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

**Goal :** The primary goal of the project is to develop an online store in form of application and website through which farmers at remote locations can easily order with the help of the internet connectivity various agricultural products like Fertilizers, seeds , pesticides and other agricultural products which is required in the farming sector.

**Inputs:** It is the information and data which would be required for the successful implementation of online store.

1. **Farmer’s Registeration Data :** In order to use the platform for the online store basic details of the fatrmer’s like [ Name, Age, phone number, email id, village]
2. **Product description:** In order to buy any agricultural product it is important to have brief description of product like [ Name of the product, place where it is manufactured, pricing of the product, availability of product, Do’s and Don’t while using the product, quantity to be used per acre of land]
3. **Payment system:** Financial information of the customer would be required like mode of payment through [ debit card, credit card, cash payment, internet banking, pay later]
4. **Delivery status:** After doing the payment the customer would require to track the delivery status of the product.
5. **Customer Feedback**: In order to register any feedback or complaint regarding the product.
6. **Internet Connection and Smart Devices**: In order to use the functionality of the online application it is important that the farmer’s are well equipped with the devices through which they can buy the product

**Resources : It is the overall thing which would be required to successfully run the online agricultural store.**

1. **Human resources**: These would be the resources which would be required in order to successfully carry out the development of the project. It would basically involve all the people who will be working on the project.
2. **Project Manager**: The role would be to oversee the completion of the project within stipulated period. Major responsibilities to coordinate all team members, managing timelines and finish the project on time.
3. **Business Analyst**: The major function of this role is to gather the requirements from various stakeholders like Farmers, manufacturer by performing various elicitation technique. Ensure that app and website which would be used should meet the business goals and end user needs.
4. **Designer**: They would be performing the task for the designing the application and making sure that the app is understandable and easy to use by farmers as they would not be techno savvy.
5. **Developers**: This role would be bifurcated into two roles as of Front end developers and back end developers.
6. **Front end developers**: They would be developing the client side interface that the user would be using. They will make sure that the application or portal which end user will be using is responsive and easy to navigate across all the fields.
7. **Back end Developers**: They will be responsible for managing the server side of the application and managing the databases. These tasks would be performed under the combined role of developer and database admin.
8. **Testers**: Their primary role would be would to test the application that has been developed by the developers and making sure that all the functions and requirements have been there in the app and performance of the application is optimum without any bugs or failures.
9. **Customer Support Team:** A team would be looking after the queries and complaints related to the portal in order to resolve the queries of the Farmers with ease.

**Outputs:** These are the features which would be available to the Farmers and manufacturers after the development of the online shopping portal. This would be basically divided into functional and non-functional outputs. The functional outputs would cover the main goals which needs to be achieved after the development of app like enabling farmers to order items and allowing manufacturers to manage stocks. The non-functional

* **Farmer Features**

1. Easy registeration and login: With the availability of the app or website the farmers can easily create the account and look at various items which they required in order to carry out their work.
2. Product Catalog: A wide variety of products can be ordered from this platform with details about the product in brief to have a better understanding of the item.
3. Prize Filters: Major issue while buying the agricultural products is the prize and, in this range, can be easily filtered out by the farmers in order to buy the product within feasible range.
4. Payment security: The mode of the payment is quite secure as the farmer would have option to pay through various platforms like Credit card, debit card, cash.
5. Easy Transportation: With the development of the app the customer would have not to care the burden of transportation of the product as it would be in built functionality in the app for the delivery of the product.
6. Order from any location: As in the previous case the farmers were dependent only on market which was available to nearby locations and they had to be there while purchasing the product. In the new scenario the they can order the product from anywhere and they don’t have to be physically present there too.

* **Manufacturer Features**

1. Easy Sell: It allows manufacturers of the product to easily sell their items through app without reaching out to customer door to door which also saves time and capital.
2. Access to huge customer base: It will allow manufacturer to have a broader reach towards customer which would sell the product fast.
3. Order Fulfillment: It allows manufacturers to have a better understanding of the requirement and can manage the demand and supply chain in much better way.
4. Payment settlement: Allows Manufacturers to have a hassle-free payment system and can track records of the same.
5. Advertisement: It will help customer to make advertisement of the product through the app which would boost the customer base.

**Activities**

These are the tasks that would be involved in order to carry out the successful functioning of the online agricultural store. Following are the necessary activities which is required in order to carry out the process.

1. Product Listing: The right detail about the product along with some additional features would be required while listing the product. As farmers might not be aware in what quantity or in what conditions it needs to be used.
2. Demo Videos: It is important to add some small demo videos in order to guide the farmers for the usage of the application.
3. Inventory management: It is one of the important functionalities for manufacturer as demand and supply can vary from season to season.
4. Payment Process: Different payment process needs to be given to the farmers so that the ease of using the application can take place.
5. Customer Service: A proper channel should be there in order to sort various queries of the farmers as well as complaint-related sections.

**Value created to the end Customer**

The value created for the end customer is the combination of tangible and intangible benefits they receive. These include:

1.**Convenience**: Easy to buy products from anywhere without visiting any physical shop.

2.**Variety & Availability**: A wide range of products, often with detailed information, reviews, and recommendations to help customers make informed purchasing decisions.

3.**Competitive Pricing**: Cost-effective pricing through direct sourcing and discounts, potentially offering lower prices than traditional physical stores.

4.**Delivery Services:** Timely delivery directly to customers’ locations, ensuring they get the products quickly when they need them.

5.**Quality Product:** Customer can get quality product with ease and if there is any defect in the product than they can return it without any trouble.

6.**Customer Support**: Assistance with inquiries, product recommendations, after-sales support, and issue resolution.

6.**Expert Knowledge & Content**: Access to educational resources, how-to guides, and expert advice on farming and gardening practices.

7.**Personalization**: Tailored recommendations based on past purchases, preferences, or browsing history.

**Q.2 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.**

**SWOT Analysis**

This particular analysis is used to find out the strength, weakness of an organization which are dependent on internal factors while opportunities and threat which are dependent on the external factors. In this we will cover the various aspects which can impact the project.

|  |  |
| --- | --- |
| **STRENGTHS**   * **Convenient access to wide range of products** * **Can place an order from anywhere** * **Saves time and money while buying the item** * **Quality product is available** * **Return the items with ease** * **Can easily track the product delivery** * **Information regarding the product is available** * **Manufacturer can track record of the customer base** | **Weakness**   * **Dependency on technology** * **Trust issue specially in the rural areas** * **Shipping and logistic difficulties in rural areas** * **High competition from the local players in the market** * **Difficulty in managing the complaints or provide feedback in rural areas** |
| **Opportunities**   * **Farmers can get more aware about the product details** * **Farmers dependency on local markets would be minimized which generally have prize monopoly** * **Manufacturers would be able to penetrate new market through online platform** * **Easy of distribution of stocks** * **Can increase the market share through online platform** * **Partnering with local players can help in win win situation for all** * **Can customize the products according to the soil conditions and crops** | **Threats**   * **Big competition can be given by large e-commerce sites.** * **Natural calamity can big hindrance towards delivery of product in rural areas** * **Changing regulations in government can impact the business** * **Safety of maintaining data of the customers from outside market** * **Payment can be affected due to dependencies on third party channels** * **Marketing and generating trust among rural areas can be a big task** |

**Q.3 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.**

**Feasibility Study**

Before starting any project it is very important to understand certain aspects of the project in order to carry out. It is important to see the viability and profitability of the project can deliver or not. There are various factors which can affect the project in one way or another, some important factors in terms of the technology part in terms of JAVA which are important for the consideration of the project.

