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

**Ans:**

**Goal:**

* Facilitate farmers to get Fertilizer, Pesticides and Seeds online via website
* Bridge the gap between farmer and production of agriculture product
* Provide plenty option for buying
* Home delivery of products
* Easy and user-friendly payment gateway options

**Inputs:** Crop type, pesticides/disease issue, location (state/district), product type (insecticide, fungicide, fertilizer), active ingredient, brand name, and desired formulation

**Resources:**

**Production companies list, Delivery channels, Internet connection, Mobile application**

**Outputs**:

* Expected product delivered on time and on the spot
* Online store for happy farmer needs
* Multilinguistic explanations on each product
* Easy Transaction and Acknowledgement
* less TAT (Turn Around Time) while browsing

**Activities**:

* Goto Website
* Type Product name in Search Bar
* Select product from Menu as per quantity
* Add the product to cart
* Do payments through various methods
* Get product delivered at your place
* Don’t forget to give feedback to the product

**Value created to the end Customer:**

* India is having 60% market from farming so happy farmer can lead to improvement in nation currency. Still no strong support system for them so this project can help them in all way.
* Farmers gets product in less price
* Farmers can be digitally active and will understand the market trends easily regarding farming
* Flexible payment gateway for payment process
* No Interference of government or any other political person because it is online while buying. He is free to choose goods as per his choice

|  |  |  |
| --- | --- | --- |
|  | Opportunities(external, positive) | Threats(external, negative) |
| Strength(Internal, positive) | **Strength-opportunity strategy****-**Consultation team for farmers to gain confidence-Distributed warehouses for fastest delivery-24\*7 live website | **Strength-Threats strategies**-Beneficial payment method for farmers - Plenty of varieties in product with direct discounts |
| weakness(Internal, Negative) | **Weakness-Opportunity strategy**-understanding government schemes and collaborate with them -Weather condition notification along with seasonal product | **Weakness-Threats strategies**- less cost- Good incentives for delivery person- Fastest delivery |

Question 2 -SWOT

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

**Ans:**

SWOT (Strength, Weakness, Opportunity and Threats) is framework to calculate company’s competitive position and to develop strategic planning. SWOT analysis can be categorized into two factors like Internal and External

1. **Internal:**

Generally, Strength and weakness are considered internal factors. Here internal decision of the company is in your hands. For ex. Why farmers are cancelling the product? or which product is not having more demand? Or reason of the selling products season wise?

1. **External:**

Similarly, emerging competitors would be parted as a threat in a SWOT analysis, but since there’s very little you can do about this, this makes it external factor. Below is called as IE(Internal-External) matrix

Figure 2.1: IE Matrix

Following is SWOT analysis for AgroTech project

**Strength:**

1. Farmers will see something new and exciting which has designed as new online platform specially for them
2. Direct contact to manufacturers so that huge benefits to the customers
3. Home delivery saves lot of time and efforts of travelling to the market
4. Farmers can have clarity on plenty of variety in seeds, fertilizer and pesticides
5. Many payment options are available so that farmer can buy easily
6. Customer care support for Consultation or guidance team for farmers will add more value to understand correct goods for farming

**Weakness:**

1. There are chances of competitors can also start same platform and occupy more customers
2. Getting trust of farmers in less span of time
3. In less time creating brand name, value and quality
4. Delivery in rural area
5. Biggest challenge in sales will be making habitual of this brand for shopping to farmers
6. Return item in case of defective item

**Opportunities:**

1. It is like Competitive intelligence research
2. 24\*7 supports online for farmers from this website
3. Distributed warehouses for all stated district
4. Feedback or review from each farmer on each product can make other farmer more confident to buy product

**Threats:**

1. This type of application coming first time in market so opening warehouses in all states and in district is challenging as it need more cost to establish
2. Government has many schemes for farmers so there chances of less selling so need to conquer market as per there rules
3. Government involvement in this project & changing laws for cost product or any other factor makes unrealistic problem
4. It needs good Research or scientist team to understand products and create new sample review which can cost high for project
5. GDP per Capita
6. Manpower for delivery because delivering product in rural area sometimes very difficult as it needs more fuel or travelling time for delivery boy

