Part 2: Requirement

Functional Requirements

Application general end user-related requirements

1. System shall allow the end user to register in the iCare App.
2. System shall allow the end user to login in the iCare App.
3. System shall allow the end user to view his\her profile.
4. System shall allow the end user to update his\her profile.
5. System shall allow the end user to retrieve username and password in case user forget any of them.
6. System shall allow the end user to view upcoming booked appointments.

Parent\legal guardian\mother end user-related requirements

1. System shall allow the parent end user to book an appointments with pediatricians.
2. System shall allow the parent end user to cancel any booked appointment within allowed cancellation period.
3. System shall allow the parent end user to view health-related FAQs about new born, new mom, and children.
4. System shall allow the parent end user to contact with a nurse for further information.
5. System shall allow the parent end user to post questions asking for after birth related concerning questions.
6. System shall allow the parent end user to review and rate answered questions.
7. System shall notify parent end user when his question is answered.
8. System shall notify parent end user for upcoming appointments.

Professionals(nurse)-related requirements

1. System shall allow the nurse user to view the home visit details such as time, home address, and the purpose of the visit.
2. System shall allow the nurse user to use a live map directions to the homes.
3. System shall allow the nurse user to update Electronic Health Record after every visit.
4. System shall notify nurse user for upcoming home visits.
5. System shall notify nurse user for cancellation of home visits.
6. System shall allow the nurse user to answer questions posted by parents.

Non-functional requirements

User non-functional requirements

1. User should be able to learn how to use iCare interface quickly. (usability)
2. User should easily accomplish the tasks. (usability)
3. Users should be able to run iCare application with iOS and Android devices. (portability)
4. Electronic Health Record should only be accessed by authorized users.(security)
5. Homes' locations should only accessed by assigned neurses. (privacy)
6. Notification should be very noticeable to the users. (usability)
7. Available\ booked appointments should be synchronized.

Security

Security-1 (Authentication): The app should support user authentication with a unique ID and a password only known by the user.

Security-2 (Integrity): The data should be encrypted using WPA2 and 128-bit key encryption.

Security-3 (Non-repudiability): The app should keep track of login/logout time of every user.

Security-4, (Integrity): It should have adjustable security settings for trusted and untrusted locations.

Security-5 (Integrity): Remote wiping should be enabled, as it allows a user to permanently delete all data stored on a mobile device remotely, such as when the device is stolen.

Security-6 (Integrity): The app should support automatic log-out, after a specific time of inactivity.

Security-7 (Integrity): The app should warn the users if they are connected to a less secure Wi-Fi network, such as to a public wireless Internet.

Privacy

Privacy-1 (Compliance): The user's consent for the handling of personal data must be free, specific and informed. If the user withdraws his consent it has to result in the deletion of his personal data.

Privacy-2 (Awareness): The user must be educated what data are being collected and what can be inferred from such data.

Privacy-3 (Compliance): The data must be kept only the necessary time for the initial purpose and must be deleted once the purpose is achieved.

Privacy-4 (Compliance): The purposes for which the data is being processed should be precise and legitimate. Only data that are strictly essential for the functionality of the icare may be processed.

Privacy-5 (Compliance): The user needs to be informed before the disclosure of data to a third party and the app developer needs to enter into a binding legal agreement with the concerned third party.

Privacy-6 (Confidentiality): It should be ensured that the icare app should not access SMS, camera, contacts, etc. without permission.

Maintainability

Maintainability-1, Testability: The software life cycle must follow a test first driven approach.

Maintainability-2, Testability: The source code authored by the project team must be covered with unit testing. the system unit testing coverage should be more than 80% at all times.

Maintainability-3, Testability: The application feature must be covered by automated testing, the system automation testing coverage should be more than 70% at all times.

Maintainability-4: Builds must contain no more and no less modules than are listed within the design document.

Maintainability-5: All unit testing should pass correctly before commiting code to the source code repository from the integration machine.

