

Product Requirements Document: Indian ADL Assessment Tool

1. Introduction

This document outlines the requirements for an interactive web application designed to facilitate a culturally adapted Vineland-3 based Adaptive Daily Living (ADL) assessment for children aged 3 to 19 years within the Indian context. The tool aims to provide a user-friendly interface for parents, caregivers, and potentially educators or therapists to understand, conduct a simplified assessment, and access culturally relevant recommendations for adaptive skill development.

2. Goals and Objectives

The primary goals of this product are:

- **Address Cultural Relevance:** Provide an ADL assessment framework that is sensitive to India's diverse cultural, linguistic, and socio-economic contexts, mitigating biases of Western-centric tools.
- **Increase Accessibility:** Offer an easily consumable and explorable interactive platform for understanding complex assessment methodologies.
- **Empower Caregivers:** Enable parents and caregivers to participate in a simplified assessment process and receive actionable, context-specific activity recommendations.
- **Inform Intervention:** Generate insights into a child's adaptive functioning to guide individualized intervention planning.

3. Target Audience

- **Primary Users:** Parents and caregivers of children aged 3-19 years in India, seeking to understand and assess their child's adaptive daily living skills.
- **Secondary Users:** Educators, early intervention specialists, therapists, and researchers interested in culturally adapted developmental assessment tools for the Indian context.

4. Key Features

The application will include the following core functionalities:

4.1. Information & Contextual Sections

- **Introduction:** A welcoming section explaining the tool's purpose and benefits.
- **About the Assessment Framework:** Detailed explanation of the rationale for

Indian contextualization, core principles, and the importance of adaptive behavior assessment in India. This will include information on cultural, linguistic, and socio-economic influences, ethical guidelines, and limitations of existing scales.

- **Important Considerations:** A dedicated section outlining ethical, cultural, socio-economic, and interpretation considerations for using the assessment.

4.2. Assessment Module

- **Parent & Child Information Collection:**
 - **Parent Information:** Full Name, Phone Number, Email, Primary Language, Relation to Child, Consent for Camera-based Assessment.
 - **Child Information:** Full Name, Date of Birth (with age calculation), Gender (Male/Female/Custom), Diagnosis (if any), School/Grade Level, Primary Spoken Language, City/Village, Type of Residence (Urban/Semi-Urban/Rural).
- **Age-Grouped Assessment Questions:**
 - Dynamic display of assessment questions based on selected age groups (3-6, 7-11, 12-19 years).
 - Questions categorized by Vineland-3 domains (Communication, Daily Living Skills, Socialization, Motor, and Responsibility for teens).
 - Scoring mechanism: 2 = Performs independently, 1 = Performs with assistance, 0 = Does not perform.
- **Simplified Results Display:**
 - Calculation and display of overall percentage performance.
 - Calculation and display of percentage performance for each domain.
 - Interactive bar chart (using Chart.js) visualizing domain-specific performance.

4.3. Recommendations & Guidance

- **Recommended Activities (Indian Context):** A table displaying pre-defined culturally relevant activities, categorized by domain, age group, and suggested timeframe.
- **AI-Powered Activity Idea Generator:**
 - A button to trigger the generation of additional activity ideas.
 - Utilizes the Gemini API (gemini-2.0-flash) to generate 3-5 practical daily living activities.
 - Prompt will be dynamically constructed based on the child's selected age group and, if available, their lowest-scoring domain from the assessment.
 - Displays generated ideas in a dedicated section.
- **Reassessment Timeline Guide:** A table outlining suggested reassessment intervals based on initial assessment scores and support needs.

5. User Stories

- As a parent, I want to easily input my child's details so that I can start the assessment.
- As a parent, I want to select my child's age group so that I can see relevant assessment questions.
- As a caregiver, I want to score my child's performance on each question so that I can get an understanding of their abilities.
- As a parent, I want to see a visual summary of my child's performance across different skill domains so that I can quickly identify areas of strength and weakness.
- As a caregiver, I want to find culturally relevant activities to help my child develop specific skills so that I can support them at home.
- As a caregiver, I want to generate new, personalized activity ideas based on my child's assessment results so that I have more options for intervention.
- As an educator, I want to understand the recommended reassessment timeline so that I can plan follow-up evaluations.

6. Out of Scope for Initial Version

- User accounts or data persistence (no login/signup, no saving assessment results).
- Complex scoring algorithms beyond simple sum of points (e.g., standardized scores, age equivalents, percentile ranks).
- Full psychometric validation or normative data collection (this is a conceptual demonstration tool).
- Multi-user collaboration features.
- Integration with external databases for medical records or educational history.
- Advanced reporting features (e.g., PDF export of full assessment results).
- Real-time video/camera based assessment.

7. Success Metrics

- **User Engagement:** Number of users who complete the "Start Assessment" flow.
- **Feature Usage:** Frequency of use of the "Generate Ideas" feature.
- **Feedback:** Positive qualitative feedback on the tool's clarity, cultural relevance, and utility.

8. Technical Considerations (High-Level)

- **Frontend:** Single HTML file, Tailwind CSS for styling and responsiveness, Vanilla JavaScript for interactivity.

- **Charting:** Chart.js for data visualization (bar charts).
- **LLM Integration:** Gemini API (gemini-2.0-flash) for activity idea generation, with fetch API calls.
- **No Backend/Database:** All data (questions, activities, scores) will be stored in client-side JavaScript objects/variables.
- **Accessibility:** Adherence to web accessibility best practices (e.g., semantic HTML, clear focus states).
- **Performance:** Optimized for quick loading and smooth user experience.

9. Assumptions & Constraints

- **Internet Connectivity:** Users will have internet access to load the application and interact with the LLM.
- **Browser Compatibility:** The application will be compatible with modern web browsers.
- **LLM API Availability:** The Gemini API will be available and responsive.
- **API Key Handling:** The API key will be handled securely by the environment (empty string in code, provided at runtime).
- **Scope of LLM Output:** The LLM is expected to provide relevant and safe activity suggestions within the specified context.
- **No User Data Storage:** No personal data entered into the forms will be stored or transmitted beyond the immediate session.

10. Future Considerations / Roadmap

- **User Accounts & Data Persistence:** Allow users to save and track multiple child profiles and assessment results over time.
- **Comprehensive Reporting:** Generate printable PDF reports of assessment results and personalized recommendations.
- **Multi-language Support:** Expand the application to support multiple Indian regional languages for questions and content.
- **Gamification/Engagement:** Introduce interactive elements or mini-games to make the assessment process more engaging for children.
- **Expert Dashboard:** Develop a separate interface for professionals to manage multiple assessments, track progress, and access more detailed analytics.
- **Community Forum:** Integrate a platform for parents and experts to share experiences and activity ideas.
- **Integration with Local Resources:** Provide links or information about local support groups, therapists, or educational resources.
- **Advanced LLM Features:** Explore using LLMs for more nuanced interpretations

of scores or generating detailed intervention strategies.