**Nurturing Process - Capstone Project 1 – Part 1/3**

Online Agriculture Product Store

**Question 1 BPM**

Identify business process model for online agriculture store – (Goal, Input, Resources, Outputs, Activities, Value created to the customers)

**Answer**

Goal- Developing the website

Input- Product details

Resources- Infrastructure, human resources, time, capital

Outputs- Delivery of the website

Activities- Accept the product details from the manufacturers, displaying the product to the farmers, feasible payment options, delivery of the product

Value created to the customers- User friendly website

**Question 2 SWOT**

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

**Answer**

Weaknesses

-Initial trust building

-Logistic Challenges

Weaknesses

-Initial trust building

-Logistic Challenges

Weaknesses

-Initial trust building

-Logistic Challenges

Weaknesses

-Initial trust building

-Logistic Challenges

Weaknesses

-Initial trust building

-Logistic Challenges

Strengths

-Scalability

-Convenience

-Accessibility

Threats

-Competition

-Regulatory challenges

-Economic factors

-Market Volatility

Opportunity

-Market Expansion

-Diversification

-Data Analytics

**Question 3 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.

**Answer**

Hardware- Based on production servers, development environment, and farmer accessibility.

Software- Based on backend, frontend, development tools, testing tools and payment gateway software.

Trained resources- Based on development team, support team, business analysts, and project management team.

Budget- Cost involved such as development costs, infrastructure costs, training, marketing and launch, and management and support.

Time frame- Based on requirement gathering, design, development, testing, implementation and training.

**Question 4 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.

**Answer**

AS IS existing process:

- Farmers are travelling to multiple stores with limited product options which is a time-consuming process.

- Manual price comparison between local stores and limited market visibility.

- There are cash transactions which generate manual receipts.

- Self arranged transportation and immediate pickup is required.

TO BE future process:

- Instant access to wide range of products from multiple manufacturers providing detailed product information.

- Real time price comparison, with bulk purchase options.

- Online payment options with automated order confirmation.

- Direct trackable delivery to the farm’s location.

**Question 5 Risk Analysis**

List down different risk factors that may be involved (BA risks AND process/project risks)

**Answer**

BA risks:

- Requirement miscommunication

- Inadequate requirements gatherings

- Scope creep

Project risks:

- Development delays

- Integration challenges

- Quality assurance challenges

**Question 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**

|  |  |  |
| --- | --- | --- |
| **R/A/C/I** | **Name of the people** | **Designation** |
| **Responsible** | Mr. Pandu | Financial Head |
| Me | BA |
| Mr. Dooku | Project Coordinator |
| Mr. Karthik | Delivery Head |
| Ms. Juhi | Senior Java developer |
| Mr. Jason | Tester |
| Ms. Alekya | Tester |
| Mr. Henry | Project Sponsor |
| **Accountable** | Mr. Karthik | Delivery Head |
| Mr. Henry | Project Sponsor |
| Mr. Vandanam | Project Manager |
| **Consulted** | Mr. Pandu | Financial Head |
| Mr. Dooku | Project Coordinator |
| Kevin | Stakeholder |
| Ben | Stakeholder |
| Peter | Stakeholder |
| Mr. Vandanam | Project Manager |
| **Informed** | Mr. Henry | Project Sponsor |
| Mr. Karthik | Delivery Head |
| Development and testing team |  |
| Project team and farmers |  |

**Question 7 Business Case Document**

Help Mr. Karthik to prepare a business case document

**Answer**

- Why this project is necessary?

Given the problems faced by large group of farmers, this project promises a beneficial outcome to the stakeholders

- What will be delivered?

A user-friendly web application

- What is the budget and time?

The budget is of 2 crores within 18 months of estimated time

- What could go wrong and how it could be handled?

Risk analysis can be performed prior the project is to be completed

**Question 8 Four SDLC Methodologies**

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

SDLC Methodologies are processes and practices used by software development teams in order to successfully navigate the Software Development Life Cycle (SDLC).

