where customer satisfaction is more in the agile model. The product is released in incremental process for every sprints. Each sprint may vary from a week to a month. Every sprint based on the priority requirements team work on the product backlog items and go through the process of sprint review, sprint retrospective and deliver to customer. Daily scrum stand up meeting are conducted to update the progress of backlog items. Scrum master is the facilitator to this process. Change requests can be handled easily in this model. At any stage change request can be implemented. It’s a continuous enhancing and delivering the project requirements to the customer.

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?

A9. Waterfall: In waterfall model, each phase must be completed entirely before going to the next phase. At the end of each phase a review takes place to determine whether the project is in right direction or not. It is best suited for projects with well-defined requirements and clear goal projects.

RUP: It is an iterative software development process framework. Phase wise application is developed. We can track defects at an early stage. This model is used for more budgets, larger projects, more resources.

Spiral: This model is a combination of sequential and iterative approaches. Each iteration is build upon previous one. This is best suited for high risk projects with uncertain requirements.

Scrum: This is a framework used in Agile. It emphasizes team work, collaboration and adaptability. This is best suited for changing requirements and complex projects.

As a BA, I recommend to use V model method. Reason being that V model is more flexible and can adapt to changes to project if required. Also any defects can be identified at early stage of development.

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

A10.

|  |  |
| --- | --- |
| Waterfall | V model |
| 1. It is a linear and sequential phases | 1. It is a parallel phase. |
| 1. Testing phase start after completion of development activities. | 1. Testing starts simultaneously with the development phase. |
| 1. Continuous process | 1. Simultaneous process |
| 1. Defects can be identified during testing phase. | d.Defects can be identified from beginning phase. |
| 1. Less flexible | e.More flexible |
| 1. Well defined requirements with unlike to change requests. | f.Clear requirements with testing placed on each phase and validation. |
| 1. Low cost | g.Expensive |
| 1. Customer involvement low during cycle. | h.Customer involvement is high during the cycle. |

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

A11. V Model. As this is more flexible and testing can be done immediately after development. Any defects can be identified at early stage of development. It can adopt to any changes required in project.

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.

A12. Gantt Chart

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Resources | W  1 | W5 | W9 | W13 | W17 | W21 | W25 | W29 | W33 | W37 | W41 | W45 | W49 | W53 | W57 | W61 | W  65 | | W69 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| PM ----------🡪  1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
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| BA ----------🡪 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  | 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| Java Dev ------🡪 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  | |
| Testers --------🡪 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| NW Admin ---🡪 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
|  |  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| DB Admin ---🡪 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
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Q13. Explain the difference between Fixed Bid and Billing projects

A13. Fixed bid: In fixed bid projects, budget is fixed, scope and time is also fixed. It is up to the service provider who develop the project decides how many hours and no. of resources to work upon that project to achieve and complete the project within given set of timelines and budget. Sponsor do not have responsibility about any extensions of budget or timelines. Generally, in fixed bid projects change in scope or requirements have very less flexibility. As they are time based and cost-based projects.

Billing projects: Billing model is done based on the actual no. of working hours towards the project. Client is charged based on no. of resources and their working time. Scope and time are flexible towards the project. This is ideal for projects with evolving requirements. Sponsor has the flexibility to change request for scope and requirements.

Q14. Prepare 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

A14. Timesheets

Design: After collecting requirement gathering using elicitation techniques and requirement analysis, next is design phase.

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| --- | --- | --- | --- | --- | --- |
| S.no. | Date | Tasks | Start Time | End Time | Duration(hrs) |
| 1. | 10.02.25 | Review user requirements and prepare use cases. | 9:30 am | 6:30 pm | 9 |
| 2. | 11.02.25 | Meeting with development team | 10:00 am | 1:00 pm | 3 |
| 3. | 11.02.25 | Prototyping | 2:00 pm | 6:00 pm | 4 |
| 4. | 12.02.25 | Updating design with all the inputs received from respective team members developers, architects, SME’s etc. | 9:30 am | 6:30 pm | 9 |
| 5. | 13.02.25 | Finalizing design | 9:30am | 6:30pm | 9 |
| 6. | 14.02.25 | Review and approve the design | 11:00am | 1:00pm | 2 |
|  |  |  |  | Total | 36 |

Development:

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| --- | --- | --- | --- | --- | --- |
| S.no. | Date | Tasks | Start Time | End Time | Duration(hrs) |
| 1. | 17.02.25 | Meeting with development team for requirement clarification. | 10:30 am | 6:30 pm | 8 |
| 2. | 18.02.25 | Clear discussion about the design and ensuring requirements are met. | 10:00 am | 1:00 pm | 3 |
|  |  | Handling any change requests and Updating requirement documents. | 10:00 am | 4:00 pm | 6 |
| 3. | 19.02.25 | Check development progress | 11:30 am | 2:30 pm | 3 |
|  |  |  |  | Total | 20 |

Testing:

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| --- | --- | --- | --- | --- | --- |
| S.no. | Date | Tasks | Start Time | End Time | Duration(hrs) |
| 1. | 20.02.25 | Review test cases and plan | 10:00 am | 1:00 pm | 3 |
| 2. | 21.02.25 | Collaborate with testing team on feature results/outputs | 11:30 am | 6:30 pm | 7 |
| 3. | 24.02.25 | Review upcoming release test cases. | 10:00 am | 12:00 pm | 2 |
| 4. | 25.02.25 | Analyse test cases results and prioritize defects | 11:00 am | 5:00 pm | 6 |
|  |  |  |  | Total | 18 |

UAT:

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| --- | --- | --- | --- | --- | --- |
| S.no. | Date | Tasks | Start Time | End Time | Duration(hrs) |
| 1. | 26.02.25 | Prepare UAT plan | 10:00 am | 1:00 pm | 3 |
| 2. | 27.02.25 | Review UAT test cases before UAT. | 10:30 am | 6:30 pm | 8 |
| 3. | 28.02.25 | Conduct UAT with stakeholders | 10:00 am | 6:00 pm | 8 |
| 4. | 03.03.25 | Gather users feedback. | 11:00 am | 2:00 pm | 3 |
| 5. | 04.03.25 | Review UAT results | 10:00 am | 12:00 pm | 2 |
|  |  |  |  | Total | 24 |

Deployment and Implementation:

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| --- | --- | --- | --- | --- | --- |
| S.no. | Date | Tasks | Start Time | End Time | Duration(hrs) |
| 1. | 05.03.25 | Plan for deployment | 10:00 am | 3:00 pm | 5 |
| 2. | 06.03.25 | Communicate with stakeholders | 10:30 am | 11:30 am | 1 |
| 3. | 07.03.25 | Deploy application in production | 10:00 am | 6:00 pm | 8 |
| 4. | 10.03.25 | Review and take feedback after deployment. | 9:00 am | 6:00 pm | 9 |
| 5. | 11.03.25 | Finalize implementation and address user queries. | 9:00 am | 6:00 pm | 9 |
|  |  |  |  | Total | 32 |