***Strength***

* *Can sell product online as it is first time in the market and new for farmer*
* *Best way of payments available for farmers*
* *Less price than store*
* *multilinguistic*

***Weaknesses***

* *There will be a substantial number of growing pains for many numbers of outlets*
* *Need Agriculture R&D as well as Expert technical team which can cost high*

***Opportunities***

* *24\*7 supports online for farmers from this website*
* *Distributed warehouses for all stated district*

***Threats***

* *Local politician or government schemes can kill the market*
* *Delivery person personal wish to work as it involves hard delivery tracks. Need manpower.*

Figure 2.2: SWOT Analysis

Question 3 -Feasibility study

**Ans:**

The purpose of feasibility study is to check if a Project can be done within some constraints like technology, Budget and Time. For this agricultural project we can turn our Idea into the application. We have sufficient Fund.

**Technology:**

As this is a type of e-commerce website need to use 3-tier architecture for project. So that it will need MVC (Model, View and Controller) architecture which is nothing but one as Front end to receive inputs from customers, Middleware to process the requests from users and finally backend for retrieval of data as per user/farmer inputs from database or servers as shown in Figure 3.1.

**Software:**

1. **Frontend**: React\_js, Node JS or Javascript
2. **Backend**: MongoDB or Apache Casandra
3. **Middleware**: Java. Java is best choice for this project as mentioned below
* Platform independent: Write once it will run anywhere
* Object-oriented Programming: collaborate large-scale development because everything is object and hence objects are Reusable
* Portable: can run on any Platform.
* Security: Built-in security feature like bytecode verification & access control
* Easy to learn: Syntax are easy and widely used language so having plenty of materials available online

Logical Layer

JDBC/ODBC

Data layer

Database Servers

Presentation Layer

[This Photo](https://freepngimg.com/png/21890-smartphone-image) by Unknown Author is licensed under [CC BY-NC](https://creativecommons.org/licenses/by-nc/3.0/)

Figure 3.1: 3-tier Architecture

**Hardware:**

Servers, clients, partners, transmission means and connection devices (routers, bridges, hubs, gateways and switches. Mobile to the delivery person for acknowledgement of delivery.

**Resources:**

**Project Manager** – Mr. Vandanam

**BA** - Sapna

**Java Developer** - Ms. Juhi is Senior Java Developer, Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo Network Admin - Mr Mike

**DB Admin** - John

**Tester** - Mr Jason and Ms Alekya

**Budget and Time:**

2 CR and 18 months to complete the project.

Question 4 – Gap Analysis

**Ans:**

Gap analysis is meant for recognize the gap between current and upcoming challenged. compare

**AS-IS existing process**

1. Generally, farmers will buy seeds or fertilizer anything directly from the stores.
2. Farmer believe on shopkeeper word without investigating what actually makes him profit or other contents in that product or other good product or what is best seller product among all.
3. This has also in observation 30% of farmers takes products on loan due to money efficiency with large interest amount.
4. Unaware about home delivery

**TO-BE future Process**

1. Giving farmers simple and easy to understand online platform to buy seed, fertilizers and pesticides.
2. Explanation of each product will be simple and in there respective native language also so that it is easy to make him more clarified and choose best product for his farming.
3. Payment gateway method should be more handy as user/farmer should not have second thought for buying things due to money efficiency.
4. Home delivery is best choice also for them.
5. Classification of product with respect to quality, price ,bestselling and content as per there soil.

Question 5 -Risk Analysis

**Ans:**

Risk is major component of the project which can cause delay in progress and gradually have impact on cost, time or quality.

**BA Risk:**

BA is all meant for Requirement gathering, Analysis and Tracking. So if anything missing like following can crash project initially itself

1. Incorrect Requirement gathering
2. Incorrect documentation
3. Incorrect prioritization
4. Lack of communication with stakeholder
5. Improper stakeholder analysis

**Project Risk:**

1. Improper Project planning
2. Lack experienced resources during project
3. Improper communication or misunderstanding regarding requirement
4. Strict deadline with frequent change in requirements can cause frustration to the development team

**Process Risk:**

1. Online agriculture store must be new cocept for farmers so they need walkthrough or demo for using it friendly
2. Challenges to develop agriculture online platform such as Android, Apple, window and java etc.
3. Need to have look on delivery of the product to the farmer because sometime it is hard to go till village

Question 6 - Stakeholder Analysis

**Ans:**

(RACI Matrix) It is the study of identify who are the key stakeholders who can take decision and who are the influencers of project. RACI Matrix have shown in Figure 6.1.

