Take Home Test 1 - Scenario

"Save-The-Day" is an NGO in a country called "Utopian land", that provides online help for tax returns. Their past records show that a high percentage of the tax filers who sought help from this NGO was not able to speak or understand English at a competent level. To help the tax filers, the NGO wants to create a chatbot. The chatbot will use the translation powers of a cutting-edge technology called HatsOff, accessible through its API. Tax filers and paralegals can log onto the system. The chatbot will provide support and help by replying to the queries of the tax filers, regarding their rights and obligations. Tax filers can save the conversation and resume the chat later. Tax filers can only chat with the chatbot, while the paralegals can check the financial state (income, child support paid/received, fringe benefits) as described by the tax filers in the form of a summary generated by the chatbot. The tax filer can stop the chatbot from saving any information for the paralegal for further processing. After reviewing the summary, the paralegal can send the cases to appropriate departments such as the taxation office, or social support office which may contact the tax filers offline for providing appropriate support.

QUESTION 1

Select the most relevant stakeholder from the list.

* Data Analysts
* Tax filer
* Victims of tax scams
* Traffic police

5 points

QUESTION 2

Select a user story for the paralegal

* As a paralegal I should be able to chat with the tax-filer in order to provide them support.
* As a paralegal, I should be able to send reports on questions raised by the tax filers, so that external organisations can support the tax filers.
* As a paralegal, I should be able delete a conversation summary, in order to protect clients information.

5 points

QUESTION 3

For the given study please provide a use case diagram. You can either use a software such as a draw.io or can draw the diagram by hand and upload the screenshot. Please make sure that the diagram is readable as a screenshot.

QUESTION 4

A disgruntled employee may try to sell the data collected by the NGO (through this system) to a private debt collection agency so that they can efficiently identify people who were not submitting the correct tax returns. The employee may try to hand over the harddisk on which data is being collected. What two non-functional requirements could be most relevant here?

* Data encryption: All data stored on the hard drive should be encrypted, which ensures that even if the physical hardware is damaged or stolen, user information remains inaccessible without the decryption key
* Physical Access Control: Strict physical security measures are implemented at the data drive storage location. This includes locking cabinets, restricting access to server rooms, biometric scanners and security to prevent unauthorised physical access to hard drives from being taken out

QUESTION 5

Identify one (1) functional requirement for the case study. Your new requirement should be one that conflicts with one or both of your non-functional requirements you identified earlier. In a sentence or two, state your requirement clearly and explain why it conflicts with your non-functional requirements

The system must allow tax filers to modify their financial data entries in real time, without any approval or oversight, to correct any perceived errors or to update their information instantly.

Conflict:

Data Encryption: While encryption is designed to protect data from unauthorised access, real-time modifications require decryption and manipulation of the data, which can put it at risk during the modification process. If the system allows such direct and real-time interaction with encrypted data, the system may implement a decryption process that creates vulnerabilities, and the management of keys will also increase and thus impose a burden on system operations and system security, especially if each step of the data modification workflow is not handled securely

QUESTION 6

Identify some extra information that you need to elicit in order to fully understand the new requirement. Also suggest an elicitation technique you could use to obtain this information.

Data Privacy and Security: Since systems involve sensitive financial and personal information, it is critical to understand specific government data privacy and security requirements. This includes clarifying what information can be stored, who can access it, and any legal compliance requirements related to data processing.

Elicitation Technique: Stakeholder Workshops; Interviews; Document Analysis

The stakeholder workshop will be a collaborative forum for users (tax filers and paralegals), NGO workers, IT security experts and government officials to discuss and understand data privacy and security requirements. These workshops will facilitate brainstorming sessions to identify potential risks, discuss legal compliance needs, and discuss scenario planning to address various data-related challenges, ensuring a comprehensive understanding of requirements from multiple perspectives.

Interviews will allow insight into the specific concerns and expectations of individual stakeholders. By having one-on-one conversations directly with users, government representatives, and data security professionals, NGOs can gather information about privacy and security needs, concerns, and local laws about data privacy.

Document Analysis will ensure that the way chatbots process data is carefully checked and complies with current legal rules. This means carefully reading legal documents, rules and regulations, and studying how similar systems manage data. By doing this, we gain an understanding of this type of system that helps guide NGOs on how to properly handle data privacy and security.

User interaction and experience: Details about how tax filters and paralegals interact with chatbots are important. For example, what specific features will the chatbot provide for each user group? What is the expected flow of the conversation?

Elicitation Technique: Prototyping; User Journey Mapping

Prototypes visually and iteratively improves the chatbot's interface and interaction flow, allowing users to give tangible feedback on its functionality and usability. This step helps the design team identify and correct potential issues before the system is fully deployed.

The user journey map will provide every step of the user's interaction with the chatbot. This process will highlight key interaction points and decision points, and provide ideas for users' needs and expectations. By mapping these journeys for tax filers and paralegals, NGOs can know how chatbots are used by different users, which can optimise chatbot effectiveness and user satisfaction.

QUESTION 7

What is the major flaw in this system?

The main flaw of the system is that it cannot handle complex tax-related issues, and it is unable to interpret detailed relevant laws and personal circumstances, which results in the system only being able to solve general tax issues. Firstly, tax issues often involve complex and multilayered contexts. No matter how sophisticated the chatbot is, it may not fully understand the context or the user's situation, especially if the information is conveyed solely through text without voice or personal interaction, potentially leading to the final tax filing results may be different. At the same time, the chatbot may not accurately respond to ambiguous user inputs, it may require users to input very precise information and data, but users may have no understanding of tax. Moreover, each taxpayer's situation is unique, which leads to the chatbot being able to handle general inquiries but unable to provide the level of customised service like a paralegal assistant. In the end, tax issues can be stressful, and unlike human staff who can provide better comfort, and chatbots lack empathy to respond appropriately to frustrated users.