**Hardware Technology**

1. **Web Servers**: Need servers capabilities to host the Java application
2. **Data-base**: Availabity of data base server is crucial to hold the backend data , some of the popular databases are SQL, NOSQL which can be used to the project requirments.
3. **Application servers:** It would be required to handle traffic and support the JAVA application

**Network Support**

1. **Network security** : Security should be functional all the time as dealing with the customer data and payment through the application
2. **Connectivity:** It is important to have high speed connectivity to support the load during high traffic of customers.

**Software Technology**

**Development Tools**

1. **Java Development Environment**: It is important to make sure that the team has the required Java Development Kit, and Java libraries for building the online agricultural store.
2. **Version Control**: Tools like **Git** (with repositories on **GitHub**) for source code management, collaboration, and version control.

**Database Software**

1. **Relational Databases**: Consider MySQL or PostgreSQL for structured data storage (e.g., product inventory, user data, data related to customers).
2. **NoSQL Databases**: If the project can have large dataset or unstructured data than tools like MongoDB or Cassandra might be used in these scenerios.

**Testing Applications**

1. **Quality Assurance Team**: In order to build a defect free application, we need to have quality assurance team which can monitor the progress of the project on each phase.
2. **Quality Control Team**: As after the development of product it is important to test the program whether it is functioning properly or not. Test like System testing and UAT need to be performed by quality assurance team.

**Web Development Framework**

1. **Spring Framework**: Since the project would be based on Java language, using SpringBoot for building APIs for server-side rendering of the web pages will be crucial.
2. **Front end user interface:** The project would need HTML or Javascript to develop the user interfaces.

**Trained Resources**

1. **Java Developers**: In order to carry out the project on the JAVA application it is important to make sure that people who are part of the project like Ms. Juhi is Senior Java Developer, Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo are trained enough to finish the project within the stipulated time.
2. **Project Management**: Project Manager ( Mr Vandanam ) in the project needs to coordinate with different teams in order to trace the development of project on regular basis and ensure the timly delivery of the project.
3. **Testing Team**: Mr. Jason and Ms. Alekya need to have the knowledge and experience of test automation and manual testing. They are responsible for initiating the testing on the application which would be developed by developers and making sure that no bugs or defect exist in the new application.
4. **Database and Network admin team**: Primarily responsibility of the network admin would be to take care of the installation and configuration of hardware like servers, their expertise must also be required upgrade, maintain the existing system. The database admin would be required in database design, optimization, and maintenance, especially since large datasets related to the agricultural store’s inventory and transactions need to be handled securely.

**Budget**

Budget is crucial factor in deciding to carry forward the project as all the dependencies would be mainly related to cost. The cost which are vital in a project are discussed below.

1. Software cost: In order to carry out the project some new software or libraries would be required hence it is important to consider the cost of that.
2. Cloud Hosting: If the cloud hosting is done than it is important to ensure that resources are scalable and secure
3. Domain Cost: A secure domain would be required for the website.
4. Content delivery network: If the store requires fast global access hence it would need the services of CDN.
5. Manpower cost: The amount of people who would be involved would add up to the budget of the cost in form of salaries.
6. Training cost: On launching new platform it is important to train people so that effective and smooth flow of operations remains.
7. Miscellaneous cost: These would be additional budget would be required during project when an unexpected circumstances arises, like resignation of an employee which may lead up to hiring process which was not planned during the project intiation.

**Time Frame:**

The time frame would be decided after the proper understanding of the requirements and breakdown of the total time which would be required for each phase has been elaborated below.

1. **Project planning & Requirement gathering**: It will cover the prospect of understanding the project scope and doing several analysis like enterprise analysis , feasibility analysis before the intiation of the project. The second part would be covered by gathering of requiremnts from various stakeholders through elicitation techniques and after completing the gathering of requirments the final task would be to document them. ( **14 weeks**)
2. **Design** : After going through the documentation of the requirement the system architect would do high level design in order to make a clear visbility of the requirement for the developers. (**14 weeks)**
3. **Development**: In this phase the developers would have to do coding for the various requirement according to the priorties. (**22 weeks).**
4. **Testing**: After the successful completion of the of the programs it would go through a testing phase in order to check the viability of the code in real situations and after the proper testing it would be move forward for the deployment phase.( **14 weeks)**
5. **Deployment phase**: In this phase the product or the application is introduced in the live environment where the stakeholders like farmers or manufacturers can use in the real time and use the functionalities of the application (8 weeks)

**Q.4 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**

To prepare a **Gap Analysis** for **Mr. Karthik** to present to **Mr. Henry**, we need to compare the present state (AS IN) of the current business model and compare with the future state ( TO BE ) in order to determine the major gaps and changes that are required in order to process the current operation. Let us look at the major things which would get affected in this.

**1. Business Model**

**AS-IS (Existing Process):**

* **Tradational stores:** As currently the mode of selling the agricultural product is limited only through shops which are located in the city and there is no other alternative if these shops are not opened or not having the products which farmers needs to purchase.
* **Online Presence:** The presence on the online platform for these shops are limited or do not exist because of which the products cannot be displayed to wider audience.
* **Manual Operations**:Functioning of most of operations like inventory management, payment transactions, manpower management, supply is done manually which increases the chances of error.
* **Lack of Data Utilization**: Existing operations might not fully leverage customer data, trends, and analytics to drive decisions, leaving opportunities for improvement in forecasting, sales strategy, and customer engagement

.

**TO-BE (Future Process):**

* **Online store:** Unlike the traditional stores these would be available on each devices like phone laptop , tablet which would make easier for the buyer and seller to purchase and sell their product with minimal work.
* **Digitalization:** Unlike the previous stage where there was not enough presence on the digital platforms it would covered that and make products available and advertise through all these chanles which would make people more aware about the products and help them in better management of the same.
* **Automated Operations**: Since all the operational work would be automated which would increase the efficiency and reduce the chances of error.
* **Data-Driven Decisions**: The new system will provide insights into **sales trends**, **customer preferences**, and **market demands**, helping to better forecast inventory needs and improve business strategies.
* **Notification**: IN the new setup the customer can get the notification about the availability of the products through email or chat applications which would make them schedule the purchase accordingly.