RACI Matrix (R-responsible, A-accountable, C-consulted and I informed)

Mr Henry - project sponsor

Mr Pandu -financial head

Mr Dooku -Project coordinator

Peter, Kevin, Ben- Key Stakeholders

Mr Karthik- Delivery Head

Mr Vandanam -Project manager

Ms juhli -Senior java Developer

Mr Teyson, Ms Lucie,

Mr Tucker, Mr Bravo -Java Developers

Mr Mike -Network Admin

Mr John -DB

Mr Jason and Ms Alekya -Tester

Sapna - BA

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Task | Mr Henry- project sponsor | Mr. Karthik-Delivery head | Mr. vandanam-Project manager | Mrs. Juhili- Senior Java Developer | Mr. Teyson,Ms Lucie Java | Mr.Tucker,Mr.Bravo-Java Developer | Peter, Kevin, Benkeey | Sapna-BA |
| Requirement Gathering |  | A/I |  | A |  |  | C | R |
| Analysis |  | I |  |  |  |  |  | R |
| Development |  | I | C/A | R | R |  |  |  |
| Testing |  | I |  |  |  | R |  |  |
| Implementation |  | I | I |  |  |  |  | R |
| UAT | I | R |  |  |  |  |  |  C |

Figure 6.1: RACI Matrix

Question 7 – Business Case Document

**Ans:**

Business case document is package of information, analysis & recommendation. A business case also helps to identify the key stakeholder who affected by the problem. A business case provides justification for undertaking a project, programme or portfolio. It evaluates the benefit, cost and risk of alternative options and provides a rationale for the preferred solution.

**Why this project got initiated ?**

Main Motive of this project is to help or facilitate the Farmers with Online platform for purchasing the products. Initially Mr. Henry meet Peter, Kevin and Ben. At this meeting, Peter, Kevin and Ben told Mr. Henry about the problems of their farmers that are solved by IT solutions. And Mr. Henry plans to develop an online agricultural store to solve the problem of farmers.

**What are the current Problems?**

1. At present there is no online user-friendly website for farmers. Farmers directly buy from stores.
2. There is no contact between manufacturer and farmer.
3. Unaware about on the spot delivery.
4. Farmers cannot get products in retail price or with discounts

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

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No. | Solution Approach | High Level Benefit | Required, Desired, Optional |
| 1 | Online platform for Purchasing products like seeds, fertilizer & pesticides | Farmers can see wide range of products & also can get the things in cheap price | Required |
| 2 | Analyzation of products with respect to cost, content and exact solution  | As per soil type farmer can use product due to detail explanations | Required |
| 3 | Product summary should be Multilinguistic | Most of the farmers are not comfortable with other language | Desired |
| 4 | Products Demo as per soil , weather and atmosphere condition | Every state has different weather so it will help farmer to chose product easily | Optional |
| 5 | Heads up about wide range of product from all over states | Varieties of product from each state or region gives farmer idea about the great farming | Desired |
| 6 | On the spot delivery | It saves time of the farmers and money to travel to the market | Required |

**What are the resources required?**

1. Flexible product store for mobile as well as for desktop
2. Internet connection
3. Nearby Warehouses for easy delivery
4. Manpower for delivery

**How much organizational change is required to adopt this technology?**

E-commerce of agricultural products is new to the organization and the agricultural sector. The organization then had to form a completely new team to handle all the activities, an organization that also has no knowledge of the industry.

**Time Frame to recover ROI (Return On Investment):**

This project develops under CSR function. CSR (Corporate Social Responsibility) means a self-regulating business model that helps a company be socially accountable to itself, its stakeholders and the public. Company has got the 2cr of the budget for 18 months duration.

