**Capstone Project Part 1**

 **Question 1 - BPM - 5 Marks**

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

**Answers 1:**

**Goal:** To create an online platform for farmers in remote areas to easily purchase agriculture products such as fertilixers,seeds and pesticides.

**Inputs:** Product details from manufactures, customer orders, and payment information,Internet connectivity,Budget and timeline(2 Crores INR,18 months).

**Resources:** The website or mobile application, IT infrastructure, and human resources including developers, testers and customer service staff.

**Outouts:** A user-friendly platform for farmers to browse and purchase products, delivery of products to customers, and financial transactions

**Activities:**Development and maintenance of the website or mobile application Product management, which includes updating product information and pricing Order managementwhich includes processing customer orders, payment and delivery. Customer service, which includes responding to customer inquiries and addressing any issues that arise.

**Value created to the end customer:** Farmers can purchase products from the comfort of their own homes Time -saving: Farmers no longer have to travel to purchase products from manufactures they may not have been able to before improved efficiency.Farmers can now plan their purchases and deliveries in advance, increasing their productivity.

 **Question 2 - SWOT - 5 Marks**

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.

**Answer 2:**

As the Delivery Head, Mr. Karthik should consider the following aspects when performing a SWOT

analysis for the online agriculture product store project:

**1. Strengths:**

a. The project aligns with the company's mission of providing IT solutions to improve

the lives of people in rural areas.

b. The company has a talent pool of experienced developers and other IT professionals

available to work on the project.

c. The project has the support of Mr. Henry, a successful businessman, and other

stakeholders who can provide valuable input and resources.

d. Online marketplaces are becoming more popular, so the project has the potential to be successful.

**2.Weaknesses:**

a. The 18-month project duration may be a tight timeline to deliver a complex system.

b. The company may not have previous experience in developing an online agriculture

product store.

c. The budget of 2 Crores INR may not be sufficient to cover all the costs of the project.

d. The company may not have enough knowledge of the agriculture industry to

understand the specific needs of the farmers and manufacturers.

**3. Opportunities:**

a. The project could open up new business opportunities for the company in the

agriculture and rural development sectors.

b. The project could help improve the lives of farmers in remote areas by making it

easier for them to access the products they need.

c. The company could use this project as a showcase for future projects and gain

reputatin.

d. The online store could be a platform for farmers to connect with each other and

share their experiences.

**4. Threats:**

a. The project may face competition from existing online agriculture product stores if

any.

b. The project could be affected by changes in government regulations or policies.

c. The company may encounter unexpected technical difficulties or delays during the

development process.thus escalating costs

d. The farmers may not be willing to adopt the new technology as they may be reluctant

to change and do not see utility in it.

e. They may be reluctant to bear the cost and charges for the system due to lack of

trust. By considering these aspects, Mr. Karthik can identify potential challenges and

opportunities for the project, and make an informed decision about whether to accept

the project and how best to approach it.

**Q-3 Feasibility study - 5 Marks**

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 3:**

As Mr. Karthik conducts a feasibility study on the use of Java technology for the online agriculture

product store project, he should consider the following points:

**1. Hardware:**

Mr. Karthik should ensure that the company has the necessary hardware resources to support the project, such as servers, storage, and network infrastructure. He should also consider scalability and future expansion in case the project grows in size and usage.

**2. Software:**

Mr. Karthik should evaluate the existing software systems and libraries that the

company uses and assess whether they are compatible with Java. He should also

research and identify any additional software or frameworks that may be required for the project.

**3. Trained Resources:**

Mr. Karthik should identify the availability of trained resources within the company who can work with Java. He should also assess whether the company has enough Java developers with the necessary skills and experience to complete the project within the given timeline.

**4. Budget:**

Mr. Karthik should analyze the costs associated with the project, such as hardware,

software, and personnel costs. He should also evaluate whether the project budget of 2Crores INR is sufficient to cover all the costs and if not how to adjust the project scope to make it feasible.

**5. Time frame:**

Mr. Karthik should evaluate whether the 18-month project duration is realistic given the complexity of the project. He should also consider any potential delays or obstacles that may arise during the development process, and assess whether the company has the resources and expertise to complete the project on time.

By considering these points, Mr. Karthik can determine whether the project is technically-feasible, and whether the company has the resources and capability to deliver the project within the given time frame, budget and quality

 **4: Gap Analysis - 5 Marks**

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 4:**

A gap analysis is used to identify the difference between the current (AS-IS) state of a process and the desired (TO-BE) state. In the context of the online agriculture products store project, Mr. Karthik could showcase the following points in the gap analysis to convince Mr. Henry to initiate the project:

1. **Ease of Access:**

 Currently, farmers in remote areas face difficulties in procuring fertilizers, seeds, and pesticides. The online store would provide easy and convenient access to these products from anywhere with internet connectivity.