**2. User Experience (AS-IS vs. TO-BE)**

**AS-IS (Existing Process):**

* **Customer Interaction**: In this approach customer interaction is only possible by visiting the store and hence dependency on it would be more which can affect the quality of product and the prize.
* **Manual purchase**: Customers would be entirely dependent on the physical store for purchase of the product, if any product is not available in the market than it can take time to arrange for the same or if the shops are closed during any scenario hence customer would not have option to buy anyting.
* **Limited Product description:** As in the current state the buyer has very less knowledge about the product and the prize range cannot be discovered as there would be very slight varience in the market.

**TO-BE (Future Process):**

* **Better customer engagement**: As the presence would be on every digital platform hence it would make easier for the customer to go through products in detail and compare it with the wide variety of the products and can reach out anytime with the help of the customer care .
* **Real time updates:** Customer does not have to visit stores in order to purchase the product as it can be possible to order from anywhere through the application or website and can also purchase it at lower prize without any fuss, in terms of keeping track of the delivery of the products which is possible in this scenario through real time updates.
* **Detailed Product Information**: Comprehensive **product descriptions**, **pricing**, and **customer reviews** will be available to enhance the customer's purchasing decisions.

**3. Scalability (AS-IS vs. TO-BE)**

**AS-IS (Existing Process):**

* **Scalability Issue** : The existing business model which is designed on the physical model hence it would be really difficult in order to scale up the product or grow the infrastructure outside their catchment area due to outdated methods and less capital.
* **Regional limitations**: The store presence would be limited to specific regions hence in order to provide distribution or to reach out to wider audience would be very difficult and hence limitations in expanding the business out of the region.

**TO-BE (Future Process):**

* **Highly Scalable**: The online platform would be designed to make the project highly scalable and it would be easy to expand the infrastructure as the presence of the online portal would be at every household which can easily increase the market base and the ease of buying product would ensure smooth transition from the physical store to online stores
* **Global Reach**: The online store will have the potential for **global reach**, enabling the company to sell agricultural products beyond the local area, expanding to national or international markets without significant physical infrastructure i

**4. Risk and Security (AS-IS vs. TO-BE)**

**AS-IS (Existing Process):**

* **Limited Security Measures**: The existing process may rely on outdated or inadequate security practices for handling customer data and financial transactions and hence any breach in this can disrupt the entire supply chain.
* **Manual Risk Management**: Risk identification and mitigation may not be integrated into the current workflow, leaving the company vulnerable to security breaches, data loss, or fraud.

**TO-BE (Future Process):**

* **Strong Security Infrastructure**: The online store will implement **SSL encryption**, **two-factor authentication**, and **regular security audits** to protect customer data and ensure secure transactions.
* **Automated Risk Management**: The new system will include automated security measures and regular monitoring to identify and mitigate risks early, ensuring that customer data and financial transactions are safe.

**List down different risk factors that may be involved (BA Risks And process/Project Risks)**

While developing the online agricultural store for purchasing of agricultural products by the farmers there can be wide variety of risk which are involved with BA and Project which can hamper the development and fullfillment of the needs which are required to be met by the project. Some potential risks which can occur have been discussed below.

**Business Analysis Risks**

* 1. **Improper gathering of Information**: If during the elicitation techniques if the requirments are not properly gathered or there is slight difference in requirement with the original than it can cause major setback for the projects. As the features which would have been required by the company might not aligned with the features which are developed by the team. It is very important to validate the requirement before going for the final design of the project.
  2. **Incorrect Use cases**: If the use cases which are mentioned in the BRD are not properly prepared than it might lead to development of an application by the developers which does not align with the actual application which again can cause a setback in the project.
  3. **Stakeholder conflicts**: Sometimes due to difference of opinion of the stakeholders can cause ambiguity in the project which might lead to improper or incomplete set of requirments which are hard to build by the developers or can take more time in finishing the project.
  4. **Change requests**: Sometimes due to multiple change request it is difficult for a BA to make a proper documentation of the requirements which again can cause delay in the project.
  5. **Compliance related issues**: If the government or company guidelines are not properly documented than it can lead to the creation of something which does not fit into the current rules and regulations of the company which can hamper the entire project.
  6. **Managing Stakeholders schedule**: It might be a challenge for the BA to gather various stakeholders in a project together at the same time as they might be different time zones which can make life difficult to place meeting with them.

**Project Risks**

1. **Scope Creep**: This situation generally arises in the project when there is continuous change in the requirements of the project which can derail the project beyond expected timelines. In an order to meet the new requirement the focus might shift from the existing requirements and can lead to lower quality of the products.
2. **Delay in Development**: Delay in development of the application due to technical challenges or lack of trained resources can cause a major setback in the project which can stretch the deadline of the project .
3. **Budget Overrun**: If the costing of the project is not properly planned and cost of the project funded is less than the actual requirement than it might cause financial strain. The overall budget needs to be planned properly considering all the aspects of the project from buying software to maintenance of the same needs to be analyzed properly before giving the final costing.
4. **Improper testing**: After the development phase if the applicated does not go through proper testing than it might cause bugs or technical glitches in the application which could hamper the usage of the application while using it live.
5. **Logistic issue**: Since the application is majorly focusing on covering the market of the rural areas hence it would be a challenge for the company to provide supplies in the remote areas due to poor infrastructure and connectivity.
6. **Marketing challenges**: In order for the project to be successful it is important that the application can reach out to wider audience as in this case farmers needs to use them, it is challenge for the companies to make sure that the technology is used by the farmers as they would be hesitant to use the same at first.
7. **Cybersecurity and Data privacy issue**: Since the company would be storing the data of the customers hence it is important to carefully manage the data of the customers and protect them from external threats like cyber attacks or hacks in the system. Hence security measures needs to be implemented by the company.
8. **Regulatory issues**: It is important that the project is aligned with the regulatory guidelines of the company as well as within the country.

**Q.6 Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencer**

The RACI matrix is a project management tool that is used to define the roles and responsibilities of people in a project. Since there are many stakeholders in a project so to make things easier for people who are involved with the project can go through this matrix.It helps in assigning the ownership in a project. It is majorly classified into 4 categories in which a person can be involved in a project, there are mentioned below.

|  |
| --- |
| 1. R = Responsible: Person who does the work to complete the task. (Developers, testers, BA) |
| 2. A = Accountable : Person who is ultimately answerable for the task or decision. (Project Manager) |
| 3. C = Consulted : People who provide input based on expertise. (SME, Employees, Customers) |
| 4. I = Informed : People who need to be kept updated about progress. (Business Owner) |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Task | HENRY | PANDU | DOOKU | KARTHIK | VANDANAM | JUHI | DEV TEAM | MIKE | JOHN | JASON & ALEKYA | PETER KEVIN BEN | BA  AMIT |
| Defining Project Vision | A | C | C | I | C | I | I | I | I | I | C | R |
| Budget Approval | I | A | I | I | R | I | I | I | I | I | I | I |
| Resource Allocation | I | C | A | R | C | I | I | I | I | I | I | I |
| Requirement Gathering | C | C | C | I | A | I | I | I | I | I | I | R |
| Design & Architecture | I | I | C | I | A | R | R | I | I | I | C | C |
| Application Development | I | I | C | I | A | R | R | I | I | I | I | I |
| Database & Network Management | I | I | C | I | A | I | I | R | R | I | I | I |
| Quality Assurance & Testing | I | I | C | I | A | C | C | C | C | R | I | I |
| Deployment | I | I | C | A | R | R | R | R | R | R | I | I |

