MathGenie

Web-Based Intelligent Educational Platform

Technical Specification & Project Proposal

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Technical Specification

1. Project Overview

1.1 Project Name

MathGenie

1.2 Product Type

Web-based intelligent educational platform with AI integration.

1.3 Purpose

To provide efficient, targeted, and personalized preparation for the National Testing (ORT) with full control over learning, progress analysis, and adaptive learning.

1.4 Target Audience

- Students (high school graduates, applicants, and university students)
- Teachers and tutors
- Platform administrators

2. Project Goals and Objectives

2.1 Goal

Create a unified digital educational environment combining testing, learning materials, AI, and analytics to achieve high results in ORT.

2.2 Objectives

- Provide access to quality ORT subject tests
- Implement AI-driven personalized learning
- Give teachers tools for learning management

- Develop an administrative panel for full platform control

- Ensure transparent tracking of student progress

3. MathGenie Platform Description

MathGenie is an intelligent online platform designed for ORT preparation. It provides students and teachers with tests, analytics, study materials, and personalized feedback. Unlike simple test systems, it is a full educational ecosystem focused on deep understanding, error correction, and confident exam preparation.

4. Student Features

4.1 Registration & Login

- Email/phone registration

- Login to personal account

- Password recovery

4.2 Student Dashboard

- Profile overview

- Test history

- Performance statistics

- Individual recommendations

4.3 Testing

- Access teacher-created tests

- Thematic and practice tests

- Time-limited tests (optional)

- Automatic grading

4.4 AI-Powered Individual Tests

- Personalized test generation

- Adaptive difficulty based on level

- Tests focusing on weak topics

4.5 Error Analysis

- Review completed tests

- Highlight mistakes

- Explain correct answers

- Track progress by topic

4.6 Study Materials

- Access to lecture notes and theory

- Teacher-uploaded study aids

- Structured by subjects and topics

5. AI Integration

5.1 AI Assistant

- Answer student questions on all ORT subjects

- Step-by-step, detailed explanations

- Use clear, simple language

5.2 Personalized Feedback

- Analyze test results

- Identify strong and weak topics

- Generate recommendations for improvement

- Provide exam strategy advice

6. Teacher Features

6.1 Teacher Dashboard

- Profile management

- View students and their results

6.2 Test Management

- Create tests by subject

- Add question types (single/multiple choice, numeric)

- Set difficulty and time

- Publish/edit tests

6.3 Study Materials Management

- Upload and update lecture notes

- Link materials to topics and tests

6.4 Analytics

- Student performance statistics

- Error analysis

- Compare results

7. Admin Panel

7.1 General Requirements

Full platform management: users, content, and analytics.

7.2 User Management

- View all students and teachers
- Block/unblock users
- Assign roles

7.3 Test Management

- View completed tests
- Analyze individual results
- Delete/adjust attempts if necessary

7.4 Content Management

- Monitor study materials
- Moderate teacher-created tests
- Manage subjects and topics

7.5 Analytics & Reports

- Platform statistics
- Active users count
- Average results by subject
- Export reports

8. Non-Functional Requirements

8.1 Performance

- Fast interface response
- Support for many concurrent users

8.2 Security

- Protect personal data

- Role-based access

- Secure result storage

8.3 Scalability

- Add new subjects

- Expand AI functionality

- Support mobile devices

9. Positioning

MathGenie is an intelligent educational platform combining AI, quality content, and analytics to help students understand material deeply, gain confidence, and achieve outstanding ORT results.

Problem Statement & Proposed Solution

Problem Statement

Preparing for the National Testing (ORT) is a critical and challenging step for students. Current preparation methods are often unstructured, inefficient, and stressful.

Key Issues:

- **Lack of personalization:** Most students follow generic materials, not adapted to their level, pace, and weak topics.

- **Limited access to quality practice tests:** Students often use outdated or inconsistent materials.

- **Progress tracking challenges:** Students cannot analyze results deeply or identify weak areas.

- **Limited feedback:** Errors are often unexplained, leading to repeated mistakes.

Current online platforms partially solve these issues but rarely combine content, testing, personalization, analytics, and AI in a single system, forcing students to use multiple platforms.

Proposed Solution

MathGenie is an intelligent online platform designed for effective ORT preparation.

Key Features:

- **AI-powered personalized tests:** Adaptive tests focusing on weak areas.

- **Comprehensive analytics:** Track progress, analyze errors, and get tailored recommendations.

- **Study materials:** