**Software Requirements Specification (SRS) Document v2**

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| ***Project number*** | Team 49[[1]](#footnote-2) |
| ***Project Title*** | Parent Diaries |
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| ***Created By*** | Raunak Seksaria (2023113019), Shivam Gupta (2023101062) |
| ***Client*** | Mr. Jazeel Jabbar, HopeLog (Startup) |

# Brief problem statement

The problem that we are trying to solve is confusion, lack of clarity and of experience that new parents face, by helping them log the journey of their child and incorporate a conversational speech-to-speech platform using AI which can advise them on how to parent their child. This app intends to help parents make better decisions for the future of their child and aid their child's better upbringing. It also aims to reduce stress and confusion that parents have. The app also focuses on overall mental and physical development and well-being of children.

First time parents lack experience and are usually confused on how to parent their child. They have to rely on conventional sources like other parents around them, or parenting books. These sources might not match with the specific problems they are facing and can be of limited help with limited context

# System requirements

The system requirements for our solution are as follows:

1. A Trello Board has been created for task management.
2. V S Code is the primary editor which we shall be using.
3. MERN stack-based web-app
   1. MongoDB
   2. Express.js

c. React Native Node.js

* 1. Associated Tools:
     1. Typescript
     2. Figma
     3. ESLint
     4. Postman
     5. JWT

1. GEN AI technologies (including for Automatic speech-to-text):
   1. LangChain: Whisper
   2. GPT 4o
   3. Hugging Face
2. Deployment:
   1. ExpoGo
   2. AWS
3. SonarQube for static code analysis
4. Postman for backend Testing
5. Ngrok for development hosting

# Users profile

***Primary Target Audience:*** Parents of toddlers (0-5 yrs)

***Mode of usage:*** *Mobile App*

***Technical Literacy (familiarity with software):*** *Moderate*

Parents of toddlers who are confused or need better parenting advice for the greater overall development of their child. Parents who want to solicit genuine opinion to nurture their child or to log important milestones and developmental phases of children to keep a track of their overall development.

# Feature requirements (described using use cases)

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| No. | Use Case Name | Description | Release |
| 1 | User Registration | Enables a new user to create an account by providing required details (e.g., email, password, and basic profile information). The system validates the information and sends a verification email to complete the registration. | R1 |
| 2 | User Login | Allows a registered user to log in securely by entering their credentials. The system verifies the provided details and grants access to the personalized dashboard upon successful authentication. | R1 |
| 3 | Speech-to-Speech Interaction | Enables a registered user to interact with the system via voice. The system captures the user's spoken input, converts it to text using speech recognition, processes the text with a large language model (LLM), and then converts the LLM’s response back into speech—all in the language chosen by the user. | R1 |
| 4 | Text-to-speech interaction | Enables a registered user to interact with the system via a mixture of text and voice. The system captures the user's text input, processes the text with a large language model (LLM), and then converts the LLM’s response back into speech—all in the language chosen by the user. | R1 |
| 5 | Text-to-text interaction | Enables a registered user to interact with the system via a mixture of text and voice. The system captures the user's text input, processes the text with a large language model (LLM)—all in the language chosen by the user. | R1 |
| 6 | Speech-to-text interaction | Enables a registered user to interact with the system via voice. The system captures the user's spoken input, converts it to text using speech recognition, processes the text with a large language model (LLM)—all in the language chosen by the user. | R1 |
| 7 | Session History and Insights | Allows user to view their past interactions through saved session logs. This allows users to keep a track record of the overall development of child better. | R1 |
| 8 | Feedback Mechanism | Enables users to rate their experience and submit feedback about the system’s interactions. The collected feedback supports continuous improvement of the AI and overall user experience. The users can report a problem within the application if they encounter any such issue. | R1 |
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| 10 | Account Management | This use case describes how a logged-in user manages their account information within the AI-based parenting mobile application. In addition to updating user profile details, the  process emphasizes data integrity, privacy, and user control over sensitive information. | R1 |
| 12 | Vaccination Charting and Scheduling | The system keeps track of the schedule of vaccine doses to be administered to user’s child and comes up with relevant recommendations regarding the vaccination programs | R1 |
| 14 | Milestone Tracking | The system helps parents log important milestones and phases in the development of their child right from the child uttering his/her first word to taking the first steps. | R2 |
| 15 | Physical Growth Tracker | Tracking | R2 |
| 16 | User Subscription | Allows the user to view the current subscription plan along with other details. | R2 |
| 17 | Community Support: Contacting with Other Parents | This use case enables the user to interact with other users of the app so that they can discuss the well-being of their children and seek each other’s valuable advice. | R2 |
| 18  19  20  13  22  23 | Notification System and Settings  Child Management  Parent Discussion Forum  Paediatrician Support  Doctor Dashboard  Admin Dashboard | The system sends notifications to the user regarding any major actions taken by the user or any other significant changes pertaining to user account or application.  Allows parents to add, view, update, and remove their children's profiles within the Parent Diaries app.  Allows parents to participate in discussions about child-rearing topics, share experiences, and seek advice from the community.    Allows user to connect with paediatrician to discuss and seek advice regarding their child (via chat).  Allows registered paediatrician to view child reports and vaccination charts along chats with users.  Allows admin to view the issues faced by the verified users of the app. The admin can also mark the queries as resolved. | R2  R2  R2  R2  R2  R2 |

# Use case diagram

A diagram of a person's diagram

AI-generated content may be incorrect.

