**CAPSTONE PROJECT (PREPARATION-1)**

 **TOPIC: - Online Agriculture product store**

**Q.1)** Identify Business process model for online agriculture store-(Goals, inputs,resources,outputs,activities,value created by end customers)?

**Ans.1)** Goal: -The goal is to create an application/website for agriculture online store that can facilitate farmers to purchase agriculture products (i.e. seeds, fertilizers, pesticides) from anywhere.

 Inputs: - Farming products such as seeds, pesticides, fertilizers & manufacturing company.

 Resources: - Mobile phones, Internet connectivity, farming products, agriculture products such as seeds, fertilizers, pesticides, team of developers & testers.

 Activities: - a.) Registration of farmers with mobile no, name and address

 b.) User login with details

 c.) Customer will select the product they wish to purchase

 d.) Customer will make payment through online payments/cards.

 e.) Order confirmation

 f.) Delivery of products

 Output: - Availability of farming products i.e. (seeds. pesticides, fertilizers) on online platform and delivery to remote area.

 Value created by end customers: - Satisfied customers will be able to procure farm products from user friendly mobile application from anywhere.

**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?

**Ans.2)** Strengths: - a.) Company is having talented individuals of java developers and testers.

 b.) Team has past experience of doing various IT projects

 c.) Good experience in handling complex projects

 d.) Project budget is INR 2 CR

 Weakness: - a.) Team handling this kind of project for the first time

 b.) Old farmers can hesitate to use the app as they are less familiar with digitization

 c.) Time duration is 18 months which seems less

Opportunities: - a.) Provides solution to the farmers and can reach global market

 b.) Project done by the company is first time in the market

 c.) Project can be completed without any hurdle as the budget assigned is INR 2CR.

Threats: - a.) Farmers knowledge on how to use the app

 b.) Delivering of products in remote areas with less connectivity.

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?

Ans 3) Feasibility study

 Hardware: - Laptops/desktops, mobile phones, Desk/chairs, big room

 Software: - Windows licenses for laptops, JAVA license for developers & testers, strong internet connectivity.

 Trained resources: - Java developers, experienced senior developer, testers, network administrators & business analyst.

 Budget: - INR 2 CR

 Time frame: - 18 months

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?

Ans 4) **AS-IS**: - Farmers aren’t able to procure the products easily, and transportation expenses are much higher in the city, Still many farmers aren’t able to procure the goods due to unavailability.

 **TO BE**: - Farmers will be able to purchase products easily from anywhere with simple & user-friendly mobile application and can do the payments from there itself. Added benefits is that they can get the products delivered at their doorstep.

Q.5) List down different risk factors that may be involved (BA Risks And process/Project Risks)?

Ans.5) Risk analysis

**BA Risks**: -

1. BA can find difficulties in requirement gatherings from stakeholders due to old & less educated farmers.
2. Period of project development timeline is less.
3. Change request in the last phase of the project lifecycle.
4. Coordination of developers & JAVA developers can be critical.
5. Proper coordination with delivery partners can be crucial from remote area.
6. BA might have lack of domain knowledge due to first of kind of project.

**Project risk**: -

1. Farmers are less familiar with digitalization and can hesitate in buying online.
2. Low internet connectivity in remote areas can lead to failure of ordering & payments.
3. Farmers could follow the old habits of procuring products from the offline store

**Internal risk**: -

1. High operating expense in maintaining the application after deployment
2. Technical issues in handling
3. External competitions from other e commerce website.

Q.6) Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take decisions and Who are the influencers?

Ans.6) Stakeholder analysis (RACI matrix)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Position** |  **R** |  **A** |  **C** |  **I** |
| Mr. Henry | Business sponsor |  |  |  | Yes |
| Mr. Vandanam | Project manager |  | Yes |  |  |
| Mr Dooku & Mr. Pandu | Business stakeholders |  |  |  | Yes |
| Juhi, Tyson, Tucker,Lucie, Bravo, Mike, John,Jason, Alekya | Developers, testers, net admin, DB admin |  |  | Yes |  |
| Peter,Kevin,Ben | Influencers |  |  | Yes |  |
|  Sumit Pandey | BA | Yes |  |  |  |

 **R: - Responsible, A: - Accountable, C: - Consulted, I: - Informed**

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

Ans.7) Following points are to be covered under business case document: -

Project name: - Online agriculture product store

Project manager: - Mr. Vandanam

Client: - SOONY ltd.

Time duration: - 18 months

Budget: - INR 2 CR

**Project statement: -** To build an application/website for online store for agriculture products.

.**Product**: - An online store which will facilitate farmers from remote area to buy products such as seeds, pesticides, fertilizers easily and from anywhere.

**Current Problem**/**Present circumstances**: - Farmers are facing difficulties in procuring agriculture products such as seeds. pesticides, fertilizers etc. Unavailability of these is leading to bad crops and low profits.

