COEPD – Traditional Development

Capstone Project1 – Part -2/3 – 100 Marks - Pass 60 % 12 Questions

Instructions to follow:

1. Copy paste (either image, diagram or text) is not entertained. If done, the document will not be evaluated.
2. After submission of the answers of this prep exam, You should be prepared to attend viva and justify your answers in the prep exams. If in Viva, participant is NOT justifying the answers, Viva will be repeated until Candidates justify 60% correctness.
3. Mentor calls are scheduled only if the participant have submitted their task at least for one time. (should apply their knowledge in this task first)
4. For attempting prep exams participant should be thorough on the topics using their references.
5. Please format the document properly (Always have a question no., question and answer).
6. Have a consistent format (Font name: Arial/ Calibri -Font size 12, Font Color: Black ).
7. Few Questions are related to the case study, if check Questions thoroughly before you answer.
8. Answers should be elaborated in detail(\*not as per the allotted marks).
9. Please focus on learning and applying the knowledge as this knowledge will be helpful in contributing at your BA job.
10. In the evaluation, students must answer all questions and should be able to justify at least 60% content and correctness of each answer.

Online Agriculture Products Store

Mr. Henry, after being successful as a businessman and has become one of the wealthiest persons in the city. Now, Mr. Henry wants to help others to fulfil their dreams. One day, Mr. Henry went to meet his childhood friends Peter, Kevin and Ben. They live in a remote village and do farming. Mr. Henry asked his friends if they are facing any difficulties in their day-to-day work.

Peter told Mr. Henry that he is facing difficulties in procuring fertilizers which are very important for farm. Kevin said that he is also facing the same problem in-case of buying seeds for farming certain crops. Ben raised his concern on lack of pesticides which could help in greatly reducing pests in crops.

After listening to all his friends’ problems, Mr. Henry thought that this is a crucial problem faced not only by his friends but also by so many other farmers. So, Mr. Henry decided to make an online agriculture product store to facilitate remote area farmers to buy agriculture products. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly with each other.

The main purpose to build this online store is to facilitate farmers to buy seeds, pesticides, and fertilizers from anywhere through internet connectivity. Since new users are involved, Application should be user friendly.

This new application should be able to accept the product (fertilizers, seeds, pesticides) details from the manufacturers and should be able to display them to the Farmers. Farmers will browse through these products and select the products what they need and request to buy them and deliver them to farmers location.

Mr. Henry has given this project through his Company SOONY. In SOONY Company, Mr Pandu is Financial Head and Mr Dooku is Project Coordinator. Mr. Henry , Mr Pandu , and Mr Dooku formed one Committee and gave this project to APT IT SOLUTIONS company for Budget 2 Crores INR and

18 months Duration under CSR initiative. Peter, Kevin and Ben are helping the Committee and can be considered as Stakeholders share requirements for the Project.

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

Question 1 – Audits - 5 Marks

4 Quarterly Audits are planned Q1, Q2, Q3, Q4 for this Project What is your knowledge on how these Audits will happen for a BA?

**Ans-** In the company their internal audit is going on so business analysts also need

 to face the audit in their working order like.

 1. Documentation part

 2. Mailing part

 3. Timesheet of working

 4. Analysis part

 5. Client interaction part

 All these things are divided into the parts like.

In the 1st quarter audit examines the documents for the product what are the requirement for the client and what project idea is what the client need and what the

business analyst suggests to the client and what team required and everything going

under control.

In the 2nd quarter audit, the auditor seeks the mailing part with the client and inside

the team communication among the BA TO PM, PM TO TECH. TEAM.

In the 3rd quarter audit, the auditor examines the timesheet for working hr. in the

product need to seek the timeline which is given to the stakeholder need to meet on

time or not.