Maintainability-6: No failed unit tests should be present on the source code repository at any time

Maintainability-7: Eliminate the existence of duplicate codes by using Code Analysis tools

Maintainability-8: Follow Code review and Code refactoring practices during SDLC process.

Maintainability-9: Follow the project coding, indentation and naming conventions standards

Maintainability-10: Follow and use different code metrics suites “MOOD and QMOOD” to monitor code maintainability. Metrics should be calculated at the end of every iteration or release.

Usability

Usability-1, User Interface Aesthetics: There should be at most 5-7 items showing on each page of the application so as to not confuse the user.

Usability-2, Learnability: Application must have clear navigation, logical structure and easy-to-follow hierarchy and user must know what section they're currently in at any point.

Usability-3: Search results (for available doctors, booking times, etc) should take less than or equal to 10 seconds on average.

Usability-4, User Error Protection: Ask for confirmation when the parent wants to both book or cancel an appointment, making the system more error tolerant. However, application should not ask for confirmations indiscriminately or in too many places.

Usability-5, Operability: Wherever it seems fit, textual options should be accompanied with appropriate graphics to aid in understanding what that option does, especially useful for those where their mother language is not in the app.

Usability-6, Operability: A typical parent should be able to book an appointment in less than or equal to 5 minutes.

Usability-7, Accessibility: Option for different languages common to the region should be made available to the user

Usability-8: Provide the option for the parent of being notified/reminded by the application a certain number of days before their appointment.

Usability-9, Learnability: Provide a unobstructive and concise tutorial/tooltip overlay when the user lands on a page for the first time. The user should be able to easily bring the helpful overlay back as a refresher if they choose so as part of the help menu.

Usability-10, User Interface Aesthetics : User interface should only show the relevant elements specific to each type of user (i.e parent, professional).

Usability-11, Operability: App should have a “Remember me” option and keep the user from having to type their username/password for login every time.

Usability-12, User Interface Aesthetics: App should support both portrait and landscape orientation

Usability-13, Accessibility: The use of colours should be such that it does not affect colour blind parents, or at least a colour blind setting should be made available to those who need it.

Usability-14, Learnability: In places where applicable, it should conform to existing "standard" design flows common in apps that are in similar vein or domain. Example are location of back button, menu item style, gesture used for modifying entries, etc

From the pdf that was emailed to us:

Table 3 Usability Requirements

Adaptive UI design	User interfaces (UIs) shall allow easy and user-friendly interaction with services and applications, while supporting personalization according to the patient's needs and preferences
Adaptation to PoC environment	User interfaces of point-of-care applications and services shall allow easy or automatic adaptation to the specific involved PMD(s) the user has to involve in an user scenario
Patient-friendly utilization of PoC data to support multiple support scenarios	Utilization of data gathered one time from PMDs in the point-of-care environment for different applications and services, locally in the PoC environment, and for health and care experts
Easy identification and relationship management	Identification of information (patientID, deviceIDs, …) shall be easily be configurable or seamlessly provisioned and propagated to support the relationship management (see Security requirements above)

Portability:

Portability-1, Adaptability: The application must provide a system of supporting variety of phones and tablets consisting of different resolutions and OS systems.

Portability-2: No more that 10% of the system implementation must be specific to an operating system

Portability-3, Replaceability: The mean time to replace the database with another (of same type) should be less than or equal to 12 hours.

Portability-4, Installability: Application must be available on the standard application market depending on the current OS.

Reliability

Reliability-1: The system defect rate should be less than or equal to 1 failure per 1500 hours of operation.

Reliability-2, Maturity: No more than 1 per 1000 system action (booking, cancellation, searching, etc) should result in a failure such that the application needs a restart.

Reliability-3, Availability: System should have equal or more than 95% uptime.

Reliability-4, Recoverability: In a case of failure, system should need less than or equal to 1 min of restart time.

References

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