1. **Improved communication:**

The existing process does not allow direct communication between farmers and companies that manufacture fertilizers, seeds, and pesticides. The online store would-provide a platform for farmers to directly communicate with the companies, reducing the need for intermediaries.

1. **Better pricing:**

 By reducing the number of intermediaries and providing direct communication between farmers and companies, the online store could help farmers get better prices for the products they need.

1. **Increased Product Availability:**

The online store would increase the availability of agriculture products to farmers in remote-areas. This would help farmers to access products that are not easily available in their local-markets.

1. **Increased Efficiency:**

The manual process of procuring agriculture products is time-consuming and prone to errors. The online store would automate many aspects of the process, increasing efficiencyand reducing the likelihood of errors.

1. **Increased Transparency:**The manual process can be opaque, making it difficult to track the flow of products and money. The online store would increase transparency by providing a clear and detailed record of all transactions. These points highlight the key benefits of the online agriculture products store and how it addresses the existing challenges faced by farmers in remote areas. By showcasing these benefits, Mr. Karthik can convince Mr. Henry to initiate the project.

**Q-5 - Risk Analysis - 10 MarksList down different risk factors that may be involved (BA Risks And process/Project Risks)**

**Answer 5:**

**BA Risks:**

1. **Requirements Gathering:**

Inadequate requirements gathering and analysis could lead to misunderstandings or missed requirements that would impact the final product.

1. **Stakeholder Management:**

 Different stakeholders (farmers, companies, project team, etc.) may have conflicting requirements or opinions, leading to difficulties in getting consensus on the requirements.

1. **Communication:**

Miscommunication between the BA, project team, and stakeholders could lead to misunderstandings and incorrect assumptions about the requirements.

1. **Change Management:**

Changes in requirements or stakeholders' expectations during the project could result in delays or additional costs.

**Project Risks:**

1. **Budget:**

The project budget may be insufficient to cover the development and implementation costs, leading to financial constraints.

1. **Technical:**

 Technical difficulties during the development and implementation of the online store could impact the delivery timeline and quality of the final product.

1. **User Acceptance:**

The success of an online store depends on the willingness of farmers and businesses to use the platform. If the user acceptance rate is low, the project may not reach its goals.

**4. Integrations:**

 Online stores need to integrate with various systems such as payment systems, logistics-systems, and inventory management systems. Problems during integration can affect project schedule and quality.

**Q-6 - Stakeholder Analysis (RACI Matrix) - 8 Marks**

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

**Answers 6:**

**Responsible:**

A)Mr.Karthik - Delivery Head - APT IT Solutions.

B)Mr.Vandanam - Project Manager - APT IT Solutions

C)Mr.Mike - Network Admin - - APT IT Solutions

D)Ms.Juhi - Senior Java Developer - APT IT Solutions

E)Mr.Teyson, Ms.Lucie, Mr.Tuker, Mr. Bravo - Java Developer - - APT IT Solutions.

F)Mr.John - DB Admin - APT IT Solutions

G)Mr.Jason and Ms.Alekya - Testers - - APT IT Solutions.

 **Accountable:**

A)Mr.Henry - Client - Soony Company

B)Mr.Pandu - Financial Head - Soony Company

C)Mr.Dooku - Project Coordinator Soony Company.

**Consulted:**

1. Peter, Kevin and Ben - Stakeholders(Formers from the remote village).

**Informed:**

A)Formers & Companies (Manufaturers of fertilizers, seeds & Pesticides).

**Q-7 - Business Case Document - 8 Marks**

**Help Mr Karthik to prepare a business case document**

**Answer 7:**

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.

1. **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.

1. **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:

1. **Product listing:**

The ability to list products such as fertilizers, seeds and pesticides with detailed information.

1. **Order placement:**

Farmers must be able to place orders for products they need through the platform.

1. **Delivery:**

The platform must have the ability to arrange for delivery of the products to the farmers.

1. **User-friendly interface:**

 The platform must have a user-friendly interface for easy navigation.

1. **Benefits:**

 The online agriculture product store will bring the following benefits:

1. **Increased access to agriculture products:**

Farmers will have access to a wider range of products through the platform, increasing their options for procurement.

1. **Improved efficiency:**

The procurement process will become more efficient, reducing the time and effort needed to purchase products.

