Capstone Project: 1

**1. Identifying the business process models**

**(i)Goals**:

The main goal of the project is to develop a online agriculture product store to facilitate remote area farmers to buy agriculture products

**(ii) Inputs:** Application, farmers, contacts, seeds, pesticides, fertilizers and vendor details

**(iii) Resource:** Development team, farmers, contacts, seeds, pesticides, fertilizers and vendor details

**(iv) Outputs:** A mobile application which will give you access to all their products like pesticides, fertilizers, seeds with price, product details and payment access available in it. So that farmers can buy it through online and get it delivered at their door step

**(v) Activities:**

* **Product selection**: Customers browse and select products
* **Placing an order**: Customers place an order on the website
* **Payment processing**: Customers make payment for their order
* **Order fulfillment**: The order is fulfilled by the business
* **Delivery and customer service**: The order is delivered to the customer and customer service is provided

**(vi) Value created to the end Customer:**

* Providing a personalized shopping experience
* Offering a wide selection
* Making it convenient
* Providing efficient service

**2. SWOT analysis:**

* **Identify strengths**

user-friendly website, strong customer service, or a wide selection of products., feedback option, multiple payment methods

* **Assess weaknesses**

such as slow website loading times, poor inventory management, or limited payment options.

* **Explore opportunities**

new market trends, strategic partnerships.

* **Evaluate threats**

fierce competition, insufficient budget.

**3. Feasibility study:**

* **Assess the project concept**: Starting an online ecommerce website for buying fertilizers and pesticides required for the farmers.
	+ **Compatibility testing**: Whether the site functions properly across different browsers
	+ **Marketing channels**: Whether the site has engaging content
	+ **User experience (UX)**: Whether the site is clean, customer-focused, and has a solid UX
	+ **Checkout process**: Whether the checkout process is simple and easy to navigate
	+ **Search engine optimization (SEO)**: Whether the site's SEO performance is good
* **Collect information**:
	+ **Customer data**: Prioritize collecting customer data, such as demographic data, buying behavior, preferences, and search patterns. This data can help you segment customers and personalize their shopping experience

Karthik will approach a software development team and build the application in JAVA and the budget allocated for the project is 2 crores. Time will be for 18 month for completion of project. The project needs one project manager, Development team, tester and a BA who can help with the requirements

Based on the above gathered information the Project has to kick start in 2 months.

4. **GAP analysis:**

**As-Is Business:** farmers are facing difficulties in procuring fertilizers which are very important for farm. They are facing problems in buying seeds for farming certain crops and buying pesticides for the crops which could greatly help in reducing pests in crops.

**To- Be business:** Henry has decided to make an online agriculture product store to facilitate remote area farmers to buy agriculture products. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly with each other.

* **Profit gap analysis**

Ecommerce brands can use profit gap analysis to identify areas where they are underperforming financially.

* **Content gap analysis**

Involves understanding the buyer's journey, conducting market research, auditing existing content.

**5. Risk analysis:**

**Project/BA/Process risk includes**

* **Security breaches**

These can include phishing attacks, malware, website hacking, and ransomware attacks.

* **Legal risks**

These can include copyright infringement, trademark violation, privacy breaches, and tax evasion.

* **Website downtime**

Your website may go down on important days of the sale, which can cause significant losses. To reduce the risk of downtime, you can choose a reliable hosting provider, use a platform like Node.js, and keep your website updated.

* **Seller risk**

Some red flags for seller risk include a sudden sales spike without a corresponding increase in customer reviews, or a large number of positive reviews posted within a short time.

* **Poor customer service**

When there is no proper customer service provided

* **Data privacy**

E-commerce businesses collect customer data to personalize communication, process payments, and provide customer service

**6. RACI matrix**

| **Code** | **Stands for** | **This is the person who is….** |
| --- | --- | --- |
| R | Responsible | **Responsible** for performing the task or creating the document |
| A | Accountable | **Accountable** for the task or document  |
| C | Consult | Provides **consulting** or expertise to the person responsible for the task or document and others. |
| I | Inform | **Informed** of task progress or results, usually by the person responsible.  |

|  |  |
| --- | --- |
|  |   **People & position** |
| **Vandanam** | **Juhi** | **Teycon** | **luci** | **tucker** | **Bravo** | **Mike** | **John** | **Jason** | **Alekya** | **Rohith** |
|  |  |  |  |  |  |  |  |  |  |  |
| **Task** | **Planning and req analysis** | R |  |  |  |  |  |  |  |  |  |  |
| **Design** | I | A | A | A | A | A |  |  |  |  | R |
| **development** | C | R | R | R | R | R |  | R | I | I | C |
| **Testing** | I | I | I | I | I | I |  | I | R | R | A |
| **Deployment** | C | R | R | R | R | R | I |  | I | I | I |
| **Maintenance** | I | I | I | I | I | I |  |  |  |  | I |

**7. Four SDLC Methodologies:**

**Sequential Model:**

Sequential or plan-driven methodologies break up the software development cycle into consecutive, standalone phases. These models prioritize gathering detailed project requirements, planning the entire development process, and establishing deliverables for each phase before starting the development.

