**CAPSTONE PROJECT PREP – 1 PART -1**

 **ONLINE AGRICULTURE PRODUCT STORE**

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

**ANS:**

Business Process model is a group of activities that are designed to produce a specific output for a particular customer. A process specifies the order of work activities across time and place from start to end with defined input and output, structure of an action.

1. **GOAL:**
* To enable to buy the agricultural products like pesticides, fertiliser, seeds, etc .. in e commerce platform.
* To engage the farmer and manufacture relationship to ensure accessibility in remote areas.
1. **INPUTS:**
* Product information and its specifications like price, colour, quantity etc..
* Gather technical requirements for the projects.
1. **OUTPUTS:**
* Easy access to the customers (farmers) to purchase the product and on time delivery
* To facilitate the system to engage relationship between manufactures and customers
1. **RESOURCES:**
* Financial resources ( 2 crore budget)
* Technical resources ( IT teams like developers, testers and other project stakeholders)
1. **ACTIVITES:**
* Allows manufactures to upload product info.
* Purchase of product through different payment methods.
* During project development, we need to gather requirements from stakeholders, design and develop the product functionalities, testing and implementing the online store.
1. **VALUE END:**
* Gain access to farmers in remote areas
* Expanding the crops yields, sales opportunities
* Gain more profit and user friendly.
1. ***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?***

**ANS:**

**SWOT ANALYSIS:** This model will helps to understand influencing factors and how they may affect an initiative. Here, strength and weakness are internal factors, opportunities and threats are external factors.

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|  **Strengths*** Good communications between farmers

and manufactures.* More accessibility to farmers in remote areas
* CSR initiatives as financial backup.
 |  **Weakness*** Lack of internet issues and stability
* Unaware of using applications in online

platforms. |
|  **Opportunities*** Partnership with others distributers, delivery

 partners, payment sponsors. * To expand their own agriculture products and

 Firms. |  **Threats*** Competitions with other ecommerce

platforms.* Data Insecurity and hacking of personal

Info. |

1. ***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?***

**ANS:**

* Feasibility study is preliminary analysis of solution alternatives and how each will provide the business benefit to meet their needs. Also it is possibility of doing a project with three factors like technology, budget and time. It is an integral part of formulating a major business transformation project.
* To conduct a feasibility study in doing this project in JAVA technology we have following points,
1. **Hardware Requirements:**
* Ensure we have sufficient amount of data availability to store application data like product databases includes SQL.
* Ensure we have adequate internet connectivity to allow access in remote areas.
* Test the application data with the user hand on experience includes mobiles, smartphones etc.
1. **Software Requirements:**

Here some of the software requirements includes MySQL, JAVA, Selenium, Sprint boot for developments and frameworks and API testing.

1. **Trained Resources:**
* BA should gather and analyse the requirements includes GAP analysis.
* Testers should do both automatic and manual testing and UI/UX should be able to design a application in terms of user friendly.
* Developers includes JAVA to be skilled in Hibernate and other API’s and Network admins will manage the servers.
1. **Budget & Time Frame:**
* Salaries for IT teams like Developers, testers, BA etc. other infrastructure costs for servers, tools and internet etc..
* From the estimate budget of **2 crore**  we can estimated **time frame**  of **18 months** includes ,

 BA: To gather and analyse the requirements – 2 months

 Design: to model the requirements - 3 months

 Development: to develop the user requirements – 7 months

 Testing: To check the user testing and other Testers – 4 months

 Implementation: To deploy the user application – 2 months

1. ***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* ?**

**ANS:**

**Gap analysis** will analyse the difference between the current state and future state of an organisation and it will performed by BA and PM. It provides a foundation for measuring time, money and line of business within a large organisation.

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|  **AS IS – CURRENT STATE**  |  **TO BE – FUTURE STATE** |
| * Lack of communication between farmer

and manufactures.* High prices and lack of product availability
* Limited number of product varieties and

Product manufacturers.* Offline purchasing of products will available

for a particular time.* Limited number of information available to farmers about agricultural product info and

 new techniques in agriculture. | * Good communication and relationship

between farmers and manufactures.* Discount on price, saving time and effort

on physical needs.* Sequence of product selection, faster

delivery of products in doorstep.* Digital platforms provides 24/7 online

purchasing.* Product usage instructions, education resources will available on online.
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Therefore, the gap between current state and future state by implementing this portal helps in various factors like,

* Digital Access to all farmers and manufactures.
* Easy purchases of all items in one location
* Increase of digital literacy among the customers.
* Price transparency of all products which includes discounts on particular time
* Good communication with farmer and manufactures.
* Product efficiency includes product yields and variety of products in one platforms.
* Lack of dependent to local retailers and suppliers, bargaining of price with the owners.
1. ***List down different risk factors that may be involved (BA Risks And process/Project Risks) ?***

**ANS: BA Risks:** Potential challenges and uncertainties faced by business analyst due to miscommunication, lack of domain knowledge etc.