In the 4th quarter the auditor examines the process which is followed by the analysis part where the main things depend on the finance part because where the finance

part is divided into the parts when the certain part is finished then only funds are

released

In the 5th quarter the auditor needs to seek the client hand over the part where they

need to seek rather a client output about the product the upcoming thing for the

company is too good or not and their documents for the further requirements

Question 2 – BA Approach Strategy - 6 Marks

Before the Project is going to Kick Start, The Committee asked Mr Karthik to submit BA Approach Strategy

Write BA Approach strategy (As a business analyst, what are the steps that you would need to follow to complete a project – What Elicitation Techniques to apply, how to do Stakeholder Analysis RACI/ILS, What Documents to Write, What process to follow to Sign off on the Documents, How to take Approvals from the Client, What Communication Channels to establish n implement, How to Handle Change Requests, How to update the progress of the project to the Stakeholders, How to take signoff on the UAT- Client Project Acceptance Form )

Your Team

|  |  |  |
| --- | --- | --- |
|  | Project Manager - Mr Vandanam Senior Java Developer - Ms. Juhi |  |
| Java Developers - Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo Network Admin - Mr Mike |
|  | DB Admin - Mr John. |  |

BA - You

Testers - Mr Jason and Ms Alekya

Technical Team have assembled to discuss on the Project approach and have finalized to follow 3-tier architecture for this project.

**Ans: -**

 **Project Initiation & Planning**

* Understand the business problem, objectives, and key deliverables.
* Identify stakeholders and conduct stakeholder analysis using **RACI (Responsible, Accountable, Consulted, Informed)** and **ILS (Identify, List & Summary)** models.
* Define project scope and constraints.
* Develop a high-level **Business Analysis Plan** outlining approach, activities, deliverables, and timelines.

 **Stakeholder Analysis**

* Identify key stakeholders (internal and external) and categorize them based on **influence and interest**.
* Define roles and responsibilities using the **RACI Matrix**.
* Establish a communication plan tailored to each stakeholder category.

 **Requirements Elicitation Techniques**

* **Interviews** with SMEs, end-users, and key stakeholders.
* **Workshops** for collaborative requirement gathering.
* **Surveys & Questionnaires** for broader feedback collection.
* **Document Analysis** for reviewing existing policies, SOPs, and documentation.
* **Prototyping & Wireframes** for visual representation of requirements.
* **Observation & Shadowing** to understand current workflows.

 **Requirements Documentation & Approval Process**

* **Business Requirement Document (BRD)** – Captures high-level business needs.
* **Functional Requirement Specification (FRS)** – Details functional aspects of the solution.
* **Non-Functional Requirements (NFRs)** – Defines performance, security, and compliance needs.
* **Use Cases/User Stories** – Illustrates user interactions and system functionalities.
* **Process Flow Diagrams** – Visual representation of workflows.
* **Gap Analysis Report** – Identifies gaps between current and desired states.
* **Traceability Matrix** – Maps requirements to ensure complete coverage.

**Approval Process:**

* Share draft documents with stakeholders for feedback.
* Conduct requirement reviews meetings and address concerns.
* Get formal approval and sign-off from the client and relevant stakeholders.

 **Handling Change Requests**

* Implement a **Change Control Process** using the following steps:
	1. **Request Submission** – Stakeholder submits a change request form.
	2. **Impact Analysis** – Assess feasibility, risks, and costs.
	3. **Approval & Prioritization** – Review with stakeholders and get sign-off.
	4. **Implementation & Testing** – Incorporate approved changes.
	5. **Documentation Update** – Revise affected documents.

**7. Project Progress Reporting**

* **Weekly Status Reports** covering progress, blockers, and next steps.
* **Monthly Steering Committee Reviews** for high-level updates.

Question 3 – 3-Tier Architecture - 5 Marks

Explain and illustrate 3-tier architecture?

**Ans-** In 3-tier architecture there are three layers. it will organize applications into three logical and physical computing tiers: the presentation tier, or user interface, the application tier, where data is processed; and the data tier, where the data associated with the application is stored and managed.

**1. Application layer:** it includes the Agricultural mobile app screen, login page, functionality.

**2. Business logic layer**: here in this case, it’s a payment method, agricultural product company details, specific rules.

**3. Database layer:** it can be company’s details, product details data, farmer’s data.

Question 4 – BA Approach Strategy for Framing Questions – 10 Marks

Business Analyst should keep What points in his/her mind before he frames a Question to ask to the Stakeholder

(5W 1H – SMART – RACI – 3 Tier Architecture – Use Cases, Use case Specs, Activity Diagrams, Models, Page designs)

**Ans-**1) **5 W 1 H** **where BA needs to ask the stakeholder**

* What is the project about?
* Why project is initiated?
* Who will be benefited?
* When it should get completed?
* Where to get connected for requirement?
* How we can complete the project?

2) 3 tier architecture approach BA needs to identify the logical and physical content?

* What is the information need to require in the online store?
* Project availability for the farmer?
* Reasonable price and easy updates are there?
* Their preferred languages are?

