**Case Study Prep 1**

**Online Agriculture Products Store**

**Mr. Henry, after being successful as a businessman and has become one of the wealthiest persons in the city. Now, Mr. Henry wants to help others to fulfil their dreams. One day, Mr. Henry went to meet his childhood friends Peter, Kevin and Ben. They live in a remote village and do farming. Mr. Henry asked his friends if they are facing any difficulties in their day-to-day work. Peter told Mr. Henry that he is facing difficulties in procuring fertilizers which are very important for farm. Kevin said that he is also facing the same problem in-case of buying seeds for farming certain crops. Ben raised his concern on lack of pesticides which could help in greatly reducing pests in crops. After listening to all his friends’ problems, Mr. Henry thought that this is a crucial problem faced not only by his friends but also by so many other farmers. So, Mr. Henry 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**

**The main purpose to build this online store is to facilitate farmers to buy seeds, pesticides, and fertilizers from anywhere through internet connectivity. Since new users are involved, Application should be user friendly. This new application should be able to accept the product (fertilizers, seeds, pesticides) details from the manufacturers and should be able to display them to the Farmers. Farmers will browse through these products and select the products what they need and request to buy them and deliver them to farmer’s location**

**Mr. Henry has given this project through his Company SOONY. In SOONY Company, Mr Pandu is Financial Head and Mr Dooku is Project Coordinator. Mr. Henry, Mr Pandu, and Mr Dooku formed one Committee and gave this project to APT IT SOLUTIONS company for Budget 2 Crores INR and 18 months Duration under CSR initiative. Peter, Kevin and Ben are helping the Committee and can be considered as Stakeholders share requirements for the Project**

**Mr Karthik is the Delivery Head in APT IT SOLUTIONS company and he reached out to Mr Henry through his connects and Bagged this project. APT IT SOLUTIONS company have Talent Pool Available for this Project. Mr Vandanam is project Manager, Ms. Juhi is Senior Java Developer, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo are Java Developers. Network Admin is Mr Mike and DB Admin is John. Mr Jason and Ms Alekya are the Tester. And you joined this team as a BA.**

**Question 1: BPM (Business Process Model)**

**Goal: To create an online agricultural product store for the farmers**

**Inputs: Manufacturer’s Contacts, employees**

**Resources: Development Team (Who can develop the application), Manufacturer’s (for the pesticides), Customer care team, Delivery partner**

**Outputs: Efficiency in pesticides procurement, Sales revenue, improved food products.**

**Activities:**

**Value: Better Crops, Increased shelf life of the crops, profitability for farmers.**

**2) SWOT Analysis**

**Strengths: Experienced Development team (in-house),**

**Weakness: Supply Chain Disruptions, Inventory management, dependency on manufactures, farmers are not very tech savvy – difficulty in using the online application, Internet connectivity issues**

**Opportunity: To capture market share, to expand in various other Agro products.**

**Threats: Regulatory challenges, Internet connectivity issues, high maintainace costs.**

**3) Feasibility Study:**

**Hardware: Web Server, Database server, local Storage, bar code scanners, RFID**

**Software: payment gateway software, app with product catalogue, Shipping and logistics software**

**Resource’s: Project management Team, Developers, BA**

**Budget: Development , hardware and maintainace costs**

**Time frame:**

**4) Gap Analysis**

**Current state:**

**To establish an application for the farmers were they can purchase pesticides online**

**Insufficient product details, certifications, and safety information.**

**Lack of seasonal product offerings**

**High shipping costs.**

**Desired State:**

**Develop a comprehensive business strategy, including clear objectives and timelines.**

**Research customer needs and agricultural trends to diversify product offerings.**

**Implement marketing strategies that target both small and large-scale farmers.**

**Explore partnerships with better or faster shipping companies. Offer various shipping options, including expedited delivery.**

**5) Risk Analysis**

**Internal Risks**

**High Operational costs in terms of maintaining warehouse for pesticides:**

**Dependency on the manufactures for the supply of the products**

**External risk:**

**Changes in customer preferences they can move towards organic products**

**Customer dissatisfaction**: **Poor customer service, such as slow response times or unhelpful support staff, can lead to negative reviews, customer churn, and lost sales.**

 **BA risk:**

**Unclear requirements**

**Lack of expertise in the fertilizer/pesticide products**

**Project Risk:**

**Risk of unclear project scope**

**Regulatory and Compliance Risks - Pesticides are heavily regulated, and failure to comply with relevant laws could result in fines or product bans.**

**6) RACI Matrix – (Responsible, Accountable, Consulted, Informed)**

**Responsible (R): The Marketing Team (MKT) is responsible for driving customer acquisition, running promotional campaigns, and ensuring that the store attracts and retains customers.**