**How to identify Stakeholder?**

Stakeholder is any person or group of people or organization that this online agriculture store directly or indirectly applied or influenced by. Has shown RACI matrix for stakeholder.

Question 8 – Four SDLC Methodology

**Ans:**

Software Development Life cycle needs for the development of the software according to the client requirements. Following are seven crucial phases of SDLC also shown in Figure 8.1.

1. **Planning:**

 In planning phase, Client will discuss about basic requirements for the software like

* The purpose of the application
* The details about end user of the product
* Key element like format and attributes of the application for designing
* Overall user interfaces design of the software
* BA & PM involve in this phase
1. **Requirement Analysis & Gathering:**
* Information about each element to design
* Validating installation
* Calibrating the security protocol and risk analysis
* All these details will be in Software Specification Document (SRS)
* Also, BRD or URD get created at the time of requirement gathering doc
1. **Design:**
* Software developer devise the system design which means overall architecture of the software
* Checks feasibility of the software as according to the client
* Along with BA & PM involves in designing technical solution along with solution architect
* There two types of the requirement as follows
1. Functional requirement: Addressing Features in Functional Specification Document (FSD).
2. Non-functional requirement: Addressing properties in Supplementary Specification Document (SSD).
* Depend upon FSD & SSD technical team will take forward and make High-level Design Document (HDD/ADD) And also Solution Doc. Or RTM.
1. **Implementation/Coding:**
* Once design is completed 50% of the project will complete
* Now developers will write the code depends upon Solution doc whatever company has shared and write Lowlevel Design Document or Component Design Document(CDD)
* Developers starts writing code whatever decided language
1. **Testing:**
* Developed software now deployed in multiple test environment like Dev, UAT & PreProd Server
* After the test cases are completed Quality Assurance and testing team finds bugs in software and send it to respective developer for resolving until software is stable
1. **Deployment:**
* Once testing phase completed Software is ready for deployment and consumer
* Development team will setup installation link for the users
* After deployment when user start using application if user encountered any bug it has to be solved at that time
1. **Maintenance:**
* Regular Updates and enhancement of the softwares or new features on the application depend upon user experience

BA &PM

BA,PM,Tech Team &Solution Architect

Programmer

Testers

Client

Planning & Analysis

Design

Coding

Testing

Deployment

BRD & URD

FSD,SSD,HDD/ADD & RTM

LDD/ADD

Test Doc

Bug Fix

Figure 8.1: Phases of SDLC

What is meant by Methodologies?

Methodologies are like set of guidelines

Analysis, Design, Testing and Coding is process and This process id going to be applied by using certain methodologies where particular model follows methodologies. For every methodology there is one following model as follows

1. Sequential -------🡪 Waterfall
2. Iterative ----------🡪 RUP
3. Evolutionary ----🡪 Spiral
4. Agile --------------🡪 SCRUM

There are four Software Development Life Cycle methodologies are there as follows

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.
2. **Iterative** : This methodology involves developing the software in iterations, where each iteration builds upon the previous one. This method is best suited for projects with complex requirements and high risk.
3. **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.
4. **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

Question 9 – Waterfall RUP Spiral and Scrum Models

**Ans:**

**Waterfall Model**

Waterfall model is linear-sequential life cycle model. Waterfall model follows traditional methodologies. In this model each phase must be completed in its entirely before the next phase can begin. In sequential model we have chance to take review takes place to determine if the project is on path and whether or not to continue or discard the project.

Advantages:

* Simple and easy to use
* Traditional approach
* Phases are processed and completed one at a time means sequentially
* Works well smaller project where requirements are well understood
* Mostly use for Migration projects

Disadvantages:

* Not supports Change request as every phase complted then after next will start so meanwhile no changes will be handle
* Adjusting scope during the life cycle can kill a project
* Poor model for long & ongoing model

**Rational Unified Process(RUP) model**

RUP model follows iterative methodology. Unlike Waterfall model it takes Change Request between two iteration which means every phase has iteration and if any changes want to done then it takes in middle of next iteration as shown in Figure 9.1.