# Use case description

#### UC-1

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| **Use Case Number:** | UC-01 |
| **Use Case Name:** | User registration |
| **Overview:** | Enables a new user to create an account by providing required details (e.g., email, password, and basic profile information). The system validates the information and sends a verification email to complete the registration. |
| **Actors:** | User, Email service Provider, Google account login |
| **Precondition:** | * The system is up and running. * The user reaches the landing page or the registration page in the webapp. |
| **Flow:** | Main (success) Flow:   1. The user inputs required information (name, email, password, date of birth, etc.). 2. The user reviews and accepts the privacy policy and consent forms for data usage and mental health support. 3. The user submits the data entered, which is then sent to our system. 4. The system checks if the email or username already exists. 5. The system validates that mandatory fields are filled and comply with format requirements (valid email format, strong password). 6. The system creates a new account in the database. 7. The system sends a verification email or code to the user using our email service provider 8. The user enters the validation code from the verification message to verify themselves. 9. Registration Complete: The system displays a success message and redirects the user to the login page. |
|  | Alternate Flow:  \*a) System crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) Signup with Google Option   1. The user selects the “Signup with Google” option on the registration page, prompting the system to redirect them to Google's authentication service. 2. The user enters valid Google account credentials, and upon successful authentication, Google returns an authentication token. 3. The system verifies the token, imports available profile information from Google, and creates a new account using this data.   Postcondition:  A new account is created and verified via Google authentication.  4a) Duplicate Username   1. The user’s chosen username is already registered. 2. The system displays an error message indicating that the username is already in use and prompts the user to enter a different username. 3. The process then returns to the step where the user inputs their registration details.   Postcondition:  Registration is not completed until a unique username is provided.  5a) Mandatory Fields Missing or Invalid Data   1. Mandatory fields are missing, or the provided data fails format checks (e.g., an invalid email format). 2. The system highlights the invalid fields and provides specific instructions for correcting the errors. 3. The user updates the information accordingly and resubmits the registration data.   Postcondition:  Registration remains incomplete until all mandatory fields are correctly filled with valid data. |
| **Post**  **Condition:** | A new user account is successfully created and verified. The user can now log in to the AI-based mental health application and access personalized support, mood tracking, and other therapeutic features under secure and privacy-compliant conditions. |

#### UC-2

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| **Use Case Number:** | UC-02 |
| **Use Case Name:** | User Login |
| **Overview:** | Allows a registered user to log in securely by entering their credentials. The system verifies the provided details and grants access to the personalized dashboard upon successful authentication. |
| **Actors:** | User, Google Account Login |
| **Precondition:** | * The system is online and capable of processing authentication requests. * The user has an existing account in the system. * The user is on the login route |
| **Flow:** | Main (success) Flow:   1. The user enters a valid username and password. 2. The user clicks the "Login" button. 3. The system checks the credentials provided against the stored user database. 4. If the credentials match, the system creates a session for the user. 5. The system redirects the user to the home page, indicating a successful login. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation   1a) Login with Google   1. The user selects the "Login with Google" option. 2. The system redirects the user to the Google authentication page. 3. The user enters their valid Google account credentials on the Google sign-in interface. 4. Google authenticates the credentials and returns a valid authentication token to the system. 5. The system validates the token, creates a session, and optionally links the Google account to an existing local profile if applicable. 6. The system logs the usage of this alternative authentication method for auditing purposes.   1a\*a) Google authentication System Unavailable   1. The authentication service is temporarily offline. 2. The system displays a dedicated error notification to the user indicating that the authentication service is currently unavailable. 3. The error notification provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting.   Postconditions:   * No session is created, and the user remains logged out until he uses the main flow, or the authentication service is restored to normal operation.   Postconditions:   * A secure user session is established using Google account authentication. * The user gains full access to the application without needing to provide local username and password credentials. * The system records that the login was completed via Google, ensuring a seamless and secure alternative authentication process.   3a) Invalid Credentials  1. The user enters an incorrect username or password.  2. The system displays an error message indicating invalid credentials.  3. The user is prompted to re-enter valid credentials or reset the password.  Postconditions:   * The user remains on the login page until valid credentials are provided or the user chooses to exit the login process. |
| **Post**  **Condition:** | Upon successful login, the user is authenticated and gains access to the system’s exclusive features and benefits. |