3) Use case in this BA needs to approach through primary actor to the line-up design

for the working structured

* Who is the primary user?
* What type of product need for the project?
* Placing order
* Order confirmation needs to be required
* Delivery channel & tracking updates

4) The activity diagram is in the UML for modelling the dynamic aspects of the

system for various aspects we need to mark certain questions with stakeholders.

* What activity is going to perform
* Functional relational between the part
* Business functionally and business objectives

5)Modelling& page design - It’s a very important part of the question for requirement

getting where BA needs to ask a stakeholder about.

* In what way do you want functioning to look like?
* The web page function looks like?
* Functional activity
* Payment gateway
* Complain and function update

Question 5 – Elicitation Techniques - 6 Marks

As a Business Analyst, What Elicitation Techniques you are aware of? (BDRFOWJIPQU)

**Ans-** In the online agriculture store we have the following elicitation techniques Prototyping, Use case, Document Analysis, Brainstorming, Stakeholder analysis, BRD, Waterfall, JAD. Stakeholder analysis: is the first step in Stakeholder Management, an important process that successful people use to win support from others. Managing stakeholders can help you, too, to ensure that your projects succeed where others might fail.

1. Getting your project into shape, Winning Resources, Building understanding.

**2. Brain storming:** This technique is used to generate new ideas and find a solution for a specific issue. The members included for brainstorming can be domain experts and subject matter experts. Multiple ideas and information give you a repository of knowledge and you can choose from different ideas. This session is generally conducted around the table discussion. All participants should be given an equal amount of time to express their ideas.

The brainstorming technique is used to answer the below questions:

* What is the expectation of a system?
* What are the risk factors that affect the proposed system development and

 what to do to avoid that?

* What are the business and organization rules required to follow?
* What are the options available to resolve the current issues?
* What should we do so that this particular issue does not happen in the future?

**3. Prototyping:** is used to identify missing or unspecified requirements. In this technique, frequent demos are given to the client by creating the prototypes so that client can get an idea of what the product will look like. Prototypes can be used to create a mock-up of sites, and describe the process using diagrams.

**4. Interview:** This is the most common technique used for requirement elicitation. Interview techniques should be used for building strong relationships between business analysts and stakeholders. In this technique, the interviewer directs the question to stakeholders to obtain information. The one-to-one interview is the most commonly used technique.

If the interviewer has a predefined set of questions, then it’s called a structured interview. And If the interviewer is not having any particular format or any specific questions then it’s called an unstructured interview. For an effective interview, you can consider the 5 Why technique. When you get an answer to all your Whys then you are done with your interview process. Open-ended questions are used to provide detailed information. This interviewee cannot say Yes or No only. Closed questions can be answered in Yes or No form and also for areas used to get confirmation on answers.

**5. Document Analysis/Review:** This technique is used to gather business information by reviewing/examining the available materials that describe the business environment. This analysis is helpful to validate the implementation of current solutions and is also helpful in understanding the business need. Document analysis includes reviewing the business plans, technical documents, problem reports, existing requirement documents, etc. This is useful when the plan is to update an existing system. This technique is useful for migration projects.

This technique is important in identifying the gaps in the system i.e., to compare the AS-IS process with the TO-BE process. This analysis also helps when the person who has prepared the existing documentation is no longer present in the system

**6. Survey / Questionnaire:** For the Survey/Questionnaire, a set of questions is given to stakeholders to quantify their thoughts. After collecting the responses from stakeholders, data is analysed to identify the area of interest stakeholders. Questions should be based on high-priority risks. Questions should be direct and unambiguous. Once the survey is ready, notify the participants and remind them to participate.

Question 6 – This project Elicitation Techniques - 5 Marks

Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques? Prototyping

Use case Specs Document Analysis Brainstorming

Fertilizers, seeds, pesticides details from the manufacturers and should be able to display them to the Farmers.

To gather the business requirements from the client, you went to SOONY and met Mr. Henry. When Mr. Henry was asked about the project and what are they expecting from the project, Mr. Henry stated that he is expecting to have a login for all its users (fertilizers, seeds, pesticides manufacturers and Farmers) , a product catalog of fertilizers, seeds, pesticides, a search option to search for products, payment process, and delivery tracking.