Example:

In APT IT Solution, working on AgroTech project and suppose decide to follow RUP model then First PM as Mr. Vandanam & BA as Sapna will plan the project requirement and do Analysis followed by requirement gathering. Once requirement is gathered, it gets prioritize and distribute into the different modules. Now we have 18 months of span for project completion but we have 9 team members to complete. 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. So here PM (Mr. Vandanam) will list out modules for AgroTech project and will discuss with the client priority of module completion and try to start parallel development plan for suppose first two modules. Once first two modules are in completion phase the same developers will start another two modules for development and in between if client need some changes in first module, then developers will complete first that module and again will start working on the second. But here developers are less as compare to time. So here it will need more resources to completes the project on time with the given budget.

Advantages:

* Early risk identification
* Adaptability to Changing requirements
* Improved customer involvement by breaking down complex project into smaller, manageable iteration

Disadvantages:

* Need more resources and budget as it’s a cost run
* Not meant for larger project
* RUP into the development process can negatively impact testing activities

Iteration1

Iteration 2

Iteration 3

Figure 9.1: Rational Unified Model

**Spiral Model**

This type of model going to be applied on research kind of model where budget is not constrained. This model is ideal for projects where requirements may evolve over time, allowing teams to adapt and refine their products throughout the development process. Mosty this model going to use by defence company.

Spiral model has following four phases as shown in Figure 9.2:

1. Planning:
* In this phase, goals and requirements are defined.
* This includes specifying the project scope, understanding user needs, and outlining potential risks associated with the project.
* Sets foundation of Risk assessment, which continues throuout the lifecycle.
* Focuses on establishing the goals for the current iteration.
* Team defines the software requirements, expected functionalities and constraints ensuring stakeholders feedback is incorporated to align with user needs
1. Risk Analysis:
* Following the definition of objectives, the team conducts a thorough risk analysis to identify potential challenges that may affect the project.
* Risks can stem from technical hurdles, resource limitations, or evolving requirements.
* The development team formulates strategies to mitigate identified risks, ensuring that adequate measures are in place to handle potential setbacks.
* This crucial phase helps developers create strategies to manage uncertainties, ensuring a more robust and resilient project.
* Risks can be assessed using quantitative and qualitative techniques, allowing teams to prioritize which risks need addressing.
1. Product Development phase:
* Once risks have been analysed and strategies in place, the development phase begins.
* The actual coding, integration, and testing take place here.
* This stage employs a [mini-Waterfall approach,](https://teachingagile.com/sdlc/models/waterfall) meaning that [design,](https://teachingagile.com/sdlc/design) [coding,](https://teachingagile.com/sdlc/development) and [testing](https://teachingagile.com/sdlc/testing) occur in a sequential manner. In this phase, the project team develops and tests the software according to the specified objectives.
* Afterward, the results are evaluated against the objectives to determine if the project is on track and to uncover any immediate issues.
* Feedback from customer involvement and initial prototypes aids in refining the software product through iterative cycles of development.
1. Evaluation Phase:
* Once the evaluation of the current iteration is complete, the team prepares for the subsequent spiral.
* The final phase involves reviewing the product against initial goals and capturing customer feedback.
* They review lessons learned, re-assess objectives, identify new risks, and make necessary adjustments to project scope and timelines.
* This ongoing cycle continues until the software development project reaches its conclusion.
* This phase ensures that the software meets the established requirements and allows for necessary changes before moving forward.

Advantages of Spiral Model:

* Development process allows teams to address potential challenges before they escalate into critical issues.
* The model's inherent iterative nature supports modifications and enhancements at every stage of development, facilitating an adaptive approach.
* Regular feedback loops with stakeholders ensure that the final software product meets client expectations and needs effectively.
* The iterative cycle promotes continuous refinement, leading to a higher-quality output through regular inspections and adaptations.
* The model emphasizes early testing, which enhances the ability to identify and resolve problems proactively.

Disadvantages:

* The continuous risk analysis and iterative development can make the Spiral model more expensive than other SDLC methodologies.
* The model's cyclic nature can prolong the development process.
* The Spiral model can be challenging to manage, especially for smaller teams or projects with well-defined requirements.
* The focus on iterative development may lead to inadequate documentation.