**Q.7 Help Mr Karthik to prepare a business case document**

|  |  |
| --- | --- |
| **Project** | **Online Agriculture Product Store** |
| **Budget** | **2 Cr** |
| **Timeline** | **18 Months** |
| **Project Team** | **APT IT SOLUTIONS team with developers, network and database admins, QA testers, and project** **managers**. |
| **Date** | **10-04-2025** |

**1.Summary**

The online agriculture product store project aims to develop a web and mobile application that will enable farmers in remote areas to easily purchase fertilizers, seeds, and pesticides directly from manufacturers. The objective of the project is to provide a platform from which farmers can easily buy quality products without much dependency from the local stores.

This platform will provide farmers to order agricultural product from anywhere without being physically being there, allowing them to browse products, place orders, and have the items delivered to their farms, regardless of their geographical location. The application will also provide farmers to raise their feedback regarding the products which would give manufacturer to modify the products according to the demand of the customers.

**2. Background and Business Problem**

Farmers in remote areas face many difficulties in getting important agricultural products such as fertilizers, seeds, and pesticides. Since the entire dependency is to buy products is from the local markets only which makes the seller to monopolized the prices as well as the quality of product is not certain to be good. If the product in nearby stores are not available than farmer becomes helpless as they don’t have other options to buy products.

Through conversation with Mr. Henry’s childhood friends—Peter, Kevin, and Ben- it became clear that there was need for a change as this has been prolonged for sometime and the farmers are not able to make any profit from farming because of the lack of quality products and entire dependency on local market is making them

By addressing this problem, the project aims to:

* Improve farmers' access to quality agricultural products.
* Ensure timely deliveries to remote areas.
* Help farmers optimize their crop yields, leading to better income.
* Support local economies and promote sustainable farming practices.
* Farmer’s feedback would be taken into account
* Reduce the physical dependency from the local market.
* Manufacturers can have new market to sell their product.

**3. Project Objectives**

The primary objectives of the Online Agriculture Product Store are:

* **To create a user-friendly platform** (both web and mobile) where farmers can search, view, and order agricultural products.
* **To facilitate direct interaction** between manufacturers (fertilizer, seed, and pesticide companies) and farmers.
* **To integrate a payment and logistics system** for seamless order processing, payment collection, and delivery management.
* **To reduce dependency** on local markets for the purchase of products.
* **To ensure scalability** for future expansion to additional products, regions, or features (e.g., agricultural advisory, crop management tools).
* **To provide after-sales support** (e.g., product returns, issue resolution).
* **To provide quality products** so that the farmers can grow crops in large quantity
* **Scientific approach** would be shared to farmers in order to grow crops according to the soil and climatic conditions

**4. Scope of the Project**

**In-Scope**:

* Development of a web and mobile application.
* User interface and experience (UI/UX) design focused on simplicity and ease of use.
* demo videos to guide farmers about the application
* Integration of product catalogs from manufacturers (fertilizers, seeds, pesticides).
* Secure payment gateway integration (supporting multiple payment methods).
* Delivery system integration for remote area shipping.
* Admin panel for inventory management, order tracking, and user management.
* User registration, product search, order placement, and tracking features.
* Customer service support would be provided for feedbacks and complaints.

**Out-of-Scope**:

* Any form of in-person training for farmers (though a help section and video tutorials may be included).
* Support for non-agricultural products.
* International shipping or products not relevant to the target region.
* Soil testing in remote areas through the application
* Customization of products as per the requirements.
* Farmers can sell the agricultural products through the online application

**5. Stakeholders**

Key stakeholders involved in the project include:

* **Mr. Henry** – Visionary and main business sponser.
* **Mr. Pandu** – Financial Head (Budget approvals and financial oversight).
* **Mr. Dooku** – Project Coordinator (Overall coordination and execution).
* **Mr. Karthik** – Delivery Head (Project management and successful delivery).
* **Mr. Vandanam** – Project Manager (Day-to-day management of the project).
* **APT IT SOLUTIONS team** – Development, network, and database management teams, as well as testing and quality assurance teams.
* **Farmers** – End-users who will benefit from the platform.
* **Manufacturers (Fertilizers, Seeds, Pesticides Companies)** – Suppliers of agricultural products.
* **Government/Regulatory Bodies** – Responsible for agricultural regulations, product certification, and compliance.

**6. Benefits of the Project**

The project offers several business benefits, including:

**For Farmers:**

* **Improved access to agricultural products**: Farmers in remote areas will have easier access to essential fertilizers, seeds, and pesticides.
* **Time and cost savings**: Farmers can avoid travel to distant markets and purchase products at competitive prices.
* **Better crop yields**: With timely access to the right agricultural products, farmers can improve their crop quality and quantity.
* **Scientific approach**: Farmers can apply scientific techniques in order to improve the yielding.

**For Manufacturers:**

* **Direct connection with customers**: Manufacturers can reach more customers directly without relying on third-party distributors.
* **Expanded market reach**: The platform opens new markets in remote areas.
* **Data-driven insights**: Manufacturers will receive valuable data on customer preferences, product trends, and sales volumes.

**For the Business (SOONY ):**

* **Revenue Generation**: The platform will act as an intermediary, generating revenue through commissions on each transaction.
* **Scalability**: The project can be expanded with new product categories or additional geographical regions.
* **Brand Value**: Establishing the company as a socially responsible business that contributes to the development of farming communities.

**7. Risk Assessment**

Risk management is very important before initiating any project. It can be broadly classified into external and organizational risk which can impact any project.

1. **Technological Risks**:
   * Integration issues with third-party payment systems or product catalogs.
   * Security vulnerabilities related to user data and payment transactions.
2. **Logistical Risks**:
   * Delivery challenges due to infrastructure limitations in remote areas.
   * Product stock-outs or supply chain disruptions.
3. **Market Risks**:
   * Farmers' reluctance to use digital platforms due to technological illiteracy.
   * Competition from other platforms or local suppliers.
4. **Regulatory Risks**:
   * Compliance issues related to the sale and delivery of agricultural products (e.g., pesticides, fertilizers).
   * Government regulations and certifications for agricultural products.
   * Change in the norms of the business
5. **Operational Risks:**
   * Not proper infrastructure in order to carry out day to day activities hence it is important that planning of the same is done in prior.
   * Manpower availability should be there in order to carry out the process.
6. **Financial Risks:**
   * The project budget estimation is not prepared well because of which the it is running out of the budget.