1. **Increased income:**

Improved access to essential agriculture products will result in increased crop yields,leading to an increase in income for the farmers.

1. **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.

1. **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:**

 Risks related to the adoption of the platform by the farmers. To mitigate these risks, the project team will implement appropriate risk management measures such as regularly reviewing the technical design, partnering with reliable delivery companies and providing adequate training to farmers. In conclusion, the online agriculture products store has the potential to bring great benefits to remote area farmers and the farming community at large. By addressing the problems of accessibility and availability of essential products such as seeds, pesticides, and fertilizers, the application can improve the productivity and efficiency of farming operations. The business case highlights the need for this solution, the estimated budget and timeline, the project risks, and the stakeholder involvement. The development approach will be guided by a suitable methodology such as Agile, Iterative, Sequential or Evolutionary, ensuring that the project is delivered effectively and efficiently. The Committee is committed to ensuring the success of this project and improving the lives of remote area farmers.

**Q-8 Four SDLC Methodologies - 8 Marks**

**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 8:**

1. **Sequential:**

 This methodology follows a linear approach and moves through each phase of the SDLC in a set sequence. This method is best suited for projects with well-defined requirements, low risk, and predictable outcomes.

1. **Iterative:**

This methodology involves developing the software in iterations, where each iteration buildsupon the previous one. This method is best suited for projects with complex requirements and high risk.

1. **Evolutionary:**

 This methodology involves developing a basic version of the software and then incrementally improving it. This method is best suited for projects with rapidly changing requirements and high risk.

1. **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.

**Q-9 Waterfall RUP Spiral and Scrum Models – 8 Marks**

**Answer 9:**

They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your understanding on these models

1. **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.

1. **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.

1. **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

1. **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. **5.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.

**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?**

**Answer:** As per the suggestion of SME V model will be more appropriate for the reason that it provides more flexibility and can adapt some changes to project if required. As chances are the project may need more changes during the project timeline.

**Question 10 – Waterfall Vs V-Model - 5 Marks**.

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

**Answer 10:**

1. **Waterfall Model:**

 The Waterfall Model is a sequential development process, where progress flows in a downward, linear fashion from one phase to the next. It is a traditional and straightforward methodology. It is well suited for projects with well-defined and fixed requirements. Each phase must be completed before the next one starts. Testing is done only after the development phase is completed.

1. **V Model**:

The V Model is a variation of the Waterfall Model, where each stage of development is accompanied by a corresponding testing phase. It allows for the integration of testing and development into a single continuous process. It is well suited for projects with high-quality and regulatory requirements. It allows for early detection and correction of defects, reducing the cost of fixing them later. It provides a clear and traceable path for verifying the software development process.

**Question 11 – Justify your choice - 3 Marks**

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

**Answer 11**

**V model is selected** . It is recommended by the SME and is more suited for the project. The V model allows changes in between the project which might be suitable for project where change requirement can arise due to regulator.

**Question 12 – Gantt Chart - 5 Marks**

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.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  UAT |  |  |  |  |  |  |  |  |  |  | Client/BA/pm |
|  Testing 4 |  |  |  |  |  |  |  |  |  | Test |  |
|  Design 4 |  |  |  |  |  |  |  |  | Dev |  |  |
|  Testing 3 |  |  |  |  |  |  |  | Test |  |  |  |
|  Design 3 |  |  |  |  |  |  | Dev |  |  |  |  |
|  Testing 2 |  |  |  |  |  |  Test |  |  |  |  |  |
| Design 2 |  |  |  |  | Dev |  |  |  |  |  |  |
|  Testing 1 |  |  |  | Test |  |  |  |  |  |  |  |
| Design 1 |  |  | Dev |  |  |  |  |  |  |  |  |
| Requirement Analysis |  | BA/PM |  |  |  |  |  |  |  |  |  |
| Requirement Gathering | BA |  |  |  |  |  |  |  |  |  |  |
|  | 1st month | 1st month | 3 months | 1 month | 3 months | 1 month | 3 months | 1 month | 3 months | 1 month | Deploy-ment |

**13: Fixed Bid Vs Billing - 5 Marks**

**Explain the difference between Fixed Bid and Billing projects**

**Answer 13:**

1. **Fixed Bid Model:**

The Fixed Bid Model is a method of project delivery where the price for the project is agreed upon and fixed at the outset. In this model, the scope of the project is defined and agreed upon by the client and the vendor, and the vendor is responsible for delivering the project within the agreed-upon budget and timeline. The vendor bears the risk of any cost over runs or schedule delays.