#### UC-3

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| **Use Case Number:** | UC-03 |
| **Use Case Name:** | Speech to Speech |
| **Overview:** | Enables a registered user to interact with the system via voice. The system captures the user's spoken input, converts it to text using speech recognition, processes the text with a large language model (LLM), and then converts the LLM’s response back into speech—all in the language chosen by the user. |
| **Actors:** | User, LLM API, Text to Speech, Speech to Text |
| **Pre condition:** | * The user has an existing account and is logged in. * The user is in the chat page * The user has selected the speech-to-speech mode. |
| **Flow:** | Main (success) Flow:   1. The user selects their preferred language from a list of supported options. Default English, or user preset using UC-13. 2. Record Voice: The system prompts the user to choose an audio input device (if multiple devices are available) and to grant the necessary permission. The user records their voice input. 3. Speech-to-Text Conversion: The system sends the recorded audio in small, parallelized chunks to a speech recognition service. The service converts the audio to text, supporting languages beyond English. 4. Interacting with the LLM: The converted text is forwarded to the LLM, which processes the input and generates a response. The response is formulated in the language initially selected by the user. 5. Text-to-Speech Conversion: The text-to-speech service converts the LLM’s text response back into speech. The spoken response is delivered to the user. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions:   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   2a) Microphone Not Detected:   1. The system lists all available audio capture devices and prompts the user to select one. 2. If the desired device is not listed, the user is advised to restart the system and update their audio drivers.   Postcondition:  The system proceeds only after a valid device is selected; otherwise, it remains in an error state.  2b) Microphone Permission Denied:   1. If the user denies microphone permission, the system displays a “Microphone Access Denied” error.   Postcondition:  The operation is paused, awaiting permission or a user-initiated abort.  2c) Microphone Malfunction:   1. If no audio input is detected even after a valid device is selected and permission is granted, the system assumes the microphone is malfunctioning.   Postcondition: The system displays a “Microphone Not Functioning” error and suggests checking the hardware or contacting support.  3-5a) Network issue   1. Error message for network not available given 2. User redirected to dashboard   Postcondition:  Error message shown, user redirected.  3b) Speech-to-Text conversion fails:   1. The system fails to communicate with speech-to-text API due to service downtime. 2. The user is shown error in ‘speech-to-text’ module. 3. The user is prompted to use text-to-speech.    1. Same as 5b   Postcondition:  The user is shown appropriate error and suggested alternate way of communication.  4b) LLM fails:   1. The system fails to communicate with LLM due to service downtime 2. The user is shown error message 3. The user is redirected to dashboard.   Postcondition:  The system halts further processing and informs the user until the issue is resolved.  5b) Text-to-Speech conversion fails   1. The system fails to communicate with text-to-speech API due to service downtime. 2. The user is shown error in ‘speech-to-text’ module. 3. The user is prompted to use text-to-text.   Postcondition:  The user is shown appropriate error and suggested alternate way of communication. |
| **Post**  **Condition:** | * The user's voice input is successfully processed, and an audio response is generated in the selected language. * The conversation state is updated for future interactions. * In the event of an error, the system remains in a safe state, and the user receives clear instructions on how to proceed. |

#### UC-4

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| **Use Case Number:** | UC-04 |
| **Use Case Name:** | Text-to-Speech |
| **Overview:** | Enables a registered user to interact with the system via a mixture of text and voice. The system captures the user's text input, processes the text with a large language model (LLM), and then converts the LLM’s response back into speech—all in the language chosen by the user. |
| **Actors:** | User, LLM API, Text to Speech |
| **Pre condition:** | * The user has an existing account and is logged in. * The user is in the chat page * The user has selected the speech-to-speech mode. |
| **Flow:** | Main (success) Flow:   1. The user selects their preferred language from a list of supported options. Default English, or user preset using UC-13. 2. The user types their message into the interface. 3. Interacting with the LLM: The converted text is forwarded to the LLM, which processes the input and generates a response. The response is formulated in the language initially selected by the user. 4. Text-to-Speech Conversion: The text-to-speech service converts the LLM’s text response back into speech. The spoken response is delivered to the user. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions:   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   3-4a) Network issue   1. Error message for network not available given 2. User redirected to dashboard   Postcondition:  Error message shown, user redirected.  3b) LLM fails:   1. The system fails to communicate with LLM due to service downtime 2. The user is shown error message 3. The user is redirected to dashboard.   Postcondition:  The system halts further processing and informs the user until the issue is resolved.  4b) Text-to-Speech conversion fails   1. The system fails to communicate with text-to-speech API due to service downtime. 2. The user is shown error in ‘speech-to-text’ module. 3. The user is prompted to use text-to-text.   Postcondition:  The user is shown appropriate error and suggested alternate way of communication. |
| **Post**  **Condition:** | * The user’s text input is successfully processed. * An audio response is generated and played in the user’s selected language. |