Identification

Risk Analysis

Product Development

 Evaluation

Figure 9.2: Spiral Model

**Agile**

Agile Software Development is a [software development methodology](https://www.geeksforgeeks.org/5-most-commonly-used-software-development-methodologies/?ref=lbp) that values flexibility, collaboration, and customer satisfaction. It is based on the Agile Manifesto, a set of principles for software development that prioritize individuals and interactions, working software, customer collaboration, and responding to change.

Agile Software Development is an iterative and incremental approach to [software development](https://www.geeksforgeeks.org/software-development/?ref=lbp) that emphasizes the importance of delivering a working product quickly and frequently. It involves close collaboration between the development team and the customer to ensure that the product meets their needs and expectations.

There are major 12 principles of Agile which makes it unique

1. Guaranteeing customer pleasure over the early delivery of software
2. Allows Change request in every phases of cycle
3. Main objective is preference for timeframes means delvery within time
4. Gives value to the communication between busness stakeholder and developer as an element
5. Organizing the project around individuals. Providing them with the necessary environment
6. Face to face communication always first priority for discussion
7. Values are completely satisfy when there is working software
8. Encouragement development by allowing team to maintain pace indefinitely
9. Placing attention on excellence and good design practices
10. Recognizing the simplicity as vital factor directing to exploit
11. Inspiring self organizing teams as the method to design and build systems
12. Frequently reflecting on how to boost efficiency and to make modification consequently

Advantages:

* Deployment of software is faster so that can gain customer confidence
* Change request are always allowed
* Feedback on software always helps in improvement
* Software delivery if high quality because there will strong Quality assurance people will be there
* Individual team member is given more values or priority than process and tools

 Disadvantages:

* It mostly focuses on coding than documentation
* Face-to-face communication is very hard when its large-scale project and multiple teams has been involved
* It is fast paced development so it is very common that team will be burnout
* Agile is flexible and adaptable so that it can turn into scope creep because scope can change at any time

Question 10 – Waterfall Vs V-Model

**Ans:**

|  |  |
| --- | --- |
| Waterfall Model | V- Model |
| 1.It is sequential model. First whole development of the module will be completed then only testing will be done. | 1. Development and testing will be done parallely because each module has divided into Sub module. So after each module testing will be done. |
| 2. Waterfall is Linear sequential model. Each phase should be completed before next phase of the cycle. | 2. V-Model is sequential/Parallel in nature where development and testing can be done in parallely |
| 3. After development only testing will be done so if any missing validation occurs then first that validation should be addressed. | 3. Submodules get tested separately hence no testing pending at last and if any validation occurs then it will be implemented at that phase. |
| 4.Cost and Complexity is low | 4.Cost and complexity is high. |
| 5. Number of defects will be High. | 5. Number of defects will be low. |

Question 11 – Justify your choice

**Ans:**

 Agile is one type of the project delivery methodology. SCRUM model follows Agile methodology which consists following are the advantages of choosing Agile over other methodologies.

* **Iterative Deployment:**

Project broken down into smaller chunks and then if any change request comes in middle will going to deliver which will result into continuous improvement.

* **Adaptability and Flexibility**:

Welcomes change request in project requirement, feedback and market condition which is dynamic.

* **Mitigates Risks:**

Due to collaboration and communication between team members and stakeholder feedback early and often which helps to reduce risks and project will be on track.

* **Better Resource Utilization:**

Agile is parallel and dynamic methodology in which for faster delivery resources will be work parallelly.

* **Large project:**

Meant for larger project.

Question 12 – Gantt Chart

A Gantt chart is a project management tool assisting in the planning and scheduling of projects of all sizes; they are particularly useful for visualising projects. A Gantt chart is defined as a graphical representation of activity against time; it helps project professionals monitor progress.