**Solution: -** Farmers can buy varieties of agriculture products from home using simple mobile application and can get their products delivered at doorsteps

**Resources required:** -. Information on product, suppliers, payment partners, delivery partners.

Hardware: - Laptops with licences, desk/chairs etc.

Software: - JAVA license, Visio, azure etc

Team of 14-15 people is required to accomplish this project.

**Organisational changes**: - Requirement of new team to manage and maintain supply chain between suppliers, customers, payment partners, banks

**ROI**: - Budget sanctioned: - INR 2 CR

 Time frame: - 18 months

 Expected ROI: - 1 YEAR

**Stakeholders’ identification: -** a.) Mr. Henry, Mr. Pandu, Mr. Dooku

 b.) Farmers

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?

Ans.8) There are four SDLC methodologies such as follows: -

**Waterfall (Sequential): -** Waterfall methodology is a development process where all the phases flow like a waterfall. Each phases needs to be completed before the next phase begins. There are 5 stages in waterfall methodologies i.e. requirement analysis, design, implementation, testing, deployment/maintenance.

**Iterative: -** In the development process, each phase builds upon previous one. The development takes place in iteration and small parts. It is learning from previous iterations and gradually improving on them. There are 4 phases namely; - Requirement, design, implementation, testing, review.

**Spiral model: -** It is the combination of waterfall & iterative model. It is mainly used in large & complex projects. It emphasises more on risk analysis. A project repeatedly passes through these phases in iteration. There are 4 phases in spiral i.e planning, risk analysis, engineering and evaluation. Software is produced early in the lifecycle.

**Agile(scrum): -** Agile is a mindset to manage the projects which is used to build complex software with high uncertainties, it has 4 values & 12 principles and based on 4 frameworks namely; - Scrum, Kanban, XP, Lean

It is used in knowledge works project where the work or the information is invisible, change requirements are inevitable, required high quality products, It provides autonomy to the team members, team can learn & grow and can produce innovative ideas.

It has 4 main values: -

1. Individual & interaction over processes and tools.
2. Working software over comprehensive documentation
3. Customer collaboration over contract negotiation.
4. Responding to change to over following a plan

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

Ans.9) **Waterfall**: - It is the most common and structured method of life cycles models. It is also referred as linear-sequential life cycle model. It is very simple & easy to understand. In waterfall model, each phase builds on the previous phase and runs sequentially. Once each phase is completed a review process will take place to decide whether to continue with the project or not. Waterfall model consists of 5 phase such as requirements analysis, design, implementation, testing, deployment.

  **RUP**: - It is an iterative software development life cycle process. After each iteration more requirement is added. It is deployed at very early stages of life cycle and has three supporting disciplines i.e. Configuration and change management, project management, Environment. It also has 4 project life cycle phases Inception, elaboration, construction, transition.

**Spiral**: - It is the combination of iterative & waterfall model. It basically emphasises on risk analysis.it has 4 phases planning, risk analysis, engineering, and evaluation. A software project repeatedly passes through these phases in iterations. It is used mainly for large & complicated projects. This model gradually releases the product and constantly keep working on refinement at each iteration. It can build prototypes at each phase.

**Agile**: - Agile is the most common methodology used in SDLC lifecycle. The product is started getting delivered from very beginning. Client starts using the application immediately. change request is possible at each phase during delivery. It depends on 4 main values & 12 principles and based on frameworks such as Scrum, Kanban, XP, Lean.

Q.10) Write down the differences between waterfall model and V model?

Ans 10.) Difference between waterfall and V-model.

|  |  |
| --- | --- |
| **Waterfall** |  **V-model** |
| It is sequential in nature where each phase builds upon the previous phase. Testing is done after development | It is the development model, simple & easy to use. After each development testing phase is carried out. |
| It is a less flexible approach as each phase relatively linear sequential and must be completed before entering the next phase. | It is more flexible in nature; Development & testing happens parallelly. |
| In waterfall model, flaws can only be identified after development, Testing only occurs after complete development. | It identifies flaws during each testing, no pending testing occurs in this model. And also, validation requires after each testing |
| Cost is low as complexity is less during developments only one phase is operational at a time. | Cost is higher compared to waterfall as it has more complex in nature |
| Probability of defects is high as testing is done only after development  | Probability of defects is low as testing is done parallel with development |

Q.11) As a BA, state your reason for choosing one model for this project?

Ans.11) As a BA, I would choose the waterfall approach as this a first of kind of a project and have lack of domain knowledge. The biggest advantage is it has structured approach and has fix stages. Reviews are done after each stage to decide whether to carry out with project or not.