#### UC-5

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| **Use Case Number:** | UC-05 |
| **Use Case Name:** | Text-to-Text |
| **Overview:** | Enables a registered user to interact with the system via a mixture of text and voice. The system captures the user's text input, processes the text with a large language model (LLM)—all in the language chosen by the user. |
| **Actors:** | User, LLM API |
| **Pre condition:** | * The user has an existing account and is logged in. * The system’s LLM is available and connected. * The user interface supports text input and output. |
| **Flow:** | Main (success) Flow:   1. The user selects their preferred language from a list of supported options. Default English, or user preset using UC-13. 2. Enter Text: The user types of their query or message into the interface. 3. Interacting with the LLM: The converted text is forwarded to the LLM, which processes the input and generates a response. The response is formulated in the language initially selected by the user. 4. The text response is displayed. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions:   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   3a) Network issue   1. Error message for network not available given 2. User redirected to dashboard   Postcondition:  Error message shown, user redirected.  3b) LLM fails:   1. The system fails to communicate with LLM due to service downtime 2. The user is shown error message 3. The user is redirected to dashboard.   Postcondition:  The system halts further processing and informs the user until the issue is resolved. |
| **Post**  **Condition:** | The user’s text input is successfully processed, and the text response is displayed in the selected language. |

#### UC-6

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| **Use Case Number:** | UC-06 |
| **Use Case Name:** | Speech-to-Text |
| **Overview:** | Enables a registered user to interact with the system via voice. The system captures the user's spoken input, converts it to text using speech recognition, processes the text with a large language model (LLM)—all in the language chosen by the user. |
| **Actors:** | User, LLM API, Speech to Text |
| **Pre condition:** | * The user has an existing account and is logged in. * A functional microphone is connected, detected, and permissions are granted. * The speech-to-text (STT) API is available. |
| **Flow:** | Main (success) Flow:   1. The user selects their preferred language from a list of supported options. Default English, or user preset using UC-13. 2. The user types their message into the interface. 3. Speech-to-Text Conversion: The system sends the recorded audio in small, parallelized chunks to a speech recognition service. The service converts the audio to text, supporting languages beyond English. 4. Interacting with the LLM: The converted text is forwarded to the LLM, which processes the input and generates a response. The response is formulated in the language initially selected by the user. 5. The text response is displayed |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions:   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   2a) Microphone Not Detected:   1. The system lists all available audio capture devices and prompts the user to select one. 2. If the desired device is not listed, the user is advised to restart the system and update their audio drivers.   Postcondition:  The system proceeds only after a valid device is selected; otherwise, it remains in an error state.  2b) Microphone Permission Denied:   1. If the user denies microphone permission, the system displays a “Microphone Access Denied” error.   Postcondition:  The operation is paused, awaiting permission or a user-initiated abort.  2c) Microphone Malfunction:   1. If no audio input is detected even after a valid device is selected and permission is granted, the system assumes the microphone is malfunctioning.   Postcondition: The system displays a “Microphone Not Functioning” error and suggests checking the hardware or contacting support.  3-4a) Network issue   1. Error message for network not available given 2. User redirected to dashboard   Postcondition:  Error message shown, user redirected.  3b) Speech-to-Text conversion fails:   1. The system fails to communicate with speech-to-text API due to service downtime. 2. The user is shown error in ‘speech-to-text’ module. 3. The user is prompted to use text-to-speech.    1. Same as 5b   Postcondition:  The user is shown appropriate error and suggested alternate way of communication.  4b) LLM fails:   1. The system fails to communicate with LLM due to service downtime 2. The user is shown error message 3. The user is redirected to dashboard.   Postcondition:  The system halts further processing and informs the user until the issue is resolved. |
| **Post**  **Condition:** | The spoken input is successfully converted to text and displayed for the user. |

#### UC-7

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| **Use Case Number:** | UC-07 |
| **Use Case Name:** | Session History and Insights |
| **Overview:** | Allows user to view their past interactions through saved session logs. This allows users to keep a track record of the overall development of child better. |
| **Actors:** | User |
| **Pre condition:** | * User is logged into the system, * User accesses the chat history screen via main page. |
| **Flow:** | Main (success) Flow:   1. Access Request: The user selects the "Session History" option. 2. Data Retrieval: The system retrieves the user's session logs. 3. Display Results: The system displays the processed session history along with key features such as notes etc. 4. User Interaction: The user can filter or sort the displayed data (e.g., by date range or category etc) to gain specific insights. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   2a)No Session Data Available   1. The system detects that insufficient session logs exist for the user requesting to see this page. 2. The system displays a message informing the user that no session data is available. Postconditions:  * The user is notified that there is no available session data. * The user is prompted to initiate new conversations and sessions.   3a)Failing to load the data   1. If detailed information fails to load completely, the system shows an error message and prompts the user to try reloading the details. Postconditions**:**   The user is informed that the requested session data could not be loaded, and the user is prompted to try loading again. |
| **Post**  **Condition:** | The user is successfully able to view the specific details regarding the requested session and hence can track the overall development of child. |