**Ans**: Check below Figure 12.1 & 12.2 for Gantt Chart as below

Figure 12.1: Analysis for Gantt Chart

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TASK | START DATE | END DATE | DURATION | COMPLETED | %COMPLETED | REMAINING |
| **Requirement Gathering** | 01-01-2025 | 12-03-2025 | 70 | 61 | 87% | 9 |
| **Requirement Analysis** | 13-03-2025 | 14-04-2025 | 32 | 28 | 88% | 4 |
| **Design** | 15-04-2025 | 27-05-2025 | 42 | 38 | 90% | 4 |
| **Development1** | 28-05-2025 | 02-07-2025 | 35 | 21 | 60% | 14 |
| **Testing 1** | 03-07-2025 | 08-09-2025 | 67 | 56 | 84% | 11 |
| **Development2** | 09-10-2025 | 16-11-2025 | 38 | 23 | 61% | 15 |
| **Testing2** | 17-11-2025 | 22-12-2025 | 35 | 30 | 86% | 5 |
| **Development3** | 23-12-2025 | 04-02-2026 | 43 | 36 | 84% | 7 |
| **Testing3** | 05-02-2026 | 28-04-2026 | 82 | 65 | 79% | 17 |
| **Development4** | 29-04-2026 | 30-06-2026 | 62 | 57 | 92% | 5 |
| **Testing4** | 31-07-2026 | 12-08-2026 | 12 | 10 | 83% | 2 |
| **UAT** | 13-08-2026 | 16-09-2026 | 34 | 30 | 88% | 4 |



Figure 12.2: Gantt Chart report





 Gantt Chart

Question 13 – Fixed Bid Vs Billing

Explain the difference between Fixed Bid and Billing projects

**Ans:**

Fixed Bid:

In project billing, making client agree before head upon the entire price of the project regardless of how much time spent or resources has been used

Pros:

* + Budget Predictability: Clients know the total cost upfront, allowing for better budget management.
	+ Simplified Billing: The billing process is straightforward, with a single invoice for the agreed-upon amount.

Cons:

* + Limited Flexibility**:** Changes to the scope or timeline can be difficult and may require renegotiating the price.
	+ Risk for the Contractor**:** The contractor needs to accurately estimate the project's cost and timeline to avoid losses.

**Billing:**

The actual time spent on the project and the cost of materials used consider in the billing or Time and materials project bill. The client is stimulating an hourly or daily rate basis for the contractor's time, plus the cost of any materials or expenses acquired.

Pros:

* + Flexibility: The project scope and timeline can be adjusted as needed.
	+ Transparency**:** Clients can see exactly how much time and resources are being used.

Cons:

* + Cost Uncertainty**:** The final project cost can be difficult to predict, as it depends on the actual time and resources used.
	+ Potential for Disputes: Disagreements can arise over the time spent or the cost of materials.

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

Designed Timesheet of a BA as below

Employee\_Name: Sapna Date: 20/03/2025

Role: BA

Project\_No:2316

 **Requirement Gathering**

|  |
| --- |
|  Requirement Gathering Phase |
| S. No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Identify the stakeholder meeting | Meeting to List the Stakeholder | 10:00 AM | 11:00 AM | 1 Hour |
| 2 | Client Interaction  | A Zoom call to update the client on MOM | 11:00 AM | 01:00 AM | 2 Hour |
| 3 | Finetunning the inputs of BRD Document | SMS Discussion-In person calll | 02:00 AM | 03:00 AM | 1 Hour |
| 4 | Requirement Sorting | Working on Template | 03:30 PM | 04:30 PM | 1 Hour |
| 5 | Team meeting | Discussion on the daily input | 04:30 PM | 07:00 AM | 2.5 Hour |
| Total Hours | 7.5 Hour |

Employee\_Name: Sapna Date: 21/03/2025

Role: BA

Project\_No:2316

 **Requirement Analysis**

|  |
| --- |
|  Requirement Analysis Phase |
| S.No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Identify Key stakeholder & End user  | Meeting to List down the Stakeholder | 10:00 AM | 11:00 AM | 1 Hour |
| 2 | Client Interaction  | One on one interview with stakeholder | 11:00 AM | 01:00 AM | 2 Hour |
| 3 | Finetunning the inputs of BRD Document | Meeting with SME to group the requirement | 02:00 AM | 03:00 AM | 1 Hour |
| 4 | Requirement Sorting | Meeting with Stakeholder to resolve conflicts  | 03:30 PM | 04:30 PM | 1 Hour |
| 5 | Team meeting | In person meeting with stakeholder to get sign off | 04:30 PM | 07:00 AM | 2.5 Hour |
| Total Hours | 7.5 Hour |