**Risk Mitigation**:

In order for the success of the project it is very important that the risk is mitigated at the intial stage of the project so that it does impact the project on later stages. Some of the points which is important in order to mitigate the risks.

* Conduct thorough testing and quality assurance.
* Develop partnerships with local logistics providers to improve delivery networks.
* Implement user education programs through the app and help sections.
* Stay updated on local and national agricultural regulations.
* Proper estimation of resources and time in order to complete the project within stipulated time.
* Maintain risk register so that you can track the effect of various risks If it arises in the project.

**8. Financial Plan**

The **project budget** has been set at **2 Crores INR**. The breakdown of the budget is as follows:

* **Development Costs**: 1.2 Crores INR (including salaries of developers, testers, and project managers).
* **Infrastructure Costs**: 50 Lakhs INR (including network setup, server costs, database management).
* **Marketing and Outreach**: 30 Lakhs INR (for promotions, farmer education, and community engagement).
* **Miscellaneous**: 20 Lakhs INR (for unforeseen expenses, regulatory fees, etc.).

**9. Timeline**

The project will be completed within **12 months** with the following key milestones:

* **Month 1-3**: Requirements gathering and technical planning.
* **Month 4**-6: Design of the UI interface as per the requirements and create a design document
* **Month 7-10**: Development of core features (product catalog, user registration, order system).
* **Month 11-12**: Integration of payment gateway, logistics, and inventory management.
* **Month 13-15**: Testing and QA, bug fixing, and user feedback integration.
* **Month 16-17**: Deployment, marketing, and post-launch support.

**Approval:**

* **Mr. Henry**: [Signature]
* **Mr. Pandu**: [Signature]

**Q.8 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**

The **Software Development Life Cycle (SDLC)** is the process of planning, creating, testing, and deploying software applications. It involves the process of creating a software from start to end. Generally, a SDLC consists of seven steps- Project initiation, requirement gathering, design, development, testing , deployment and maintenance

In SDLC there are several techniques which can be used to build a software and depending on the type of project and requirement we choose the most suited technique for the project. The implementation of the techniques varies according to the complexity and demand of the project.

Let’s discuss all the four methodologies in brief.

**1. Sequential Methodology (Waterfall Model)**

**Overview:** The Sequential or Waterfall methodology is a traditional approach to software development. In this model, each phase is developed one after another and the documentation of requirements are prepared in detail. In this change request is not possible after the design phase has started as you cannot go back to previous stage in this process. It is suitable for projects in which requirements are given more importance and there is clear understanding of the requirement amongst the stakeholders. It is one of the traditional methods which was applied during earlier times when the focus was more on the scope rather than the time and budget.

**Key Phases:**

* **Project Initiation**: In this phase a project scope is discussed and feasibility of the project is checked. After processing these steps PM creates a project charter which gives detail about the project time and budget.
* **Requirement Analysis**: All the requirements are gathered upfront from the client or end users. Various elicitation techniques are applied in order to gather requirements.This phases focuses on documenting all the requirements related to the business.
* **System Design**: After the documentation is completed the next step is moved to system architect which design the basic interface of the software. This phase involves creating technical specifications and deciding on the tools, platforms, and overall system structure.
* **Implementation (Coding)**: In this steps developers (Front end and back end ) starts to write code in order to achieve the required functionalities and non-functionalities of the software.
* **Testing**: After coding is complete, the software is tested for any bugs or errors.
* **Deployment**: Once the software is tested, it is deployed to the production environment.
* **Maintenance**: After deployment, the software enters the maintenance phase, where it is updated and modified for any future issues.

**Advantages:**

* Clear structure and stages.
* Requirements are documented in detail.
* Easy to manage due to its linear approach.
* Each phase is well-defined, making it easier for new teams to understand the project.
* Role of individual is well specified

**Disadvantages:**

* Inflexible to changes once development has started.
* Testing is done late in the process, which may lead to more time-consuming fixes.
* Not ideal for projects where requirements are expected to change frequently.
* If requirements are not gathered as per the business needs hence it can change the scope of the project entirely.

**Best Use Cases:**

* Projects with well-defined, fixed requirements.
* Large-scale projects where the scope is clear and unlikely to change.

**2. Iterative Methodology**

**Overview:** The **Iterative** methodology is an approach where the software is developed in small and iterative cycles. Each iteration is designed in a such way that it covers some requirements. It is designed for the projects in which there is an urgency of getting requirements and upgrades needs to be provided step by step. In this the requirments are completed step wise which makes easier for the client to use the application on early basis.

**Steps of Iterative**

* **Requirement Planning**: A high-level requirement gathering to get a general understanding of the project.
* **Design and Development**: A subset of features is designed and developed in each iteration.
* **Testing**: The developed features are tested at the end of each iteration.
* **Evaluation**: After each iteration, the stakeholders review the product and provide feedback.
* **Next Iteration**: Based on feedback, the next set of features is developed and the cycle repeats.

**Advantages:**

* Flexibility to make changes and improvements in subsequent iterations.
* Priority of requirements makes it easier for the client to use the functionalities from early stage.
* Early and frequent feedback from users and stakeholders.
* Risk of failure is reduced because the product is tested at the end of each iteration.

**Disadvantages:**

* Can lead to scope creep due to the flexibility in adding features after each iteration.
* Requires continuous stakeholder involvement and feedback.
* May take longer than expected as the product is built incrementally.
* Changes can delay the actual time of the project

**Best Use Cases:**

* Projects where requirements are expected to evolve or are unclear initially.
* Projects with uncertain timelines or when continuous feedback is needed.

**3. Evolutionary Methodology**

**Overview:** The **Evolutionary** methodology focuses on building a product incrementally, where the software evolves over time. This approach is ideal for projects where requirements are continuously refined through user interaction and feedback. It focuses on creating a basic application with few functionalities and later on updating other features with time .

**Key Phases:**

* **Initial Development**: A basic version of the product is created with core functionalities, focusing on the most important features.
* **User Feedback**: The initial product is released to users, and feedback is gathered.
* **Iterative Refinement**: The software evolves based on user feedback, adding new features or improving existing ones in each new version.
* **Release and Maintenance**: Over time, as the software matures, it is continuously enhanced and maintained.

**Advantages:**

* The software is built progressively, meaning it can be adapted and modified as more feedback is gathered.
* Users can start using the product early, which helps clarify requirements and expectations.
* Better suited for projects where customer needs evolve frequently.
* Customer reviews can help create more customer centric product

**Disadvantages:**

* Can be challenging to manage, as the scope and features are continuously changing.
* Risk of not meeting initial expectations if feedback is not managed properly.
* Can lead to an unclear final product if the scope is too fluid.

**Best Use Cases:**

* Projects where the scope is unclear, or requirements change over time.
* Software that needs to quickly adapt to changing market or user needs.