**Process Risks:** Uncertainties/ events that negatively impacts overall project success includes resource unavailability, budget overruns, etc.

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|  **BA RISKS** |  **PROCESS RISKS** |
| * Improper gathering of requirements from

committee members.* Frequent changes of user requirements

in the project.* Lack of execution of elicitation techniques

like brainstorming etc..* Lack of document practises and inadequate

detailing of BRD/FRD documentation.* Less participation of clients leads to failure of

Solution in users validation. | * Lack of internet connectivity lead to face issue

in remote areas and cannot handle high usertraffic activity.* Lack of skilled teams includes tester, designer,

etc..* Lack of digital literacy among using platform
* Exceeding the framed budget due to unexpected

expenses.* Lack of data information and resource attrition

in project cycle.* Exceeding the time frame due to frequent

change in deadlines of project . |

Therefore, we can to avoid these risk factors we can mitigate these factors by,

* Conducting any of the elicitation techniques to have clear understand of the users requirements and accuracy one.
* Using some of the prototypes which includes detail understanding of the agenda to all members in a project.
* Have frequent interaction with stakeholder to avoid the deviation of the agenda. BA should engaged with developers and tester for all time to know the project goes in right direction.
* Ensure skilled training persons involved in project cycle and have rigours UAT
* Provide the User friendly manual to farmers in remote areas to avoid illiteracy.
1. ***Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers?***

***Ans:*** It is a process of evaluating and analysis the individuals or groups impact by a project, understanding their interests, develop their strategies and manage them effectively for project success. RACI matrix is a tool used for stakeholder analysis which tells about the roles and responsibilities of the team members and stakeholders for specific projects/tasks.

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|  |  **RESPONSIBLE** |  **ACCOUNTABLE** |  **CONSULTED** |  **INFORMED** |
|  **HENRY**  |  |  **Y** |  **Y** |  **Y** |
|  **PANDU (FH)** |  |  **Y** |  **Y** |  **Y** |
|  **DOOKU (PC)** |  **Y** |  |  **Y** |  **Y** |
|  **Henry’s Friends** |  |  |  **Y** |  **Y** |
|  **KARTHICK (DH)** |  **Y** |  |  **Y** |  **Y** |
|  **VANDANAM (PM)** |  **Y** |  **Y** |  |  **Y** |
|  **JUHI (Sr. DEVL)** |  **Y** |  **Y** |  |  **Y** |
| **Tyson, 3 other (DEV)** |  **Y** |  **Y** |  |  **Y** |
|  **Sarath (BA)** |  **Y** |  **Y** |  |  **Y** |
| **Askaya ,Jason (Tester)** |  **Y** |  **Y** |  |  **Y** |
|  **Mike (NA)** |  **Y** |  **Y** |  **Y** |  **Y** |
|  **John (DBA)** |  **Y** |  **Y** |  |  **Y** |

1. ***Help Mr Karthik to prepare a business case document?***

**ANS: Business case document**  is a formal document that presents the justification of a project by defining the objective, risks, costs, alternatives.

 **Business Case Document**

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| **Project Name :** Online Agriculture Product Store | **Project Manager :** Mr. Vandanam |
| **Client :** SOONY Company | **Duration:** 18 months |

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|  **Summary** | This project aims to deliver the Online Agricultural product store in digital platform especially in remote areas. As, Mr.Henry discusses with his three friends whosaw the difficulty of the farmers to collect and buy the agricultural products from local store. So he decided to provide Online Agriculture product store to ensure the farmer will able to access the products in digital store which leads to good relationship between farmer and manufacturers, price, delivery at doorstep. |
| **Problem Statement** | Limited access of product availability, digital illiteracy in remote areas, dependency of products with its high price in local retailers and suppliers. |
|  **Product**  |  Online Agricultural Product Store (APPs/Web application) |
|  **Objective** | To develop the web applications/ apps in remote areas which is user friendly.To purchase the product from the different manufactures. Able to deliver a product at Home/ its preferred location. |
|  **Product Benefits** | To engage the digital literacy in remote areas, to avoid physical efforts of products purchase in local store.  |
|  **Key Stakeholders** | Business Owner – Mr HenryProject Stakeholders – APT IT solutions (PM, Delivery head, BA, Developer, tester) |
|  **Feasibility Study**  | Technology: JAVA based web application with its APIs.Time: 18 monthsBudget : 2 croreResource: Skilled IT team from APT IT solutions |
|  **Risks** | Lack of digital literacy, lack of internet accessibility, exceeding of budget and time frame.Mitigation: provide user manual, conduct rigorous testing with application and have deadlines. |
| **Financial Justification** | Under allocated CSR initiatives, we perform cost effectiveness |
|  **Project Delivery** |  Project initiatives align with product expectation along with the agricultural sector. |

1. ***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?***

**Ans:**

**SDLC -**  It is a software development life cycle to design, develop, test, deploy and maintain software systems. It ensure that software is systematically consistent from initial to final delivery of the project.