The choice of methodology depends on factors like:

-Project size and complexity

-Requirements stability

-Time constraints

-Team size and expertise

-Customer involvement

-Budget constraints

-Industry regulations and compliance requirements

This includes:

- Sequential: A linear, phase-by-phase approach where each phase must be completed before moving to the next. It is very simple to understand and use. At the end of each phase a review takes place to determine if the project is on right path. Key characteristics of this are linear progression, distinct phases, and documentation focus.

- Iterative: a software development approach that emphasizes developing software through repeated cycles (iterations), with each cycle refining and improving the software. It has characteristics such as cyclical development process, core process flow, risk reduction through early testing and feedback.

- Evolutionary: System evolves through multiple versions with each version adding new capabilities. This emphasizes gradual development and constant evolution of the system based on feedback and changing requirements. It has flexible and adaptive approach, requirements are emerged and evolved over time, there is a strong focus on user involvement, it does continuous integration and testing.

- Agile- This emphasizes iterative development with focus on customer collaboration and rapid delivery. It has short development cycles and continuous customer involvement. There are daily stand-up meetings, sprint planning and retrospectives, user stories for requirements, burndown charts for progress tracking, test-driven development as main practices performed in this methodology.

**Question 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**Answer**

- Waterfall model: A linear, sequential approach where each phase must be completed before moving to the next. Phases flow from

requirements → design → implementation → testing → deployment → maintenance

It is best suited for projects with clear, unchanging requirements and well-understood technologies. But it has limited flexibility to accommodate changes once a phase is complete.

- RUP model: RUP stands for "Rational Unified Process," which is a software development methodology that utilizes an iterative and incremental approach, dividing the project life cycle into four phases: Inception, Elaboration, Construction, and Transition, with the primary goal of creating high-quality software with predictable timelines and budgets; it is often considered an agile development approach and heavily utilizes the Unified Modelling Language (UML) for visualization and design.

- Spiral model: The spiral model is a software development lifecycle (SDLC) model that combines the waterfall and iterative development models. It's used to manage risk and is often used for large, complex, and expensive projects. It is a risk-driven approach combining elements of both waterfall and prototyping. In this the project repeatedly passes through four phases: planning, risk analysis, engineering, and evaluation. Each iteration produces a more complete version of the software

- Scrum model: It is a project management framework that helps teams work together to achieve a common goal. It's an agile framework that uses a set of values, principles, and practices to help teams manage their work. It uses fixed-length sprints with daily stand-ups, sprint planning, and retrospectives. The roles include Product Owner, Scrum Master, and Development Team. Also, it maintains a product backlog prioritizing features and requirements.

**Question 10 Waterfall Vs V- Model**

Write down the differences between waterfall model and V model.**Answer**

|  |  |
| --- | --- |
| **Waterfall**  | **V-model** |
|  |  |
| Linear sequence of phases moving downward | Splits into two branches forming a V-shape, with development steps down and testing steps up |
| Changes are costly and difficult to implement late in the cycle | Changes can be accommodated earlier due to test planning during development phases |
| Test planning starts after development | Test planning begins with corresponding development phases |
| Documentation created sequentially | Documentation created in parallel for development and testing phases |
| Quality focus mainly during testing phase | Quality built into each phase with corresponding validation |

**Question 11 Justify your choice**

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

**Answer**

The suitable model for this project will be V model due to following characteristics:

- Testing Integration Throughout Development

- Requirements Verification and Validation

- Risk Management

- Project Characteristics Match

- Team Structure Alignment

**Question 12 Gantt Chart**

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.