#### UC-8

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| **Use Case Number:** | UC-08 |
| **Use Case Name:** | Feedback Mechanism |  |
| **Overview:** | Enables users to rate their experience and submit feedback about the system’s interactions. The collected feedback supports continuous improvement of the AI and overall user experience. The users can also report a technical problem they encounter while using the app. |
| **Actors:** | User |
| **Pre condition:** | The user is logged into the system.  The user navigates to action section via settings page. |
| **Flow:** | Main (success) Flow:   1. The user navigates to the ‘Report a Problem’ or ‘User Feedback’ section. 2. Select Category: The user chooses the relevant category (AI, Bug Report etc). 3. Submit Feedback: The user submits the feedback by clicking the "Submit Report" button. 4. Confirmation Display: The system processes the input, stores the feedback, and displays a confirmation message to the user. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions*:*   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved feedback data may be lost, and the user is advised to restart the feedback submission process after the system is restored to normal operation.   2a) If the user attempts to proceed without selecting a category, the system prompts them to choose one.  2b) If the user selects “Other,” the system may prompt for additional clarification. Postconditions*:*  The system ensures that relevant feedback is submitted by the user pertaining to a certain category.  4a) If submission fails due to a network error, the system displays a retry option.  4b) If the user cancels mid-submission, the system discards the current data and returns to the previous screen.  Postconditions:  It is ensured that the user feedback is successfully submitted, and the user is notified clearly regarding this. |
| **Post**  **Condition:** | The user successfully submits feedback and receives a confirmation message that their input has been recorded, contributing to the system's continuous improvement. |

#### UC-10

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| **Use Case Number:** | UC-10 |
| **Use Case Name:** | User Account Management |
| **Overview:** | This use case describes how a logged-in user manages their account information within the AI-based parenting application. In addition to updating the personal details, the process emphasizes data integrity, privacy, and user control over sensitive information |
| **Actors:** | User |
| **Pre-condition:** | * The user is an existing account in the system and is logged into the system. * The user navigates to the account management page via the settings screen. |
| **Flow:** | Main (success) Flow:   1. Display Current Account Details and Preferences**:** The system retrieves and displays the user’s current account information (e.g., username, email, profile pic etc.). 2. Initiate Update Process:The user selects an “Edit” option to update specific details such as contact information etc. 3. Present Editable Form:The system displays an editable form pre-populated with the current account data. 4. User Makes Changes**:** The user updates one or more fields—such as changing email, updating password etc. 5. Validate Input Data**:** The system validates the entered data (e.g., checks for valid email format, password strength etc). 6. Save Updated Account Detail**s:** If validation succeeds, the system updates the account information in the secure database and logs the changes for auditing purposes. 7. Confirm Update**:** The system provides a confirmation message to the user indicating that the account or profile information has been successfully updated. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting. 3. The system logs detailed crash information (including context and error codes) for troubleshooting and recovery purposes.   Postconditions*:*   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved feedback data may be lost, and the user is advised to restart the feedback submission process after the system is restored to normal operation.   1a) Data Retrieval Failur**e**   1. The system fails to retrieve the user's account details and preferences from the database. 2. The system displays a dedicated error notification informing the user that the account information could not be loaded. 3. The notification advises the user to refresh the page or try again later and provides contact details for support if the issue persists.   2a) Update Process Cancellation   1. The user decides not to proceed with updating their account details and in the process click the cancel option or button before saving any changes. 2. The system discards any unsaved changes and returns the user to account overview screen.   Postconditions*:*  No changes are applied to the user's account; the account information and preferences remain as previously stored.  5a) Invalid Data Entry   1. The user submits updated account information that contains invalid entries (e.g., an invalid email format, a weak password etc) and the system detects such entries during validation step.   P**o**stconditions: The update is not saved until all input data meets the validation criteria.  6a) Update Save Failure   1. The system encounters an error (e.g., a database connectivity issue) while attempting to save the updated account details. 2. The system displays an error notification informing the user that the update could not be saved at this time. 3. The user is prompted to attempt saving the changes again once the issue is resolved.   Postconditions: No changes are committed to the user's account; the account remains unchanged until a successful update can be saved. |
| **Post**  **Condition:** | * The user’s account information and mood tracking preferences are updated securely and are reflected in subsequent sessions. * All modifications are logged for audit and security purposes, ensuring transparency and compliance with data protection and privacy guidelines. |

#### UC-12

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| **Use Case Number:** | UC-12 |
| **Use Case Name:** | Vaccination Charting and Scheduling |
| **Overview:** | The system keeps track of the schedule of vaccine doses to be administered to user’s child and comes up with relevant recommendations regarding the vaccination programs. |
| **Actors:** | User |
| **Pre condition:** | * The system is up and running. * The user is authenticated and already logged in. * A child has been added by the parent, with a valid DOB * The user navigates to the ‘Track vaccinations’ page via the ‘Track development’ page on the main screen. |
| **Flow:** | Main (success) Flow:   1. The system shows a vaccine chart based on previous entries by parent, and child’s DOB, following the National Immunization Schedule, and the recommended gaps between various doses. 2. The system shows an option to enter the actual date of administering of the vaccine, which the user clicks. 3. The system displays various data input fields such as disease for which vaccine is to be administered, the weight of the child at that time, the dose and the expected date of vaccination. 4. The user submits the required information to the system, and the chart changes accordingly (from pending/due to administered) |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later, or contact support with a reference code for troubleshooting.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   \*b) Network error   1. Error message to try again later is displayed 2. User is prompted to fill the input fields again.   Postconditions:  Relevant error message is displayed.  4a) Invalid Input Data: The system detects that one or more input fields contain invalid data or are incomplete.   1. The system highlights the invalid fields and displays error messages with instructions for correction. 2. The user updates the information and resubmits the form.   Post Conditions:   * + The user is notified that the input data is invalid.   + The data update process remains incomplete until valid data is provided.   4b) Database error   1. Error message shown for cannot connect to database, try again later. 2. User is redirected to dashboard   Postconditions:  Error message is displayed. |
| **Post**  **Condition:** | The system successfully displays the vaccine chart of the child. On the parents’ entry of child details, the vaccine chart gets updated and displayed again. |