* **Sequential:** This method provides the clear and linear route for project execution which is simple to understand and use. In this method, it is a step by step approach used in software development and project management which means each phase must be completed at once and cannot be moved to next cycle without completing the current cycle. At end, review will takes place to determine the project in correct direction and if not we will discard the project.
* **Iterative:** It is set of content elements which describes what to be showed in step by step explanation and how these goals to be achieved. The main elements like roles which is set of related skills and competencies, work products which is expecting from a task includes models and documents, tasks describes unit of work assigned to role which provides meaningful results.
* **Evolutionary –** It combines iterative development with risk analysis. It develops system in cycle (spiral) which includes, like planning, risk analysis, engineering, and evaluation. The method emphasis on refining the system through iterations, addressing risk and incorporating stakeholder feedback to improve product progressively.
* **Agile –** It is an iterative and flexible approach to software development and project management. The core principle of the methods is to satisfy the customer through continuous delivery of valuable software, working software is the primary measure of progress and at regular intervals, the team reflects on how to become more effective then tunes and adjusts its behaviour. The four main values of this method is individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, responding to changer over following a plan.
1. ***They discussed models in SDLC like waterfall RUP Spiral and Scrum. You put forth your understanding on these models?***
* **Waterfall:** It also called as linear sequential life cycle model which is simple to understand and use. In this model, each stage must be completed in fully and move to another stage. They have different stages which is requirements gathering & analysis, design, development, testing, deployment & implementation.

In requirement gathering – we will collect all the requirements and do the analysis, in design phase – we will design system workflows and architecture , in development phase – we will develop the software based on design specifications, in testing phase – we will test the functionality, in deployment phase – deliver the product to the customer , in maintenance phase – we will ongoing updates

**Advantages:**

 It phases are completed at one a time and it works well for smaller projects and where requirements were understood well.

**Disadvantages:**

No working software is produced until late during the life cycle. And poor model for complex and OOP’s

* **RUP:** It is called as RUP (rational unified process) which is created by IBM. It consists of four projects life cycle phases which is “Inception, elaboration, construction, transition etc. In inception phase we have agreement among the client and team member to define objective. In elaboration stage we have agreement within the team members to design the system architecture with agreed behaviour. In construction phase, we have the implementation of fully functional system. In transition phase, we correct defect and do the delivery of the software.

So employ a component based architecture and model software visually and control changes.

Their disciplines are business modelling, requirements, analysis & design, implementation test, deployment, configuration and change management, project management and environment.

**Advantages:** Iteration cycle will allows adjust to development and emphasise on stakeholder involvement.

**Disadvantages:** May require complex and resource intensive

* **Spiral –** It is the model which gives more emphases on risk analysis, which has four phases like planning, risk analysis, engineering, and evaluation. The baseline in the spiral model is called as planning where requirements are gathered. In risk analysis phase we will identify the risk and do prototype models.In engineering phase, we will develop the software along with the testing. In evaluation phase, we allows the customer to evaluate the output of the project before the project continues to next spiral.

**Advantages:**

Good for large scale projects, requires high amount of risk analysis

**Disadvantages:**

Doesn’t work for small projects, can be costly model to use.

* **SCRUM –** It is model can be implemented at either beginning or when you feel something is falling behind its schedule. Usually we have 7 members in scrum team and the work will divided into sprints (2, 3, 4 weeks). In this we have four different phases sprint planning, development, sprint review and retrospective.

In sprint planning, the team will decide what we need to deliver for the project. In daily scrum meeting where team will arise question includes what to do, what u will do. Sprint review meeting we have demo of the completed stories. Sprint Retrospective we happens at end the sprint to analyse advantages and disadvantages of previous project. So agile model is used everywhere in all projects.

**Advantages:**

High delivery time and change handling requests

**Disadvantages:**

Sometimes lead to scope creep, requires commitment and discipline

1. ***Write down the differences between waterfall model and V model?***

**Ans: Waterfall Model:**

* In waterfall model, it linear sequential life cycle where each phase must be completed fully and we can’t be move next phase without completing before phase.
* Testing will happen after development stage of the cycle
* Difficult to make changes once the phase is completed
* It requires extensive documentation for each phase.
* It is used to smaller projects with clear and stable requirements
* Overall projects costs is high due to late stage of testing and defect resolution.