**4. Agile Methodology**

**Overview:** **Agile** is a modern and flexible approach to software development that focuses on collaboration, flexibility, and customer feedback. Agile development divides the project into small, manageable units called sprints that are typically 1-4 weeks long depending upon the user stories that are in a particular sprint. At the end of each sprint, the product is reviewed and updated based on stakeholder feedback.

**Key Phases:**

* **Planning**: High-level requirements are created in the form of user stories and are stored in the product backlog. These user stories are than prioritized and are than moved to the sprint.
* **Design & Development**: Features are developed and designed in small sprints, typically lasting 1-4 weeks.
* **Testing**: At the end of each sprint, the developed features are tested.
* **Review & Feedback**: Stakeholders review the product and provide feedback after each sprint.
* **Release**: The product is released after each sprint if ready, or it can continue to evolve through subsequent sprints.

**Advantages:**

* Highly flexible and adaptive to changes.
* Continuous feedback ensures the product is aligned with customer needs.
* Rapid delivery of working software after each sprint.
* Fosters collaboration among teams and stakeholders.

**Disadvantages:**

* Can be difficult to scale in larger projects if not managed properly.
* Requires frequent stakeholder involvement.
* Risk of scope creep if changes are not properly managed.
* Change request in large numbers are difficult to manage

**Best Use Cases:**

* Projects where customer requirements are expected to change frequently.
* Projects requiring quick iterations and rapid delivery.
* When the product is complex and needs to evolve based on continuous user feedback.

**Comparison of the Methodologies:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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**Recommendation for Mr. Henry’s Project:**

For the **Online Agriculture Product Store**, **Agile** would likely be the most suitable methodology. The reason is that this project involves continuous interaction with end users (farmers) and needs to be adaptable to user feedback. Agile’s iterative nature allows the project to evolve as more features are developed, and allows quick adjustments based on real-world use cases and market changes.

**Q.9 They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your understanding on these models**

**1. Waterfall Model**

The **Waterfall** model is one of the earliest SDLC methodologies and follows a linear and sequential approach. In this each phase is completed at one at a time , without completing one phase we cannot jump into the other phase. In this documentation is given a lot of priority as it contains detail report of the requirements that are needed to be met. Change request is not possible in this system due to the rigid structure of the method. Let us look at the various steps which are

**Phases:**

1. **Requirement Analysis**: Gather and document all the requirements for the system.
2. **System Design**: Create system architecture and design based on the requirements.
3. **Implementation (Coding)**: Developers write the code according to the design.
4. **Testing**: QA team conduct thorough testing to identify defects and bugs.
5. **Deployment**: Deploy the software into the production environment.
6. **Maintenance**: Handle post-release updates and bug fixes.

**Advantages:**

* Simple to understand and use.
* Well-defined stages with clear deliverables at each phase.
* Easier to manage due to its structured nature.

**Disadvantages:**

* Inflexible to changes once development has started.
* Late testing can make it expensive and time-consuming to fix bugs.
* Not ideal for projects with unclear or evolving requirements.

**Best Use Cases:**

* Projects with well-defined, unchanging requirements.
* Smaller, less complex projects.
* Projects with clear goals and stable environments.

**2. RUP (Rational Unified Process)**

**Overview:** **RUP** is an iterative and incremental SDLC model created by **Rational Software**. It is more flexible than the Waterfall model and focuses on iterative development and continuous feedback. RUP is based on a set of building blocks or content elements describing what is to be produced the necessary skills required and step by step explanation describing how specific development goals are to be achieved.

**Phases:**

1. **Inception**: Define the project's scope, business case, and risks. Create a high-level overview.
2. **Elaboration**: Detailed analysis and design phase where core architecture is defined.
3. **Construction**: Actual coding and development of the product.
4. **Transition**: Finalizing the product and deploying it into the user environment.

**Advantages:**

* Flexibility through iterative development.
* Emphasis on defining architecture early to reduce risks.
* Clear focus on continuous improvement, quality assurance, and risk management.
* Clear understanding of requirements.

**Disadvantages:**

* Can be complex and heavy to manage.
* Requires skilled project managers and developers.
* May become time-consuming and costly for smaller projects.

**Best Use Cases:**

* Large-scale, complex projects.
* Projects that need both flexibility and strict adherence to quality standards.
* Projects requiring heavy user involvement and continuous feedback.

**3. Spiral Model**

The **Spiral Model** combines elements of both iterative development and the Waterfall model. It is a risk-driven approach that emphasizes continuous refinement of the project based on frequent risk assessments and customer feedback. The development process is carried out in repetitive cycles that involve planning, risk analysis, engineering, testing, and evaluation.

**Phases (in each Spiral Cycle):**

1. **Planning**: Identify objectives, constraints, and alternatives.
2. **Risk Analysis**: Analyze potential risks, assess their impact, and plan risk mitigation strategies.
3. **Engineering**: Develop the product in iterations.
4. **Testing**: Test the product after each iteration.
5. **Evaluation**: Evaluate progress with stakeholders and decide on the next steps.

**Advantages:**

* Focuses on risk management, making it suitable for large and complex projects.
* Allows for constant refinement and feedback throughout the development.
* Good for projects with unclear or evolving requirements.

**Disadvantages:**

* Can be expensive and time-consuming due to continuous iterations and risk analysis.
* Needs skilled risk managers to assess and mitigate potential risks.
* Difficult to manage if the project scope is unclear.

**Best Use Cases:**

* Large, complex, high-risk projects.
* Projects that need constant changes or require continuous stakeholder involvement.
* Projects where the final product is uncertain or evolving.

**4. Scrum Model**

**Overview:** **Scrum** is an agile framework designed for managing and completing complex software projects. Unlike the Waterfall or Spiral models, Scrum is highly flexible and encourages collaboration among all team members. In this more focus is given on the time and budget which mostly remains fixed and scope is variable. It focuses on delivering the product in small, incremental releases, known as **Sprints** (typically 1-4 weeks), which results in a working product at the end of each Sprint.

**Key Concepts:**

1. **Sprints**: Fixed-length iterations (1-4 weeks) depending on the amount of user stories that have been kept in it.
2. **Product Backlog**: It contains list of all the user stories (requirements) that are needed to be completed in order to complete the project
3. **Sprint Backlog**: The specific tasks selected from the Product Backlog to complete during the current Sprint.
4. **Scrum Team**: A cross-functional team that works together during the Sprints. It consists of Product owner, Scrum Master, Developers and Testers.
5. **Daily Scrum (Standups)**: Short daily meetings where the team discusses progress and issues.
6. **Sprint Review:** In this the client is shown the final outcome that have been achieved by the scrum team in the sprint.
7. **Retrospective**: At the end of each Sprint, the team reviews the work and gathers feedback to improve the next Sprint.
8. **Burndown Chart**: It’s a visual representation of the amount of work that is remaining with respect to time. It helps teams understand how quickly they are completing task and whether they are on track to meet their sprint goals.
9. **Burn-up:** It’s a visual representation of a project’s progress. showcasing the cumulative work that has been done throughout the project over the time.
10. **Velocity Chart:** It is visual representation of the amount of work a team completes within a specific time frame, typically a sprint. It helps understand the teams performance track progress and forecast future sprints.