 **The Operations Team (OPS) manages day-to-day processes such as inventory, order fulfilment, and product packaging, ensuring everything is ready for customers.**

 **The Technology Team (TECH) is responsible for the development, maintenance, and security of the website to ensure it operates smoothly for an optimal shopping experience.**

**Accountable (A): The Project Manager (PM) holds overall accountability for the success of the project, from launch to day-to-day operations, ensuring that tasks are completed on time and within budget.**

**The Legal/Compliance Team (LEGAL) is accountable for ensuring all products meet regulatory requirements, such as pesticide safety, and that the business complies with relevant laws.**

**The Sales Team (SALES) is accountable for meeting sales targets and driving revenue through the online store.**

**Consulted (C): The Legal/Compliance Team (LEGAL) is consulted for product certifications and legal requirements during product selection, marketing strategies, and customer communications.**

**The Supplier Management Team (SUPPLY) is consulted for product availability, pricing, and procurement strategies.**

**The Finance Team (FIN) is consulted when setting pricing strategies and managing the budget to ensure profitability.**

 **Informed (I): The Finance Team (FIN) needs to be kept informed about sales performance, budget management, and marketing expenditures.**

**The Customer Service Team (CS) needs to be informed about changes in product availability, promotional offers, and customer concerns to handle inquiries effectively.**

 **The Regulatory Affairs Team (REG) is informed about new product introductions and compliance updates to ensure ongoing safety and regulatory adherence.**

**7) Business case Document**

* **Why this project is initiated?**

**This project has been initiated to bridge the gap between the farmers and the availability of pesticides in the rural areas.**

* **What are the Current problems?**

**No availability of pesticides to the farmers, no online platform for the procurement of pesticides**

* **With this project how many problems can be solved?**

**The online pesticide store provides a convenient platform where customers can easily order pesticides from the comfort of their home, improving accessibility.**

**The online store allows customers to easily compare prices between different pesticide brands and sellers, fostering transparency and competitive pricing. This benefits both the customer and the company, as competitive pricing can drive more sales.**

* **What are the resources required?**

**A project team – with developers, testers**

**Manufacturing and supply chain vendors**

**Warehouse**

* **How to identify Stake holders?**

**Before identifying stakeholders, make sure you have a clear understanding of your project's goals, deliverables, and impact. This helps you recognize which groups or individuals will be most affected or involved.**

**8) Four SDLC technologies?**

**Sequntial- Waterfall**

**The Waterfall Model is a traditional and sequential approach to software development and project management. It’s one of the earliest methodologies used in software engineering and is highly structured. The process follows a linear flow, where each phase must be completed before moving on to the next.**

**Iterative – RUP**

**Rational Unified Process (RUP). RUP is a software development process framework that is iterative and incremental, meaning that instead of attempting to build a system all at once, it is built and refined over multiple cycles or iterations**

 **Inception: This phase is focused on defining the project’s scope, objectives, risks, and a rough estimate of resources and costs.**

 **Elaboration: In this phase, the system’s architecture and high-level requirements are further defined, and potential risks are identified and mitigated.**

**Construction: The actual development of the system occurs during this phase, with detailed design, coding, and testing happening iteratively.**

**Transition: In this phase, the system is released to the user for deployment, and feedback is** **gathered.**

**Evolutionary – Spiral**

**Evolutionary Spiral Software Development Life Cycle (SDLC) is a hybrid approach that combines the Spiral Model and Evolutionary Development to create a flexible and risk-driven process for software development.**

* **Planning – Define objectives, constraints, and risks.**
* **Risk Analysis – Identify and mitigate project risks.**
* **Engineering (Development & Testing) – Build the system incrementally.**
* **Evaluation & Review – Get user feedback and refine for the next iteration.**

**Agile – Scrum**

**Agile – Scrum is one of the most popular frameworks within the Agile Software Development methodology. It focuses on delivering working software incrementally and iteratively while ensuring continuous collaboration with stakeholders.**

**Artifacts**

* **Product Backlog – A prioritized list of features and fixes.**
* **Sprint Backlog – The subset of backlog items selected for the sprint.**
* **Increment – A potentially shippable product version after each sprint.**

**🎭 Scrum Roles**

1. **Product Owner – Defines the vision, prioritizes backlog, and represents stakeholders.**
2. **Scrum Master – Facilitates Scrum processes, removes blockers, and ensures Agile principles are followed.**
3. **Development Team – Self-organizing team responsible for building and delivering increments.**

## ****Key Scrum Artifacts****

* **Product Backlog – A prioritized list of features and fixes.**
* **Sprint Backlog – The subset of backlog items selected for the sprint.**
* **Increment – A potentially shippable product version after each sprint.**
* **Sprint Planning: The team selects backlog items to work on and defines the sprint goal.**
* **Daily Scrum (Stand-up Meeting): A short daily meeting where team members update each other on progress and obstacles.**
* **Sprint Review: A demonstration of the completed work to stakeholders for feedback.**
* **Sprint Retrospective: A reflection on what went well, what didn’t, and how to improve in the next sprint.**