**Answer**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Phases | Month 1 | Month 3 | Month 6 | Month 9 | Month 12 | Month 15 | Month 18 |
|  |  |  |  |  |  |  |  |
| Project Setup |  |  |  |  |  |  |  |
| Requirement Phase |  |  |  |  |  |  |  |
| Design |  |  |  |  |  |  |  |
| Implementation Phase |  |  |  |  |  |  |  |
| Testing Phase |  |  |  |  |  |  |  |
| Deployment |  |  |  |  |  |  |  |

Project Setup: 1 month

Requirement Phase: 3 months

Design: 4 months

Implementation Phase: 5 months

Testing Phase: 5 months

Deployment phase: 3 months

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Resources | Month 1 | Month 5 | Month 10 | Month 15 | Month 18 |
|  |  |  |  |  |  |
| PM |  |  |  |  |  |
| BA |  |  |  |  |  |
| Java Developers |  |  |  |  |  |
| Testers |  |  |  |  |  |
| DB Admin and Network Admin |  |  |  |  |  |

PM (Mr. Vandanam): Full duration

BA: Throughout project

Java Developers (Ms. Juhi's team): During development phases

Testers (Mr. Jason, Ms. Alekya): Testing phases

DB Admin (John) & Network Admin (Mr. Mike): Infrastructure support

**Question 13 Fixed Bid Vs Billing**

Explain the difference between Fixed Bid and Billing projects

**Answer**

|  |  |
| --- | --- |
| **Fixed Bid** | **Billing** |
|  |  |
| It refers to a specific, predetermined price for a project with a defined scope, meaning the client pays a set amount regardless of the actual time or resources used. | The broader process of sending invoices to a client for goods or services rendered, which can include fixed bid projects but also other pricing models like hourly rates or time and materials. |
| It requires a clearly defined scope of work. It has less flexibility for changes during the project. | This can include various pricing models like fixed bid, hourly rates, or time and materials. |
| In this case the vendor bears most delivery risks. | In this scenario the client bears most cost risk. |
| For Example: A web developer provides a quote of $5,000 to design and build a basic website with specific features, regardless of how many hours it takes to complete. | For Example: The web developer sends an invoice to the client for $5,000 once the website is finished, representing the "fixed bid" price agreed upon. |

**Question 14 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

**Answer**

|  |  |  |
| --- | --- | --- |
|  | **Daily 9:00am-6:00pm activities** | **Weekly Tasks** |
| **Design Timesheet of a BA** | Design review meetings with architects | Monday: Architecture review meetings (2 hrs) |
| Document functional specifications | Tuesday: Technical specification reviews (2 hrs) |
| Interface design sessions | Wednesday: Design walkthrough with stakeholders (3 hrs) |
| Stakeholder consultation | Thursday: Design validation workshops (3 hrs) |
| Update design documents | Friday: Documentation and week closure (2 hrs) |
| Daily status updates and planning |  |
| **Development Timesheet of a BA** | Daily stand-up with development team | Monday: Sprint planning support (3 hrs) |
| Requirements clarification sessions | Tuesday: Developer consultations (2 hrs) |
| Review development progress | Wednesday: Change request reviews (2 hrs) |
| Document change requests | Thursday: Feature demonstrations (2 hrs) |
| Development support and queries | Friday: Sprint documentation updates (3 hrs) |
| **Testing Timesheet of a BA** | Test case review meetings | Monday: Test planning meetings (2 hrs) |
| Defect triage sessions | Tuesday: Defect review sessions (3 hrs) |
| Test scenario validations | Wednesday: Test execution monitoring (2 hrs) |
| Requirements verification | Thursday: Requirements traceability (2 hrs) |
| Update test documentation | Friday: Test metrics review (2 hrs) |
| **UAT Timesheet of a BA** | UAT status review | Monday: UAT planning updates (2 hrs) |
| User support and training | Tuesday: User training sessions (3 hrs) |
| UAT defect analysis | Wednesday: Defect prioritization (2 hrs) |
| Stakeholder communications | Thursday: User feedback collection (2 hrs) |
| Document UAT feedback | Friday: UAT progress reporting (2 hrs) |
| **Deployment and Implementation Timesheet of a BA** | Deployment planning meetings | Monday: Deployment readiness review (2 hrs) |
| Implementation support | Tuesday: Implementation monitoring (3 hrs) |
| Documentation updates | Wednesday: User support coordination (2 hrs) |
| Stakeholder communications | Thursday: Post-deployment verification (2 hrs) |
| Issue resolution support | Friday: Progress reporting (2 hrs) |