#### UC-13

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| **Use Case Number:** | UC-13 |
| **Use Case Name:** | Paediatrician Support |
| **Overview:** | A chatting feature that enables parents to share the progress of their child with doctors and seek their valuable advice. |
| **Actors:** | User, Paediatrician |
| **Pre-condition:** | * The system is up and running. * The user and paediatrician are authenticated and logged in. * The user has access to the *Contact Paediatrician* feature from the main screen via Contact screen. |
| **Flow:** | Main (success) Flow:   1. **Access Paediatrician List:** The user navigates to the *Contact Paediatrician* section and views a list of available paediatricians, possibly filtered by specialty, availability, or past interactions. 2. **Select Paediatrician Profile:** The user taps on a paediatrician's profile to view basic information (e.g., name, credentials, availability) and messaging options. 3. **Initiate Chat:** The user selects the messaging option to begin a one-on-one chat with the paediatrician. A secure chat window opens for communication. 4. **Exchange Messages:** The user and paediatrician exchange messages regarding the child’s health, symptoms, or advice. The user can also attach photos, documents, or medical reports. 5. **Receive Response:** The paediatrician replies in real-time or within an expected response window. The conversation is saved for future reference. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.  * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) Paediatrician Unavailable: If the selected paediatrician is currently unavailable, the user is informed with an expected wait time or prompted to choose another available doctor.  Postcondition: The user may select a different paediatrician or choose to be notified when the selected one becomes available.  2a) Messaging Service Fails: If the chat service is disrupted, an error message is displayed. The user is given the option to retry or leave a message for later.  Postcondition: The message is saved in draft or sent once the system is restored. The user is informed of any delays. |
| Post  Condition: | A chat thread between the user and paediatrician is created or updated. All communications are securely logged for both parties. The user receives health advice or further instructions from the paediatrician. |

#### UC-14

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| **Use Case Number:** | UC-14 |
| **Use Case Name:** | Milestone Tracking |
| **Overview:** | The system helps parents log important milestones and phases in the development of their child right from the child uttering his/her first word to taking the first steps. |
| **Actors:** | User |
| **Pre condition:** | * The system is up and running. * The user is authenticated and already logged in. * The user navigates to the growth and |
| **Flow:** | Main (success) Flow:   1. The system displays a milestone dashboard highlighting key events like ‘first words’, ‘first steps’ etc. 2. User selects a milestone to log or review. 3. The system chooses to log a particular event as milestone based on some predefined examples using few-shot prompting. 4. The system records the milestone along with date in child’s timeline. 5. The system analyses the milestone and provides suggestions for upcoming milestones (The system generates a checklist of expected milestones from reputable guidelines like those of WHO). |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) The system is unable to load any milestones prompting the user to try again or redirecting him back to dashboard screen.  1b) If no milestones are available or added, the system prompts the user to add new milestones.  2a) If no details for the selected milestone are shown., the system prompts the user to input the required details and then try again.  **3**a) If the input fails to save, the system displays no milestone detected.  **3b)** If required details are incomplete, the system highlights the missing fields and prompts the user to fill them in.  4a) If a duplicate milestone is detected, the system does not log it and asks the user to upload a different milestone. |
| **Post**  **Condition:** | The system displays the child’s development timeline to the user on the analytics dashboard with all the logged milestones tick marked. |

#### UC-15

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| **Use Case Number:** | UC-15 |
| **Use Case Name:** | Physical Growth Tracker |
| **Overview:** | Tracking child growth, and basic milestones/responsiveness he should ideally get by the time of 0-3 months, 4-6 months, and so on. |
| **Actors:** | User, Paediatrician |
| **Pre condition:** | * The system is up and running. * The user is authenticated and already logged in. * A child has been added by the parent, with a valid DOB * The user navigates to the growth tracking page via the track development page on main screen. |
| **Flow:** | Main (success) Flow:   1. The system displays CDC guidelines for milestones(age-divided), with checkboxes. 2. The parent checks the checkboxes that their child has completed, and it gets updated in the guideline list. 3. The information goes directly to the paediatrician, if one is assigned. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   3a) No paediatrician assigned: No data movement unless paediatrician assigned. |
| **Post**  **Condition:** | The child's updated growth data is saved and compared against standard ranges, with relevant feedback displayed to the user. |