1. **Billing Model:**

The Billing Models a method of project delivery where the client is charged based on the actual time and resources used on the project. In this model, the scope of the project is not fixed.The client is charged based on the actual time and resources spent on the project, and any changes to the scope of the project are accommodated through changes to the budget and timeline. This model allows for greater flexibility in the project.

**Question 14 – Prepare Time sheets of a BA in various stages of SDLC - 20 marks**

➢ Design Time sheet of a BA

➢ Development Time sheet of a BA

 ➢ Testing Timesheet of a BA

 ➢ UAT Timesheet of a BA

 ➢ Deployment n Implementation Time sheet of a BA

 **Design**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date |  Activity  | In time | Out Time | Total Hours |
| 06-01-2024 | Reviewing user requirements | 11:00 | 19.00 | 8 Hours |
| 06-02-2024 | Creating use cases and work flows | 11:00 | 14:00 | 8Hours |
| 06-03-2024 | Designing database schema | 11:00 | 19:00 | 8 Hours |
| 06-04-2024 | Creating wire frames | 11:00 | 16:00 | 6 Hours |
| 06-05-2024 | Reviewing and refining design | 11:00 | 15:00 | 4 Hours |
| 06-06-2024 | Creating Design specifications | 11:00 | 15:00 | 4 Hours |
| 06-09-2024 | Meeting with Development team | 11:00 | 14:00 | 3 Hours |
| 06-10-2024 | Updating design based on the feedback | 11:00 | 16:00 | 6 Hours |
| 06-11-2024 | Finalizing design documents | 11:00 | 19:00 | 8 Hours |
| 06-12-2024 | Reviewing and approving design | 11:00 | 18:00 | 7 Hours |
| Total |  |  |  | 62 Hours |
|   **Development** |  |  |  |  |
|  |  |  |  |  |
| Date |   Activity  | In time | Out Time | Total hours |
| 07-01-2024 | Meeting with Developers  | 10:00 | 16.00 | 4 Hours |
| 07-02-2024 |  Conduct a session to elucidate design of software  | 11:00 | 19:00 | 6 Hours |
| 07-04-2024 | Reviewd test plans for upcoming release  | 10:00 | 16:00 | 6 Hours |
| Total |  |  |  | 33 Hours |
|  |  | **Testing** |  |  |
| Date |  Activity | In Time | Out Time | Total Hours |
| 08-01-2024 | Conducted functional testing of future X | 10:00 | 14:00 | 4 Hours |
| 08-02-2024 | Collaborated with the testing team on issue Y | 10:00 | 15:00 |  4 Hours |
| 08-03-2024 | Conducted regression testing of module Z | 10:00 | 12:00 |  4 Hours |
| 08-04-2024 | Reviewed test plans for upcoming release | 10:00 |  15:00 |  2 Hours |
| 08-05-2024 | Analised test results and reported issues | 10:00 | 15:00 |  4 Hours |
| 08-06-2024 | Tested integration of Module A with Module B | 10:00 | 13:00 |  5 Hours |
|   **UAT** |  |  |  | 23 Hours |
| Date |  Activity | In Time | Out Time | Total Hours |
| 09-01-2024 | Prepare UAT test plans and test cases | 10:00 | 15:00 | 4 Hours |
| 09-02-2024 | Review UAT test plan with the stakeholders | 10:00 | 16:00 |  6 Hours |
| 09-03-2024 | Execute UAT test cases | 11:00 | 12:00 |  8 Hours |
| 09-04-2024 | Troubleshoot and report deffects found during UAT | 10:00 |  15:00 |  4 Hours |
| 09-05-2024 | Retest defects after they have been fixed by development team | 10:00 | 13:00 |  3 Hours |
| 09-06-2024 | Obtain sign-off from stakeholders on UAT completion | 11:00 | 12:00 |  1 Hours |
| Total  **Deployment** |  |  |  | 26 Hours |
|  |  |  |  | 29 Hours |
|  |  |  |  |  |
| Date |  Test Description | In Time | Out Time | Total Hours |
| 10-01-2024 | Create Deployment Plan | 11:00 | 19:00 | 8 Hours |
| 10-02-2024 | Deploy application to test environment | 12:00 | 21:00 |  9 Hours |
| 10-03-2024 | Deploy applicaton to Production Z | 10:00 | 19:00 |  9 Hours |
| 10-05-2024 | Perform User acceptance testing | 11:00 | 23:00 |  12 Hours |
| 10-06-2024 | Finalize implementation | 10:00 | 21:00 |  11 Hours |
|   |  |  |  | 49 Hours |
| Date |  Activity | In Time | Out Time | Total Hours |