After doing the stakeholder analysis, you have found out that Peter, Kevin, Ben are the key stakeholders and you have scheduled an appointment to meet them. After meeting with them and trying to gather the stakeholder requirements, Kevin said that, a Farmer should be able to browse through the products catalog once they visit the website and need to have a search option so that they can search for any product they need. Peter said that, if a farmer wants to buy any product or add them to buy-later list, they need to login.

first using their email id and password. If it is a new user, then they can create a new account by submitting their email ID and creating a secure password. Ben added saying that, Farmers needs to have an easy-to-use payment gateway which should include cash-on-delivery (COD), Credit/Debit card and UPI options so that the user’s experience should be better. Kevin mentioned that, a user gets an email confirmation regarding their order status. A delivery tracker to track the whereabouts of their order.

Identify Business Requirements (which includes Stakeholder Requirements)

BR001 – Farmers should be able to search for available products in fertilizers, seeds, pesticides BR002 – Manufacturers should be able to upload and display their products in the application

**Ans-**

**1. Prototyping**

Why use it:
This is one of the most effective techniques for e-commerce-based platforms like your Agriculture Products Store.

Justification:

* Stakeholders (like farmers, store owners, buyers) may not be tech-savvy or able to express detailed requirements clearly.
* A visual mock-up or clickable prototype helps them visualize the interface and provide tangible feedback.
* It reduces misunderstandings and helps refine UI/UX before actual development.

 **2. Use Case Specifications**

Why use it:
Use cases define how different types of users (like Admin, Customer, Vendor) interact with the system.

Justification:

* Clarifies the functional requirements in a structured format.
* Helps developers and testers understand the expected system behaviour under different scenarios.
* Useful for deriving test cases and validation criteria later in the SDLC.

**3. Document Analysis**

Why use it:
Analysing existing systems, reports, or documentation (if any) helps gather background knowledge.

Justification:

* If the client had a previous website, app, or manual process, analysing those documents provides insights into current pain points and expectations.
* Reduces redundancy and ensures the new system covers legacy features (if required).

 **4. Brainstorming**

Why use it:
Especially useful during the early stages of requirement gathering.

Justification:

* Encourages open discussion and creative inputs from multiple stakeholders, like marketing, operations, and tech teams.
* Helps identify innovative features (like crop suggestions, weather-based product recommendations, etc.).
* Brings out hidden requirements and future possibilities.

Question 7 – 10 Business Requirements- 10 Marks

 Make suitable Assumptions and identify at least 10 Business Requirements.

**Ans-** 1. System should show welcome page

2. System should allow user to login through mob no. or mail id

3. User should get the option of COD and Cr\Dr card for payment

4. Users should get product details once they clicked on it.

5.Customer should get email / message once order booked.

6. If any delays from companies to deliver product user should get message.

7. Users should be able to book products in advance or carry in their cart.

8. System should have option to exchange or return the product

9. System should allow users to give feedback / rating for products and other users

 can have view option.

1. Feedback and customer care tab should be on home page.

Question 8 –Assumptions- 5 Marks

List your assumptions

 **Ans-** 1. consumers will be keen to buy your products or services, generating sufficient sales to make profit for the long run.

2. They will get all resources asap.

3. Client start thinking of profit before launching products in market.

4. Is there significant customer base.

5. Clients thinks that business will get funded.

6. client thinks that there will be smooth delivery of product.

7. We can beat competitor easily

Question 9 – This project Requirements Priority - 8 Marks

Give Priority 1 to 10 numbers ( 1 being low priority – 10 being high priority) to these Requirements after discussions with the stakeholders

|  |  |  |  |
| --- | --- | --- | --- |
| Req ID | Req Name | Req Description | Priority |
| BR001 | Farmer Search for Products | Farmers should be able to search for available products in fertilizers, seeds, pesticides | 8 |
| BR002 | Manufacturers upload their Products | Manufacturers should be able to upload and display their products in the application | 8 |
|  |  |  |  |

Once the requirements are finalized, as a business analyst, one of the major roles is to act as a liaison between the client and the project team. To gather the requirements correctly from the client side and then to deliver those requirements to the project team in a way they understand.