#### UC-16

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| **Use Case Number:** | UC-16 |
| **Use Case Name:** | User Subscription |
| **Overview:** | Allows the user to view the current subscription plan along with other details. |
| **Actors:** | User, Payment Gateway |
| **Pre condition:** | * The system is up and running. * The user is authenticated and already logged in. * The user navigates to my subscription page via the settings page on main screen. |
| **Flow:** | Main (success) Flow:   1. The system shows the user’s current plan along with its details. 2. The system displays a comparison table highlighting the features available in Free vs. Premium plans. 3. The user reviews the benefits of Premium and taps the “Upgrade to Premium” button. 4. The system prompts the user for payment information (e.g., card details) or provides alternate payment methods. 5. After processing payment, the system updates the user’s plan to Premium and confirms the successful upgrade. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) If the subscription page fails to load, the system shows an error message and offers a “Retry” option.  **1b)** If the current plan details are unavailable, the system shows a placeholder message and suggests refreshing or contacting support.  **3a) If** the user decides not to upgrade, they can cancel and return to the main settings page.  3b) If the upgrade option is temporarily unavailable, the system displays an error and suggests trying again later.  **4a)** If the payment gateway is unavailable, the system informs the user and allows them to retry or select an alternative method.  **4b)** If payment details are invalid, the system shows an error and prompts the user to re-enter or choose a different payment method.  **5a)** If confirmation fails (e.g., payment error), the system notifies the user and suggests retrying.  **5b)** If the user’s subscription status can’t be updated immediately, the system displays a temporary pending status and confirms via notification once successful. |
| **Post**  **Condition:** | In case the user decides to upgrade his/her plan, the user's subscription status is updated to reflect the new plan, with the payment processed and premium features activated. |

#### UC-17

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| **Use Case Number:** | UC-17 |
| **Use Case Name:** | Community Support: Contacting with Other Parents |
| **Overview:** | This use case enables the user to interact with other users of the app so that they can discuss the well-being of their children and seek each other’s valuable advice. |
| **Actors:** | User |
| **Pre-condition:** | * The system is up and running. * The user is authenticated and already logged in. * The user navigates to community support screen via main screen. |
| **Flow:** | Main (success) Flow:   1. Find Parents: User locates other parents through search, filters (e.g., child’s age, interests), or a suggested list. 2. Select Parent Profile: User taps on a specific parent’s profile to view basic info and contact options. 3. Initiate Contact: User chooses to send a direct message, friend/connection request, or invitation to a chat group. 4. Ongoing Communication: Once accepted or replied, a conversation thread is established. Parents can continue to exchange messages and media as needed. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) If the community support page fails to load, the system shows an error message and offers a “Retry” option.  Postcondition: The user is redirected back to the main page.  2a) No matches are found for parents pertaining to the search filter or criteria.  Postcondition: The user is promoted to modify their criteria to get better results. |
| **Post**  **Condition:** | The user can contact other parents as well and their conversations will also be logged enabling them to track the development of their children better. |

#### UC-18

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| **Use Case Number:** | UC-18 |
| **Use Case Name:** | Notification System and Settings |
| **Overview:** | The system sends notifications to the user regarding any major actions taken by the user or any other significant changes pertaining to user account or application. |
| **Actors:** | User, Email Service Provider |
| **Pre-condition:** | * The system is up and running. * The user is authenticated and already logged in. * The user navigates to notifications section under my account page via the settings page on main screen. |
| **Flow:** | Main (success) Flow:   1. Toggle General Notifications: User can enable/disable “Email Notifications” to receive alerts via email. 2. Select Types of Notifications: User can choose which specific notifications to receive, such as:    1. New Messages (e.g., from other parents or caregivers)    2. Reminders (e.g., upcoming appointments, tasks) 3. Save or Confirm Changes: User taps “Save Settings” (or equivalent action) to confirm notification preferences. 4. System Feedback: App confirms that settings have been saved successfully (e.g., displaying a brief message or checkmark). 5. Ongoing Notifications: Based on the user’s selections, the app will send or suppress notifications accordingly (email only). |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions**:**   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) If the notifications or settings page fails to load, the system shows an error message and offers a “Retry” option.  Postcondition: User is redirected back to settings page and has to load the notifications screen again.  4a) User modifies notification settings but attempts to leave the page without saving. App prompts with “Unsaved changes” confirmation.  Postcondition: User either discards changes or returns to save them. |
| **Post**  **Condition:** | After the user updates his notification preferences the system acknowledges the changes and sends the notifications to the user accordingly. The user can make further changes to notification settings anytime. |