**9) Waterfall RUP Spiral and Scrum Models –**

**As a BA I would go for V model**

**The V-Model (Verification and Validation Model) is a software development lifecycle (SDLC) approach where testing activities run in parallel with development. It is an extension of the Waterfall model, but with a stronger focus on early-stage testing.**

**10) Waterfall Vs V-Model –**

|  |  |  |
| --- | --- | --- |
| **Feature** | **Waterfall Model** |  **V model** |
| **Approach** | **Sequential (one phase after another)** | **Parallel (development & testing in sync)** |
| **Flexibility** | **Rigid; changes are difficult** | **Slightly more flexible but still rigid** |
| **Testing Phase** | **Comes after development is complete** | **Testing happens at every stage** |
| **Error Detection** | **Late, since testing is at the end** | **Early, as verification happens alongside development** |
| **Cost of Fixing Bugs** | **High, since errors are found late** | **Lower, since issues are caught earlier** |
| **Project Type Best Suited For** | **Small projects with clear requirements** | **Complex projects where early defect detection is needed** |
| **Risk Management** | **High risk; no feedback loop** | **Lower risk due to early validation** |

**11) Justify your Choice**

**I have chosen V model as it is slightly more flexible than waterfall model. where testing activities run in parallel with development. It is an extension of the Waterfall model, but with a stronger focus on early-stage testing.**

**12) Gantt Chart**

**Gantt Chart for a V-Model Project**, designed by **Mr. Vandanam (Project Manager)**. It includes:

* **V-Model Phases**: RG (Requirement Gathering), RA (Requirement Analysis), Design, D1-T4 (Development & Testing Cycles), and UAT.
* **Resources Assigned**: **PM, BA, Java Developers, Testers, DB Admin, NW Admin**.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Phase | Duration (Weeks) | PM | BA | Java Developers | Testers | DB Admin | NW Admin |
| Requirement Gathering (RG) | Week 1 | ✔️ | ✔️ |  |  |  |  |
| Requirement Analysis (RA) | Week 2 | ✔️ | ✔️ |  |  |  |  |
| Design | Week 3 | ✔️ | ✔️ |  |  | ✔️ | ✔️ |
| Development 1 (D1) | Week 4-5 |  |  | ✔️ |  |  |  |
| Testing 1 (T1) | Week 6 |  |  |  | ✔️ |  |  |
| Development 2 (D2) | Week 7-8 |  |  | ✔️ |  | ✔️ |  |
| Testing 2 (T2) | Week 9 |  |  |  | ✔️ |  |  |
| Development 3 (D3) | Week 10-11 |  |  | ✔️ |  |  | ✔️ |
| Testing 3 (T3) | Week 12 |  |  |  | ✔️ |  |  |
| Development 4 (D4) | Week 13-14 |  |  | ✔️ |  | ✔️ | ✔️ |
| Testing 4 (T4) | Week 15 |  |  |  | ✔️ |  |  |
| User Acceptance Testing (UAT) | Week 16-17 | ✔️ | ✔️ |  | ✔️ |  |  |

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

**When working on IT and software development projects, businesses typically choose between Fixed Bid and Billing (Time & Material) projects based on scope, risk, and flexibility.**

|  |  |  |
| --- | --- | --- |
| **Feature** | **Fixed Bid** | **Billing (T&M)** |
| **Pricing Model** | **Fixed cost agreed upfront** | **Based on hours worked & resources used** |
| **Scope Flexibility** | **Rigid; changes require negotiation** | **Flexible; scope can evolve** |
| **Risk Ownership** | **Vendor bears the risk** | **Client shares the risk** |
| **Transparency** | **Less visibility into costs** | **High transparency (client monitors effort)** |
| **Best For** | **Small, well-defined projects** | **Complex, evolving projects** |

**14) Prepare Timesheets of a BA in various stages of SDLC**

**Business Analyst (BA) Timesheet**

### Project Name: Online Agricultural Store

### BA Name: Pratik Rupani

### Reporting Period: [XXX] - [XXX]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Date | SDLC Phase | Task Description | Start Time | End Time | Total Hours | Status | Comments |
| YYYY-MM-DD | Requirement Gathering | Stakeholder Interviews | 09:00 AM | 11:00 AM | 2.0 | Completed | Collected initial requirements |
| YYYY-MM-DD | Requirement Analysis | Drafting BRD/SRS | 11:30 AM | 01:00 PM | 1.5 | In Progress | Finalizing scope |
| YYYY-MM-DD | Design | Reviewing UI Wireframes | 02:00 PM | 03:30 PM | 1.5 | Completed | Sent for approval |
| YYYY-MM-DD | Development Support | Clarifying requirements | 04:00 PM | 05:30 PM | 1.5 | In Progress | Addressed developer queries |
| YYYY-MM-DD | Testing Support | Reviewing Test Cases | 05:30 PM | 06:30 PM | 1.0 | Pending | QA team feedback awaited |