**Iterative Model:**

The iterative model is a software development methodology that breaks down a project into smaller, more manageable chunks. These chunks are called iterations, and each iteration goes through the entire Software Development Life Cycle

**Agile Model:**

The Agile methodology is a project management approach that involves breaking the project into phases and emphasizes continuous collaboration and improvement. Teams follow a cycle of planning, executing, and evaluating.

**Evolution model:**

The evolutionary model is based on the concept of making an initial product and then evolving the software product over time with iterative and incremental approaches with proper feedback. In this type of model, the product will go through several iterations and come up when the final product is built through multiple iterations. The development is carried out simultaneously with the feedback during the development**.**

**8. Waterfall, spiral and scrum model:**

**Waterfall model:**

The waterfall model is useful in situations where the project requirements are well-defined and the project goals are clear. It is often used for large-scale projects with long timelines, where there is little room for error and the project stakeholders need to have a high level of confidence in the outcome.

**Spiral model:**

The spiral model is a systems development lifecycle (SDLC) method used for risk management that combines the iterative development process model with elements of the Waterfall model.

**Scrum model**

Scrum framework helps the team to work together. Lifecycle of Scrum. Sprint: A Sprint is a time box of one month or less. A new Sprint starts immediately after the completion of the previous Sprint. Release: When the product is completed, it goes to the Release stage.

**9. Waterfall vs vmodel**

**Pros of Waterfall Model**

* Objectives are more simple and easy to align for all teammates
* Helps to strictly adhere to specified project timelines
* Testing parameters are specified before the development phase begins
* Helps avoid objective or process overlapping since one phase doesn’t begin till the previous one is over

**Cons of Waterfall Model**

* High delivery time
* Doesn’t change direction from the original plan
* Not a great methodology for working on complex projects

**Pros of V Model**

* Highly disciplined model where each phase is fully completed before moving to the next one
* Recommended for smaller projects with clear requirements
* Deliverables for each phase are specific
* Each phase includes a review process

**Cons of V Model**

* Not suited for long-term projects
* Not suitable for projects where the requirements are constantly changing
* Difficult to change functionalities of the previous phase once testing begins
* Working software is delivered far late into the development cycle

**10.Best model for Software development**

- I personally feel that agile is the best model for software development as the entire product will be broken down into pieces and the development usually happens in sprints.

- Agile teams deliver working software frequently, which allows customers to get value sooner

- Agile teams can respond quickly to changes and adapt to customer feedback

 - Agile teams focus on producing high-quality deliverables

11. **Fixed Billing**

* **Definition**: In a fixed bid contract, the contractor agrees to complete a project for a predetermined price.
* **Payment Structure**: The client pays a set amount regardless of the time or resources expended to complete the project.
* **Risk**: The contractor assumes more risk because they are responsible for covering any cost overruns or delays. If the project takes longer or requires more resources than anticipated, the contractor absorbs those additional costs.
* **Use Cases**: This type of contract is often used for projects with well-defined scopes and timelines, such as construction projects or software development with clear specifications.

**Billing Project:**

* **Definition**: In a time and materials contract, the client pays for the actual time spent by the contractor and the materials used in the project.
* **Payment Structure**: The client is billed based on hourly rates for labor and the cost of materials, which can vary throughout the project.
* **Risk**: The client assumes more risk since the total cost is not fixed and can fluctuate based on the project's duration and resource needs. The contractor is incentivized to work efficiently but is not penalized for taking longer if justified.
* **Use Cases**: This type of contract is often used for projects where the scope is uncertain or likely to change, such as research and development or projects requiring ongoing adjustments.

**12. Gantt chart**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **start date** | **end date** | **duration** |
| **Requirement analysis** | **01-02-2025** | **01-02-2025** | **1 day** |
| **Design** | **02-02-2025** | **03-02-2025** | **2 days** |
| **development** | **04-02-2025** | **07-02-2025** | **4 days** |
| **testing** | **07-02-2025** | **10-02-2025** | **3 days** |
| **deploymement** | **10-02-2025** | **10-02-2025** | **1 day** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **01-02-2025** | **02-02-2025** | **03-02-2025** | **04-02-2025** | **05-02-2025** | **06-02-2025** | **07-02-2025** | **08-02-2025** | **09-02-2025** | **10-02-2025** |
| 1day |  |  |  |  |  |  |  |  |   |
|   | 2days |  |  |  |  |  |  |   |
|   |  |  | 4days |  |  |   |
|   |  |  |  |  |  | 4 days |
|   |   |   |   |   |   |   |   |   | 1 day |

**13. Business document:**

**1. Current business:** farmers are facing difficulties in procuring fertilizers which are very important for farm. They are facing problems in buying seeds for farming certain crops and buying pesticides for the crops which could greatly help in reducing pests in crops.

**2. The proposed solution:** Henry has decided to make an online agriculture product store to facilitate remote area farmers to buy agriculture products. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly.

**3.** **System(s) Impacted:** Online shopping capabilities will be added to customers who doesn’t have to to manually visit the shops and make a purchase

**4. Assumptions/Dependencies:** N/A

**13. Timesheet of BA**