To make the project team understand the requirements, you need to convert those requirements into UML diagrams and screen mock-ups.

|  |  |  |  |
| --- | --- | --- | --- |
| ReqID |  Req Name  |  Req Description  | Priority |
| BR001 | Farmer Search for Products | Farmers should be able to search for available products in fertilizers, seeds, pesticides | 8 |
| BR002 | Manufacturers upload their Products  | Manufacturers should be able to upload and display their products in the application  | 10 |
| BR003 | Payment options for farmers | Farmers should be able to do the payment through multiple payment options | 7 |
| BR004 | Login option | System should allow user to login through email Id or mob no | 10 |
| BR005 | Product Information | Users should get product details once they clicked on it. | 7 |
| BR006 | Product return/exchange | System should have option to replace they or return the product. | 6 |
| BR007 | Information about delivery | If there is any delay in delivering the product, user should get message | 6 |
| BR008 | No limitation to book/ purchase the products | Users should be able to book products in advance or carry in their bucket. | 5 |
|  |  |  |  |

Question 10 – Use Case Diagram - 10 Marks

 Draw use case diagram

 **Ans :** A use case diagram is a visual representation of the interaction between users (action)

And a system.



Question 11 – (minimum 5) Use Case Specs - 15 Marks

Prepare use case specs for all use cases

**Ans-** This use case describes how this website will help farmers to buy fertilizer& another item online.

**1. Use Case: User Registration**

Actors: Farmers, Manufacturers (Fertilizer, Seeds, Pesticide Companies)
Description: Users (Farmers & Manufacturers) can register on the platform to access its features.
Preconditions: The user must have a valid email or mobile number.
Flow of Events:

1. The user selects "Register."
2. The system prompts for personal/business details.
3. The user enters the details and submits.
4. The system verifies the information and creates an account.
5. The system sends a confirmation via email/SMS.
Postconditions: The user receives login credentials and can access the platform.

**2. Use Case: Product Listing by Manufacturers**

Actors: Manufacturers (Fertilizer, Seeds, Pesticide Companies)
Description: Manufacturers can list their agricultural products for farmers to browse and purchase.
Preconditions: The manufacturer must be registered and logged in.
Flow of Events:

1. The manufacturer logs into the system.
2. They navigate to the "Add Product" section.
3. They enter product details (name, description, price, stock, etc.).
4. The system validates and saves the product details.
5. The product becomes visible in the farmers' catalog.
Postconditions: The product is successfully listed and available for purchase.

**3. Use Case: Product Search and Browsing by Farmers**

Actors: Farmers
Description: Farmers can browse or search for agricultural products based on categories, brands, or keywords.
Preconditions: Farmers must be registered and logged in.
Flow of Events:

1. The farmer navigates to the product catalog.
2. They search for products using keywords or filters.
3. The system displays matching products.
4. The farmer views product details and selects an item.
5. They proceed to add the item to their cart.
Postconditions: Farmers can view, compare, and select products for purchase.

**4. Use Case: Order Placement and Payment**

Actors: Farmers
Description: Farmers can purchase selected products and make payments through the platform.
Preconditions: The farmer must be logged in and have products in the cart.
Flow of Events:

1. The farmer selects "Checkout."
2. The system prompts for delivery details.
3. The farmer reviews the order and selects a payment method (UPI, Net Banking, COD).
4. The system processes the payment and confirms the order.
5. The farmer receives an order confirmation.
Postconditions: The order is placed, and the farmer receives a confirmation message.

**5. Use Case: Order Tracking and Delivery Status**

Actors: Farmers, Delivery Agents
Description: Farmers can track their orders and receive updates on delivery status.
Preconditions: The farmer must have placed an order.
Flow of Events:

1. The farmer navigates to "My Orders."
2. They select an order to view details.
3. The system displays order status (Processing, Shipped, Delivered).
4. The system sends real-time delivery updates.
5. The farmer receives a notification upon delivery.
**Postconditions: Farmers can track their orders and know the expected delivery date.**

Question 12 – (minimum 5) Activity Diagrams - 15 Marks

Activity diagrams

**Ans:-** Active diagram is a type of diagram is a type of diagram in a unified modeling language (UML)

That visually represent the flow of activity with in a system.

Activity diagrams are one of the five diagrams in the UML for modelling the dynamic aspects of the system. An activity is essentially a flowchart showing the flow of control from activity to activity. In the above online case study, we use certain elements for the use case model.

1. Initial node start node indicate where the workflow begins.

2. Control flow an arrow showing the direction of the workflow

3. Activity indicates a step in the process it is a unit of work done by the system or a consistent achieved

4. Connector a trigger attached to control flow when the guard condition is true

**Login Page**



**Registration Page**



**Buying Fertilizer**



**Adding or updating Product**



