IT314 - Software Engineering

Lab Session VI – Software Engineering Case Based Learning Exercise

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Project Name: Automatic Answer Checker

Questions:

1. Identify all the stakeholders and users of the systems. Enlist all features of the LIC Market-Drivensystem by each user of the system, in the form of user stories. Can you prioritize them using the requirement prioritization techniques? (e.g., AHP, Numerical Assessment, MoSCoW method, etc.) How?
Provide details.

Stakeholders:

- Customer
- Agent
- Manager
- Auditor

User Story

1. As a Customer, I want the option to either choose an existing plan or customize an insurance package so that I can curate it according to my needs.
2. As an Agent, I want a price and policy suggestion for a customized user-plan so that I can negotiate with the customer and push the documentation accordingly
3. As an Agent, I want a detailed analysis of all my customers so that I can follow up with my customers
4. As a manager, I want customized Insurance package suggestions depending on the current market trend so that I can compete with rivals.
5. As a manager, I want price suggestions for pre-existing insurance plans depending on the current market trend so that I can compete with rivals.
6. As a manager, I want to review all sales made by agents so that I can analyze the data for future reference and approve current insurance sales.
7. As an Auditor, I want to view all sales and claims records so that I can verify the proper working of the organization.

Requirements Prioritization using **Numerical Assessment Technique**

User Story	Priority(1-5)
As a Customer, I want the option to either choose an existing plan or customize an insurance package so that I can curate it according to my needs.	5
As an Agent, I want a price and policy suggestion for a customized user-plan so that I can negotiate with the customer and push the documentation accordingly	5
As an Agent, I want a detailed analysis of all my customers so that I can follow up with my customers	3

As a manager, I want customized Insurance package suggestions depending on the current market trend so that I can compete with rivals.	5
As a manager, I want price suggestions for pre-existing insurance plans depending on the current market trend so that I can compete with rivals.	4
As a manager, I want to review all sales made by agents so that I can analyze the data for future reference and approve current insurance sales.	4
As an Auditor, I want to view all sales and claims records so that I can verify the proper working of the organization.	3

2. Prepare a list of market-facing technologies helpful for this project. According to you, would market-facing technologies be helpful in the proper deployment of the product? Why?

Market facing technologies:
Various insurance and policy related technologies like https://www.policybazaar.com can be helpful for this project.

List of technologies for deployment:

- Web Application
- Mobile Application
- Digital kiosks
- Mobile Point of Sale (mPOS)
- Rugged Tablets

Yes, Market-facing technologies like Web Applications and Mobile Applications will be greatly helpful for proper deployment of the product as they are easy to use, easily accessible and popularly used. The others mentioned above would not be very effective in comparison to Web and Mobile Applications

3. Suggest an effective requirement engineering framework that can be used in market-facing projects because there are no existing systems that can be analyzed for the development so we need to consider all requirements from the core.

Use cases can be used for gathering requirements from the scratch.
For requirement elicitation, market research, user stories and brainstorming are very important. Another important aspect is conducting interviews with potential customers to gather their perception.
An agile process model can be used for the development of the system because we have varying priority requirement for our features and hence via continuous customer feedback we can have an iterative approach to solve the problems

4. List out the possible features that are not feasible to consider. Can you provide justification for each of them in detail?

Some of the features which can't be implemented fully are :

1. **An efficient system that gives curated policy suggestions:** This is because, via market data, price suggestions through a predictive model are easy to develop but getting policy suggestions is a relatively difficult task and may not be very accurate.
2. Giving the customers complete flexibility to curate the plans may not be possible because it may clash with certain guidelines or current market trends . It has to follow some templates.

5. Let us assume that the customized package developed by the customer (using your second product) is similar to the package available in your pre-defined package. What is the possible reason behind this defect? How it can be ensured that this would not happen? In which requirements engineering activity,this defect can be handled? Please provide a scenario to justify.

Ans:

- The defect may be due to following reasons :
  - The user does not know that a similar package is available.
  - The package does not allow editing the features.
  - The user is intentionally doing this
- To ensure this does not happen:
  - Allow the user to search the pre-defined package
  - Allow the user to edit/ customize the package
  - Add a filter while searching a policy for ease of finding predefined packages
  - If a package is, say 85% similar, point out that we have this type of package, please select the predefined packages, don't waste time

- Requirement Engineering activity to handle this :
  - Market research on the competence of users while handling a similar UI or their knowledge of existing plans would be very helpful in generating the necessary requirements.

- Scenarios:
  - Suppose a customer is looking for a policy but he was not able to find one in first hand and so he decides to customize his own package, the system, at that point search through the available packages and will be able to provide a better pre-defined package. We can also show how it benefits more than other packages, thus bringing more choice to the customer.
  - We can have another scenario where a customer wants a predefined package but for a smaller duration, then he can customize the already predefined package to his needs.

6. Identify three different use cases where the conflicts between the requirements occur? Do you think that the conflicts can be resolved? How?

1. If it happens that the package that is given a price and a user tries to customize the package on top of it then the package might end up being priced more than what it should've been. This could be solved by pricing the customized package on top of the base package instead of other packages.
2. In the event that a sale/plan is deemed invalid by the manager, then the agent may need to cancel the entire plan for all existing customers and shift them to an alternate plan
3. The automated pricing models may have numerous edge cases which would make the pricing incorrect and unfair in these particular cases. Hence all such edge cases must be covered

7. Considering the set of features you have identified, what are the non-functional aspects associated with this system? Explain the rationale behind the selection of each of them.

- Package suggestions and the price of the configured package should be efficient and it provides these within a specific time because it should not happen that the user has requested for review and he has to wait for a long time.
- All the information should remain confidential because what package the user creates should be known only to the insurance agents.
- The customer could create his/her own priority package at any time i.e system should be 24x7 available to customers because a customer will create a package at any time he would be free.
- The system is highly reliable, and if it fails it can restore quickly. It may occur that the internet connection of the user gets lost during payment so the information should not get lost on the system. Either the transaction should happen fully or not at all.
- The system is able to store all previous customer and market data and in case of a storage failure it is able to recover all critical data (>90%)
- This system is compatible in all web browsers as well as in android and ios operating system also because users with any type of device should be able to use.

8. Can there be ‘Open Issues’- issues those are identified but not taken care of? If yes, what are they? Is there some alternative ways for their resolution, such that no requirements conflict will happen?

1. In the event that a sale/plan is deemed invalid by the manager, then the agent may need to cancel the entire plan for all existing customers and shift them to an alternate plan.
2. The correctness of the price suggestion for the insurance plans or for the policy suggestions is debatable and may not be very accurate under all situations. They can only be resolved by researching and creating high grade models which have been trained extensively.

Additional Question:
How do the requirements of the similar systems (other similar applications) match with the system under study here?