#### UC-20

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| **Use Case Number:** | UC-20 |
| **Use Case Name:** | Parent Discussion Forum |
| **Overview:** | A general forum where parents can raise their doubts and questions regarding app and children which other users can also see and comment or upvote etc on the post. |
| **Actors:** | User |
| **Pre-condition:** | * The system is up and running. * The user is authenticated and already logged in. * The user navigates to parent discussion forum screen via connect option on main screen. |
| **Flow:** | Main (success) Flow:   1. View Forum: The user enters the forum and sees a list of posts sorted by the selected filter (e.g., *Most Recent*, *Most Popular*). 2. Create Post: The user taps a “Create Post” button, enters a title and content, and optionally attaches media (images, files). The user submits the post, which is then visible to others in the forum. 3. Browse Posts: Users can scroll through posts, view post details, and see post metadata (e.g., time posted, number of comments, votes). 4. Comment on Post: The user selects a post and adds a comment to participate in the discussion. Other users can view and reply to comments in a threaded format. 5. Vote on Post: The user can upvote or downvote posts based on relevance or quality. Vote counts are updated in real-time. 6. Sort Posts: The user can choose between sorting options:    * *Most Recent* (chronological order)    * *Most Popular* (highest vote count or engagement). |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.  * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) Forum Page Fails to Load   * The system shows an error and a “Retry” option.   Postcondition:   * The user is redirected back to the main page or remains on the error screen until resolution.   2a) Post Submission Fails   * If the post fails to upload (e.g., due to network issues), the system displays an error and allows the user to retry.   Postcondition:   * The post is either successfully submitted after retry or discarded by the user. |
| **Post**  **Condition:** | New posts and comments are visible to all users. Upvotes/downvotes influence visibility and popularity metrics. Users continue engaging through dynamic sorting and responses. |

#### UC-21

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| **Use Case Number:** | UC-21 |
| **Use Case Name:** | Doctor Dashboard |
| **Overview:** | This use case enables the registered doctor to view the progress reports of child and chat with registered parents. |
| **Actors:** | Paediatrician |
| **Pre-condition:** | * The system is up and running. * The paediatrician has valid login credentials. * The paediatrician has been registered and verified by the system. |
| **Flow:** | Main (success) Flow:   1. Login: The paediatrician opens the app or web portal and enters login credentials. 2. View Dashboard: After login, the paediatrician is taken to their personal dashboard. The dashboard displays an overview of recent activities, unread messages, and report alerts. 3. Access Children’s Reports: The paediatrician selects the *Reports* section. A list of children under their care is shown, including basic information and report submission dates. 4. View Chat Conversations: The paediatrician navigates to the *Messages* or *Chats* section. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions:   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   1a) Invalid Login Credentials: If login credentials are incorrect, the system shows an error and prompts the paediatrician to re-enter details.  Postcondition: The login attempt is halted until correct credentials are provided.  2a) No Reports Available: If no reports have been submitted yet for a child, the system shows a message: “No reports available at this time.”  Postcondition: The paediatrician can return to the dashboard or wait for future submissions.  3a) No Messages Found: If no chat conversations have occurred yet, the system displays: “No messages yet.”  Postcondition: The paediatrician is informed that there are no interactions currently. |
| **Post**  **Condition:** | The paediatrician can securely access all assigned children's reports and previous chat records. All data is viewable in a well-organized, centralized dashboard. |

#### UC-22

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| **Use Case Number:** | UC-22 |
| **Use Case Name:** | Admin Dashboard |
| **Overview:** | This use case allows the system administrator to access a centralized dashboard where they can review and resolve issues reported by verified users (parents or doctors). Additionally, the admin can onboard new paediatricians by entering their basic information and assigning login credentials. |
| **Actors:** | Admin |
| **Pre-condition:** | * The system is up and running. * The admin is authenticated and logged in. * Users have submitted issues through the system’s support interface. * The admin has the rights to manage accounts and access sensitive areas of the system. |
| **Flow:** | Main (success) flow:   1. Login: The admin logs into the system with authorized credentials. On successful login, the admin is taken to the dashboard. 2. View Reported Issues: The admin opens the *Support/Issues* section. A list of reported problems from verified users is displayed, showing details like submission date, user ID, description, and issue status. 3. Review and Act: The admin selects a specific issue to view more details. Once resolved, the admin marks the issue as *Resolved*. The system notifies the user about the resolution status. 4. Access Doctor Management: The admin navigates to the *Doctor Management* or *Add Doctor* section from the dashboard. 5. Enter Doctor Details: The admin inputs the doctor’s name, contact details, specialization, and sets a username and password (login credentials). 6. Create Account: The system creates a new paediatrician account with the provided credentials. The doctor receives a confirmation and login information via email. |
|  | Alternate Flow:  \*a) System Crash   1. The system halts normal processing and displays a dedicated error notification page to the user, indicating that a system error has occurred. 2. The error page provides instructions to refresh the page, try again later.   Postconditions:   * The user is redirected to a safe error state and informed about the system crash. * Any unsaved session data may be lost, and the user is advised to restart the session after the system is restored to normal operation.   **1**a) Invalid Admin Login: The system displays an error if incorrect credentials are entered. The admin must re-enter valid credentials.  Postcondition: Access is denied until login is successful.  2a) Issue Modification Conflict: If another admin already marked an issue as resolved, the current admin is notified.  Postcondition: The issue is locked from double updating.  6a) Duplicate Doctor Account: If the entered doctor email/username already exists, the system prevents duplication.  Postcondition: The admin is prompted to enter unique credentials. |
| **Post**  **Condition:** | User-reported issues are tracked and updated properly. The admin can maintain system health by resolving problems efficiently. New doctors are securely added to the system and can log in with their assigned credentials. |

1. Aditya Gaur (2023101052), Manit Roy (2023113022), Raunak Seksaria (2023113019), Shivam Gupta (2023101062) [↑](#footnote-ref-2)