Employee\_Name: Sapna Date: 22/03/2025

Role: BA

Project\_No:2316

**Design Stage**

|  |
| --- |
|  Design Phase |
| S.No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Understanding new requirement | Discussion about the technical design | 09:00 AM | 11:00 AM | 2 Hour |
| 2 | Prioritize requirement | Organize the requirement | 11:00 AM | 01:00 AM | 2 Hour |
| 4 | Inputs to Technical team | Meeting with technical team | 03:30 PM | 04:30 PM | 1 Hour |
| 5 | Clarifying doubts regarding design | Doubts clarification regarding requirement | 04:30 PM | 07:00 AM | 2.5 Hour |
| Total Hours | 7.5 Hour |

Employee\_Name: Sapna Date: 23/03/2025

Role: BA

Project\_No:2316

**Development Stage**

|  |
| --- |
|  Development Phase |
| S.No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Meeting with technical team | Overview of HDD and ADD doc | 09:00 AM | 11:00 AM | 2 Hour |
| 2 | Document overview | Checking document as per requirement | 11:00 AM | 12:00 AM | 1 Hour |
| 3 | SyncUP call | Status of overall team | 02:00 AM | 03:00 AM | 1 Hour |
| 4 | Test plan  | Test case preparation | 03:30 PM | 04:30 PM | 1 Hour |
| 5 | Client and tech team call arrangement | JAD session | 04:30 PM | 07:00 AM | 2.5 Hour |
| Total Hours | 7.5 Hour |

Employee\_Name: Sapna Date: 24/03/2025

Role: BA

Project\_No:2316

**Testing Stage**

|  |
| --- |
|  Testing Phase |
| S.No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Requirement Analysis | Meeting with tester to check possible outcome | 10:00 AM | 11:00 AM | 1 Hour |
| 2 | Test Planning | Zoom call with tester to review testing scenarios | 11:00 AM | 01:00 AM | 2 Hour |
| 3 | Test case development | In person discussion with QA to discuss on the detail such as automation code, where to store the automation code and who need to access it, who is running the test case and writing test case | 02:00 AM | 03:00 AM | 1 Hour |
| 4 | Test environment setup | Meeting with Stakeholder to resolve conflicts  | 03:30 PM | 04:30 PM | 1 Hour |
| 5 | Test execution and test reporting | In person meeting with stakeholder to get sign off | 04:30 PM | 07:00 AM | 2.5 Hour |
| Total Hours | 7.5 Hour |

Employee\_Name: Sapna Date: 28/03/2025

Role: BA

Project\_No:2316

**UAT Stage**

|  |
| --- |
|  UAT Phase |
| S.No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Test case doc  | Develop UAT Plan | 10:00 AM | 12:00 AM | 2 Hour |
| 2 | Test Planning | Prepare UAT Test cases | 11:00 AM | 01:00 AM | 2 Hour |
| 3 | Test environment setup | Set up testing environment | 02:00 AM | 04:00 AM | 2 Hour |
| 4 | UAT exec call | Demo call to client | 04:00 PM | 05:30 PM | 1.5 Hour |
| Total Hours | 7.5 Hour |

Employee\_Name: Sapna Date: 23/03/2025

Role: BA

Project\_No:2316

**Deployment and Implementation**

|  |
| --- |
|  Deployment Phase  |
| S.No | **Tasks** | **Actionable Item** | **Start Time** | **End Time** | **Duration** |
| 1 | Deployment at client side  | War room | 10:00 AM | 12:00 AM | 2 Hour |
| 2 | Client call | Change Request  | 11:00 AM | 01:00 AM | 2 Hour |
| 3 | Call with Tech Team | Discussion with technical team regarding CR | 02:00 AM | 04:00 AM | 2 Hour |
| 4 | Document updating as per CR | Update the BRD document | 04:00 PM | 05:30 PM | 1.5 Hour |
| Total Hours | 7.5 Hour |