Q12.) 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?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Process** | **W1-W3** |  **W3-W6** | **W7-W9** | **W10-W12** | **W13-W15** | **W15-W18** |
| **RG** |  |  |  |  |  |  |
| **RA** |  |  |  |  |  |  |
| **D1** |  |  |  |  |  |  |
| **T1** |  |  |  |  |  |  |
| **D2** |  |  |  |  |  |  |
| **T2** |  |  |  |  |  |  |
| **D3** |  |  |  |  |  |  |
| **T3** |  |  |  |  |  |  |
| **D4** |  |  |  |  |  |  |
| **T4** |  |  |  |  |  |  |
| **UAT** |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Resources** | **W1-W3** |  **W3-W6** | **W7-W9** | **W10-W12** | **W13-W15** | **W15-W18** |
| **PM** |  |  |  |  |  |  |
| **BA** |  |  |  |  |  |  |
| **DB ADMIN** |  |  |  |  |  |  |
| **JAVA DEV** |  |  |  |  |  |  |
| **TESTERS** |  |  |  |  |  |  |
| **NET ADMIN** |  |  |  |  |  |  |

Q.13) Explain the difference between Fixed Bid and Billing projects?

Ans.13) **Fixed bid project**: - Fixed bid project in which the time and scope is fixed within the budget and timeframe. In fixed model client will give all the details initially, hence the vendor can present the bid. Vendor will explain how much time it would require to accomplish this project and how much it would cost. As the budget & time is fixed it has less financial risk but no room for flexibility. This model work well with smaller projects with limited features.

 **Billing model**: - It is the project in which project is billed on hourly basis. It is billed on no of hours worked at hourly, daily or monthly fixed billing rates. This model is flexible in nature as there is no restriction on change in requirements and budget.

Q.14) Prepare Timesheets of a BA in various stages of SDLC.

 (Design timesheets of BA, Development timesheets of BA, Testing timesheets of BA, UAT timesheets of BA, Deployment timesheets of BA)?

Ans.14) **Design timesheets of BA**: -

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Start time | Stop time | Total time | Remarks |
| Preparing test cases | 10.00 a.m | 12.00 p.m | 2 hrs | completed |
| Allocating requirements | 12.30 p.m | 2.30 p.m | 2 hrs | completed |
| Assessing design options | 3.00 p.m | 4.00 p.m | 1 hr | completed |
| Identifying risk in design phases | 4.00 p.m | 5.00 p.m | 1 hr | completed |
| Recommendation and sign off on approval | 5.00 p.m | 6.00 p.m | 1 hr | completed |

**Development timesheets of BA**: -

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tasks | Start time | Stop time | Total time | Remarks |
| Meeting with developers & testers | 10.00 a.m. | 11.00 a.m. | 1 hr | completed |
| Analysing the dev phase | 11.15 a.m. | 1.30 p.m. | 2.15 hrs | completed |
| Analysing the defects & minimising | 1.45 p.m. | 3.45 p.m. | 2 hrs | completed |
| Working change req | 4.15 p.m. | 5.15 p.m. | 1 hr | completed |
| Approval & sign off | 5.20 p.m. | 6.00 p.m. | 40 mins | completed |

**Testing timesheets of BA**: -

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tasks | Start time | Stop time | Total time | Remarks |
| Meeting with responsible stakeholders & testers | 10.00 a.m. | 10.30 a.m. | 30 mins | completed |
| Create system test case | 10.45 a.m. | 12.30 p.m. | 1.45 hrs | completed |
| Review system test case | 2.00 p.m. | 3.00 p.m. | 1 hr | completed |
| Working on any new requirements | 3.15 p.m. | 4.00 p.m. | 45 mins | completed |
| Preparing test case documents | 4.30 p.m. | 5.30 p.m. | 1 hr | completed |
| Sign-off & approval | 5.30 p.m. | 6.00 p.m. | 30 mins | completed |

**Deployment timesheets of BA**: -

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tasks | Start time | Stop time | Total time | Remarks |
| Meeting with stakeholders & testers | 10.00 a.m. | 11.00 a.m. | 1 hr | completed |
| Running the complete application/code for the first time | 11.15 a.m. | 12.30 p.m. | 1.15 hrs | completed |
| Risk analysis on the given codes | 12.45 p.m. | 3.00 p.m. | 2.45 hrs | completed |
| Working on any defects & changes | 3.30 p.m. | 5.10 p.m | 1.40 hrs | completed |
| Approval & sign-off | 5.15 p.m. | 6.00 p.m. | 45 mins | completed |

**UAT timesheets of BA**: -

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tasks | Start time | Stop time | Total time | Remarks |
| Meeting with concerned stakeholders | 10.00 a.m. | 11.00 a.m. | 1 hr | completed |
| Developing test cases scenario | 11.15 a.m. | 12.45 p.m. | 1.30 hrs | completed |
| Create UAT test cases | 01.30 p.m. | 3.30 p.m. | 2 hrs | completed |
| Considering any change request | 3.45 p.m. | 4.15 p.m | 30 mins | completed |
| Reporting the possible outcomes to PM | 4.30 | 5.15 p.m. | 45 mins | completed |
| Sign-off & approval | 5.20 p.m. | 6.00 p.m. | 40 min | completed |