**Roles:**

* **Product Owner**: Responsible for the product backlog and ensuring the team is working on the highest priority tasks.
* **Scrum Master**: Facilitates Scrum processes, ensures the team follows the Scrum practices, and removes obstacles.
* **Development Team**: Cross-functional team members who do the work of delivering the product increment. It mainly consists of the developers, testers, database admin.

**Advantages:**

* High flexibility and adaptability to changes in requirements.
* Regular feedback and early delivery of a working product.
* Strong collaboration among team members and stakeholders.
* Faster time-to-market due to shorter development cycles.

**Disadvantages:**

* Requires strong team collaboration and discipline.
* Less suitable for large, complex teams where there is difficulty in collaborating with everyone.
* Can suffer from scope creep without careful management of the product backlog.
* Changes can vary over time which can cause delay in the project.

**Best Use Cases:**

* Projects with rapidly changing or unclear requirements.
* Projects that need frequent releases and fast feedback from customers.
* Complex software projects requiring a high degree of collaboration and continuous improvement.

For **Mr. Henry’s Online Agriculture Product Store**, if the project requires frequent updates and adaptations based on user feedback (like farmers interacting with the platform), **Scrum** would likely be the most suitable model. However, if the scope of the project is well-defined and there’s minimal need for change, a **Waterfall** or **RUP** approach may also be considered.

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

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| |  |  |  | | --- | --- | --- | | **Criteria** | **Waterfall Model** | **V-Model (Verification and Validation)** | | **Definition** | A linear and sequential development model. | An extension of the Waterfall model that emphasizes validation and verification. | | **Process Flow** | Progresses downwards like a waterfall, step-by-step. | Progresses in a V-shape, with development and testing activities mapped side-by-side. | | **Testing Phase** | Occurs after the development phase is complete. | Each phase has its own separate test phase which validates the phase. | | **Emphasis** | Focuses mainly on documentation and development | Focuses equally on development and testing. | | **Requirement Changes** | Difficult to handle once development starts. | Also difficult to accommodate changes after the requirement phase. | | **Error Detection** | Errors are detected late during testing. | Errors can be detected early in the corresponding verification phase. | | **Flexibility** | Less flexible and adaptive to change. | Also rigid but offers early testing benefits. | | **Project Size Suitability** | Suitable for small to medium-sized projects with clear requirements. | Suitable for medium to large projects with well-defined requirements. | | **Documentation** | Heavy emphasis on documentation before coding begins. | Also requires detailed documentation, especially for test planning. | | **Time and Cost Efficiency** | Can be costly if issues are found late in the process. | More efficient in the long run due to early testing phases. | | **Examples** | Used in construction, manufacturing, or traditional software. | Used in embedded systems, medical software, or aerospace projects. | |

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

As a BA we would recommend the Agile Scrum model as it would be easier to implement the changes whenever required during the project. Since it would be the first kind of project which would be there in the market hence it is important that the functionalities are introduced in step wise manner, so that after getting the market response from the customers the other requirements can be added in the next phase of the project. As due to the uncertainty of the market if we implement other models hence it would be difficult to manage the changes which would impact the project negatively. Farmers would be using the digital platform for ordering the agricultural products for the first time hence it is important that the features are developed step wise as there would be various difficulties that can come while implementing digital platform in rural areas hence the Agile Scrum methodology would best in the current scenario and the risk would also be minimized if it gets initiated by this method.

**Q.12 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.**

The **V-Model** (**Verification and Validation**) typically follows the structure where each phase of the development corresponds to a testing phase, and the process proceeds in a V shape. As each phase is tested at the same time of completion hence there is less chances of error in making the final project is very less. The various steps that will be implemented in the stage has been discussed below.

**V-Model Phases:**

1. **RG (Requirement Gathering)**:

* **Purpose**: Collect all the requirements and understand the objective of the project.
* **Resources**:
  + - **BA** (Business Analyst) - Responsible for gathering and documenting requirements.
    - **PM** (Project Manager) - Oversees the process and ensures alignment with project objectives.

1. **RA (Requirement Analysis)**:

* **Purpose**: Analyze and validate the requirement which
* **Resources**:
  + - **BA** (Business Analyst) - Analyzes and documents the detailed requirements.
    - **PM** (Project Manager) - Coordinates with stakeholders and manages timelines.

1. **Design**:

* **Purpose**: Create the architecture and design of the system.
* **Resources**:
  + - **Java Developers** - Work on system design and coding structure.
    - **DB Admin** - Designs the database structure and data flow.
    - **NW Admin** - Designs the network architecture and security.

1. **D1 (Module Design)**:

* **Purpose**: Design the individual modules based on the system architecture.
* **Resources**:
  + - **Java Developers** - Work on specific module designs and start the implementation plan.
    - **PM** - Oversees the progress of design and provides guidance.

1. **T1 (Unit Testing)**:

* **Purpose**: Test individual modules after design and development.
* **Resources**:
  + - **Testers** - Perform unit testing of the individual modules designed.
    - **Java Developers** - Fix defects identified during testing.

1. **D2 (Integration Design)**:

* **Purpose**: Design how modules will interact and communicate with each other.
* **Resources**:
  + - **Java Developers** - Design the integration of various modules.
    - **DB Admin** - Integrate database components into the system.

1. **T2 (Integration Testing)**:

* **Purpose**: Test the integration of modules to ensure they work together as expected.
* **Resources**:
  + - **Testers** - Perform integration testing.
    - **Java Developers** - Address issues and bugs found during integration testing.

1. **D3 (System Design)**:

* **Purpose**: Design the complete system based on integration testing feedback and overall system requirements.
* **Resources**:
  + - **Java Developers** - Finalize system components and interactions.
    - **PM** - Ensure all designs align with the project’s goals and standards.

1. **T3 (System Testing)**:

* **Purpose**: Test the complete system for functionality, performance, and security.
* **Resources**:
  + - **Testers** - Conduct thorough system testing.
    - **Java Developers** - Resolve any identified defects.

1. **D4 (User Acceptance Design)**:

* **Purpose**: Prepare the system for user acceptance testing by finalizing all aspects of the design.
* **Resources**:
  + **Java Developers** - Prepare the system for final testing by making necessary tweaks and updates.
  + **DB Admin** - Ensure that the database is ready for deployment.
  + **NW Admin** - Ensure network components are properly set up for the user acceptance environment.