### **Development Timesheet of a BA**

### Project Name: Online Agricultural Store

### BA Name: Pratik Rupani

### Reporting Period: [XXX] - [XXX]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Date** | **Task Category** | **Task Description** | **Start Time** | **End Time** | **Total Hours** | **Status** | **Comments** |
| YYYY-MM-DD | Requirement Clarifications | Addressing developer queries | 09:00 AM | 10:30 AM | 1.5 | Completed | Resolved API requirement issue |
| YYYY-MM-DD | Functional Specifications | Updating BRD/SRS for changes | 11:00 AM | 12:30 PM | 1.5 | In Progress | New change request received |
| YYYY-MM-DD | User Stories & Acceptance Criteria | Refining user stories for Agile teams | 01:30 PM | 03:00 PM | 1.5 | Completed | Reviewed with Dev Team |
| YYYY-MM-DD | Test Case Review | Validating Test Scenarios | 03:30 PM | 05:00 PM | 1.5 | Pending | Awaiting QA feedback |
| YYYY-MM-DD | Standups & Meetings | Attending Scrum Call | 05:00 PM | 06:00 PM | 1.0 | Completed | Provided project updates |

### **Testing Timesheet of a BA**

### BA Name: Pratik Rupani

### Reporting Period: [XXX] - [XXX]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Date | Testing Task Category | Task Description | Start Time | End Time | Total Hours | Status | Comments |
| YYYY-MM-DD | Test Case Review | Validating functional test cases | 09:00 AM | 10:30 AM | 1.5 | Completed | Feedback sent to QA team |
| YYYY-MM-DD | UAT Preparation | Defining UAT scenarios | 11:00 AM | 12:30 PM | 1.5 | In Progress | Business team review pending |
| YYYY-MM-DD | UAT Execution Support | Assisting business users in testing | 01:30 PM | 03:00 PM | 1.5 | Completed | Logged 2 defects |
| YYYY-MM-DD | Defect Triage | Reviewing & analyzing defects | 03:30 PM | 05:00 PM | 1.5 | Pending | Developer inputs awaited |
| YYYY-MM-DD | Requirement Validation | Ensuring requirements are met | 05:00 PM | 06:00 PM | 1.0 | Completed | Approved by stakeholders |

### **UAT Timesheet of a BA**

### BA Name: Pratik Rupani

### Reporting Period: [XXX] - [XXX]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Date** | **UAT Task Category** | **Task Description** | **Start Time** | **End Time** | **Total Hours** | **Status** | **Comments** |
| YYYY-MM-DD | UAT Planning | Creating UAT test scenarios | 09:00 AM | 10:30 AM | 1.5 | Completed | Sent for stakeholder approval |
| YYYY-MM-DD | UAT Coordination | Aligning test schedules | 11:00 AM | 12:00 PM | 1.0 | In Progress | Business team finalizing testers |
| YYYY-MM-DD | UAT Execution Support | Assisting business users | 01:30 PM | 03:00 PM | 1.5 | Completed | 5 test cases executed |
| YYYY-MM-DD | Defect Analysis | Reviewing reported defects | 03:30 PM | 05:00 PM | 1.5 | Pending | Awaiting developer response |
| YYYY-MM-DD | Requirement Validation | Verifying requirement adherence | 05:00 PM | 06:00 PM | 1.0 | Completed | All critical requirements met |

### **Deployement Timesheet of a BA**

### BA Name: Pratik Rupani

### Reporting Period: [XXX] - [XXX]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Date | Task Category | Task Description | Start Time | End Time | Total Hours | Status | Comments |
| YYYY-MM-DD | Deployment Planning | Preparing deployment checklist | 09:00 AM | 10:30 AM | 1.5 | Completed | Sent for stakeholder approval |
| YYYY-MM-DD | Go-Live Readiness | Coordinating with IT & DevOps | 11:00 AM | 12:30 PM | 1.5 | In Progress | Configuration testing in progress |
| YYYY-MM-DD | Stakeholder Communication | Sending deployment updates | 01:30 PM | 02:30 PM | 1.0 | Completed | Business teams aligned for go-live |
| YYYY-MM-DD | System Monitoring | Tracking live system performance | 03:00 PM | 04:30 PM | 1.5 | Completed | No critical issues detected |
| YYYY-MM-DD | Issue Resolution Support | Assisting in defect triaging | 05:00 PM | 06:30 PM | 1.5 | Pending | Awaiting developer fix confirmation |