**V model:**

* In V model, verification and validation will happen parallel to development of a cycle.
* Testing were integrated with development stage of the cycle so which is suitable for high quality needs.
* Easy to make changes before development stage.
* It requires detail documentation at each stage from ensuring traceability of requirements to testing.
* Suitable for domains like healthcare, where projects with early stage of testing and validation
* Overall project costs is lower due to validation.
1. ***As a BA, state your reason for choosing one model for this project?***

**Ans:**  As a BA I prefer V model is suitable for this project. Because,

* It’s a step by step approach where each phase executes with the help of verification and validation.
* So testing along with the later stage of the development which improves final products performance and reliability.
* Minimize the chance of costly rework and budget expenses by reviewing the early stage of testing.
* The detailed documentation and validation ensure the project adhere to legal and regulatory standards.
* This model also facilitates the easy tracking of project progress, changes and verification which makes easier to stakeholders for review and outcomes
1. ***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.?***

**Ans:**  I tried my this preparation from MS visio.



1. ***Explain the difference between Fixed Bid and Billing projects?***

**Ans:**

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|  **Fixed Bid Projects** |  **Billing Projects** |
| * It is useful for smaller projects with clear

requirements | * It is useful for evolving projects with unclear

requirements and it’s called as “Time & material projects. |
| * Budget is predetermined
 | * Budget is based on time and material invested
 |
| * It is predefined scope, changes occurs extra

expenses | * Flexible scope changes occurs any time
 |
| * The contracts will transfer much risk to service provider to complete within time frame.
 | * Here the clients will retains the risk which may

leads to higher costs than actual. |
| * Here the service provider will responsible for meeting the agreed delivery within budget and time frame
 | * Here the client is responsible for managing the scope needed and pay the charges.
 |
| * They have formal relationship with focus scope

and delivery of a project | * They have collaborative relationship as both involved in ongoing changes
 |

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

**Ans:**

 ***Design Timesheet of a BA***

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| **S.no** |  **Task and Activities** | **Start Time** | **End time** |  **Hours** |
| 1. |  Requirement gathering and analysis to meet business stakeholder’s needs. |  10.00 AM |  11.30 AM |  1.5 hrs |
|  2. |  Creation of BPM for current business needs and to define improvements |  11.30 AM |  2.00 PM |  2.5 hrs |
| 3.  | Documentation of SRS preparation from gathered requirements |  2.00 PM |  4.30 PM |  2.5 hrs |
| 4. | Communicate to client for design solutions status to drive UAT. Update RTM and end user manual. |  4.30 PM |  7.00 PM |  2.5 hrs  |

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| **S.no** |  **Task and Activities** | **Start Time** | **End time** |  **Hours** |
| 1. |  Clarifying the technical requirements related to coding and conducting JAD sessions |  10.00 AM |  12.30 AM |  2.5 hrs |
|  2. |  Create and sorting of user stories for developing the requirements |  11.30 AM |  1.00 PM |  1.5 hrs |
| 3.  | Defining the acceptance criteria by test case preparation  |  2.00 PM |  4.30 PM |  2.5 hrs |
| 4. | Conduct regular meeting to team and clients. Update RTM and end user manual. |  4.30 PM |  7.00 PM |  2.5 hrs  |

 ***Development Timesheet of a BA***

 ***Testing Timesheet of a BA***

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| **S.no** |  **Task and Activities** | **Start Time** | **End time** |  **Hours** |
| 1. |  Review test case from Quality assurance team |  10.00 AM |  11.30 AM |  1.5 hrs |
|  2. | Provide functional support to testers and engaging with developers if any test case has issue  |  11.30 AM |  3.30 PM |  4 hrs |
| 3.  | Perform high level test and prepare client for UAT drive |  3.30 PM |  5.30 PM |  2 hrs |

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| **S.no** |  **Task and Activities** | **Start Time** | **End time** |  **Hours** |
| 1. | Creation and planning of deployment and communicate with stakeholders |  10.00 AM |  1.00 PM |  3 hrs |
| 2. |  Providing user support for post deployment |  1.00 PM |  4.00 PM |  3 hrs |
| 3. | Review the implementation with business for ensuring coordination |  4.00 PM |  6.00 PM |  2 hrs |

 ***UAT Timesheet of a BA***

 ***Deployment n Implementation Timesheet of a BA***

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| --- | --- | --- | --- | --- |
| **S.no** |  **Task and Activities** | **Start Time** | **End time** |  **Hours** |
| 1. | Creation of test cases from use cases for UAT |  10.00 AM |  12.30 AM |  2.5 hrs |
|  2. |  Log issues during UAT session will be solved |  12.30 AM |  3.30 PM |  3 hrs |
| 3.  | Documentation of feedback session for UAT  |  3.30 PM |  5.30 PM |  2 hrs |