

1. Introduction

Purpose

The purpose of this document is to give a detailed description of the requirements for the Work Sheet Generator (WSG) application. The application is designed to assist parents and tutors in preparing students for the 11+ GL exam by generating tailored practice worksheets and providing insights into student progress.

Scope

The WSG application will focus on:

- Generating customizable practice tests aligned with the GL syllabus.
- Providing an intuitive parental dashboard to track student progress.
- Using AI to tailor content to the child's knowledge level and improvement areas.

This application will address the lack of consolidated resources and clear preparation plans, offering a structured solution for parents and tutors.

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Definitions, Acronyms, and Abbreviations

- **WSG:** Work Sheet Generator
- **GL Exam:** Grammar School Entrance Exam (GL Assessment)
- **AI:** Artificial Intelligence

2. General Description

Product Perspective

The WSG application is a standalone web-based solution tailored for parents and tutors of 11+ exam candidates. The key feature is an AI-powered worksheet generator with customization options.

Product Functions

- **Customizable Test Generator:** Generate practice tests by topic, difficulty, and knowledge gaps.
- **Child Profile Setup:** Create and maintain profiles to track strengths and weaknesses.
- **Progress Tracking:** Provide visual dashboards for progress monitoring.

User Characteristics

- **Parents:** Seeking guidance for their children's 11+ exam preparation.
- **Tutors:** Using the tool to complement their teaching methods.

Operating Environment

- Web-based platform accessible on major browsers (Chrome, Safari, Edge, Firefox).

Assumptions and Dependencies

- The system relies on existing OpenAI endpoints for generating worksheets.
- Accurate alignment with GL Assessment standards is assumed.

3. Functional Requirements

These functionalities will be developed in the first phase:

FR1: Create hierarchy of subjects and topics in the database

Description:

- The system will be able to store and return the list of subjects and related topics

FR2: Difficulty levels

Description:

- The system will be able to store and return difficulty levels.

FR3: Generate Worksheet

Description:

- The system shall allow users to create practice tests based on subjects and sub-topics (e.g., Math-Number and Place Value, BODMAS; English-Comprehension, Spag, Grammar).
- The system shall offer difficulty-level customization for tests (easy, medium, hard).

FR4: Export worksheet

Description:

- The system shall allow users to save the generated tests as PDF or Word documents for offline use or printing.
- The system shall ensure the format and layout of the document are user-friendly.

4. Non-Functional Requirements

The following non-functional requirements will be handled during the first phase.

NFR1: Performance

Description:

- The system should generate worksheets within reasonable response time after user's selections.

NFR2: Usability

Description:

- The interface shall be intuitive for non-technical users, with clear navigation and instructions.

5. Potential Enhancements

As the WSG application evolves, future development phases will focus on introducing advanced features to further enhance the user experience and provide more comprehensive support. These high-level features are substantial tasks, and they will be fine-grained into manageable components during later stages of development.

5.1 Functional Enhancements

FE1: Role-based access control

- **Description:**
- The system can have role-based authentication mechanism including the UI and the endpoints.
- JWT mechanism can be added to the system.

FE2: User profile

Description:

- The system shall allow users to create, edit, and delete child profiles.
- The system shall store and retrieve data on past performance for each profile.

FE3: Parental Notifications

Description:

- The system shall generate weekly performance summaries for each child, highlighting strengths, weaknesses, and recent progress.
- Notifications shall be sent to parents via email or through an in-app notification system.
- Parents shall have the option to customize the frequency and format of notifications (e.g., weekly, bi-weekly, monthly).

5.2 Non-Functional Enhancement

NFRE1: Security

Description:

- User data shall be encrypted and stored securely.

NFE2: Usability

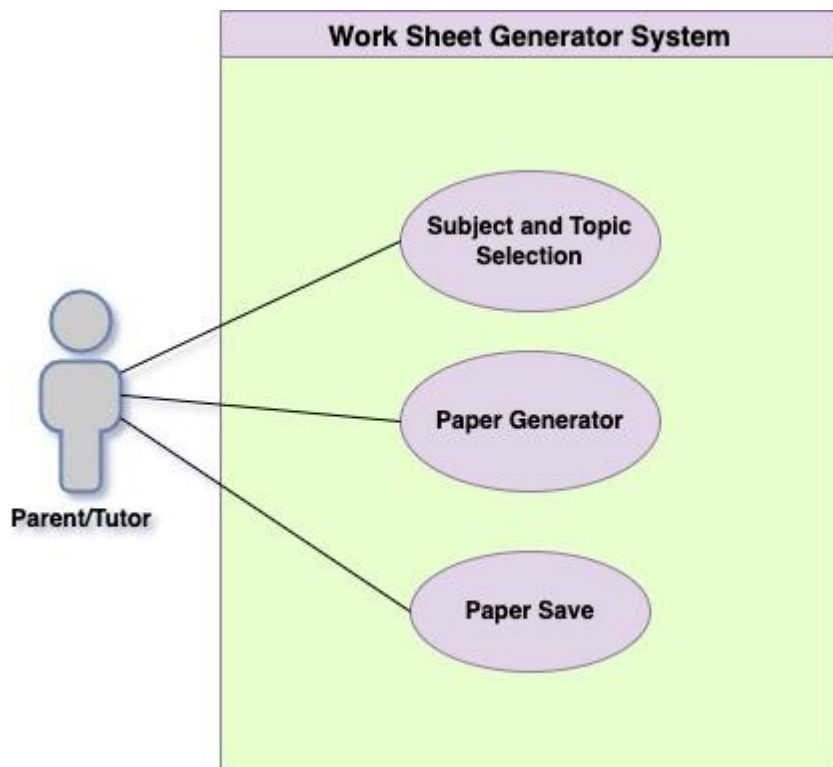
Description:

- Different roles can be added to the system, e.g. Parent, tutor, student

5.3 Rationale for Future Additions

These features are intended to provide greater insights and improve user engagement. However, they will not be included in the initial phase of development but will be prioritized in subsequent updates.

6. Use-Case Diagram



7. Class Diagram