1. **T4 (User Acceptance Testing - UAT)**:

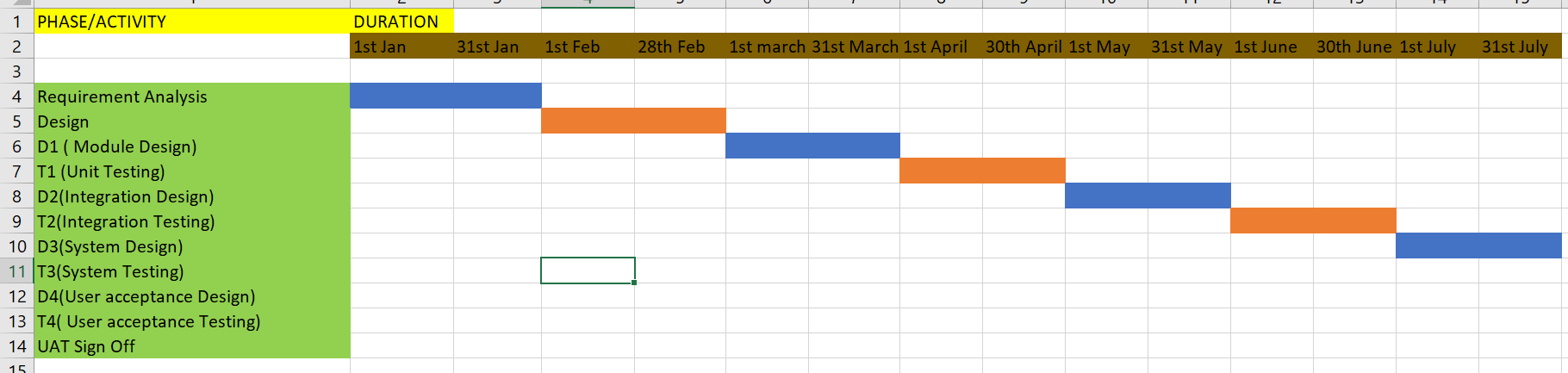
* **Purpose**: Conduct the final testing with the end-users to ensure the system meets their expectations.
* **Resources**:
  + **Testers** - Perform user acceptance testing.
  + **BA** - Coordinate with the users to gather feedback.
  + **PM** - Oversee UAT and ensure the successful deployment of the system.

1. **UAT (User Acceptance Testing - Sign-Off)**:

* **Purpose**: Obtain sign-off from the client or end-users to finalize the project.
* **Resources**:
  + **PM** - Coordinate with stakeholders to get final approval.

**BA** - Gather final feedback from users and ensure satisfaction

Gantt Chart

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

The **Fixed Bid** and **Billing Projects** are two different pricing models used in project-based work. These are methods used by businesses to manage and charge clients for the delivery of services or products. The type of billing varies from project to project as well as per the requirements of the company. Let us see the major difference between both of them.

* **Fixed Bid Projects**:
  + 1. A fixed bid or fixed prize project is one where the client and the service provider agree on a fixed prize for the entire project before the initiation of the project. The project needs to be finished within that only.
    2. The risk is on the company which has taken the project, if the project takes longer than expected, they must bear the additional cost.
    3. Any change in scope or requirements must be formally agreed upon and generally leads to adjustment in the prize structure.
    4. It does not provide much flexibility for the client during the course of the project. Once the price and scope are agreed upon, changes in the project is difficult to manage as the structure of everything is pre-defined.
    5. Ideal for the projects which have clear understanding of the project requirements. Best suited for projects where scope and deliverables are predictable, such as building a website or delivering a specific software solution.
    6. All project details are defined in the contract, so project management can be passed down to the project manager. No excessive supervision is required on the part of the client.
    7. A fixed-price contract demands planning in very detail. Developers need to discuss every detail and every action along with possible pitfalls.
* **Billing Bid Projects**
  + 1. A Billing project is based on the time spent and materials used for the project. The price is typically based on the hourly rates or daily rates of resources that are being involved with the project and the cost varies as the project progresses.
    2. The risk in this kind of project lies with the client side as if the projects prolonged for longer duration than more money needs to be spent from the client side.
    3. In this client has more flexibility as tha can make the changes as per the demand of the situation and requirements of the company.
    4. The client has more control over the ongoing costs, but they need to closely monitor the progress to prevent excessive billing.
    5. It is best suited for the projects where the goals and requirements can vary with time or there can be changes at frequent intervals, as changes can be easily implemented in this kind of projects.
    6. The price is approximate, so the client is not always sure about how much money they’ll spend since the timeframe for designing and implementing features is flexible

**Question 14 – Preparer Timesheets of a BA in various stages of SDLC**

Generally a role of a BA is more crucial during the requirement gathering and than documenting those requirements.After this phase role of BA is to moniter the other phases and give valuable insight to keep the functionalities aligned with the project. Let’s see the contribution of a BA in the other phases after the requirement.

**Design Timesheet of a BA**

* **Review Functional Designs:** Ensure that the design document is matching with the requirements which have been documented by a BA (functional specifications, wireframes, process flows).
* **Support UX/UI Teams:** Help designers create user interface that matches with the business description.
* **Create Use Cases/Process Flows:** Prepare detailed flow diagrams (e.g., login process, order checkout process).
* **Address Queries:** Take part with the design team in order to resolve the queries related to the functionalities .
* **Validate Prototypes:** Review early versions of screens or reports.

**Development Timesheet of a BA**

* **Clarify Requirements:** Developers may face difficulties in understanding the use cases or what are the requirments needs to be achieved from the
* **Change Management:** Sometimes new requirements may arise (called CR - Change Requests). BA must assess, document, and get t
* **Maintain Requirements Traceability Matrix (RTM):** Ensure each requirement is being developed properly.
* **Agile Involvement:** Participate in daily stand-ups, clarify user stories, prioritize backlog if using Agile/Scrum.

**Testing Timesheet of a BA**

* **Review Test Cases:** Check if QA teams have prepared test cases covering all business scenarios.
* **Assist Testing Teams:** Collaborating with the testing team in order to check the functionalities are working as per the requirements.
* **Participate in Defect Meetings**: Help prioritize which bugs should be fixed first.
* **Support System Integration Testing:** Ensure end-to-end workflows work fine, e.g., login→ scroll through products→ product purchase→ select delivery address → payment → delivery confirmation

**UAT Timesheet of a BA**

* **Coordinate UAT Activities**: Schedule testing sessions with users.
* **Prepare UAT Scenarios**: Help users test real-world scenarios.
* **Support Users During Testing**: Be available along-with the stakeholders to clarify how a feature should work.
* **Collect UAT Feedback**: Document defects or enhancement requests from users.
* **Ensure Sign-off:** Obtain formal approval from business users for the system.

**Deployment & Implementation Timesheet of a BA**

* **Verify Go-Live Readiness:** Ensure everything needed for live operations is in place**.**
* **Features approval:** Check whether all the features are matching up with the given set up of requirments.
* **Prepare User Manuals and Training Materials:** Help users adapt to the new system easily.
* **Conduct Training Sessions:** Train end-users if needed.
* **Post-Deployment Support:** Handle initial issues and feedback**.**

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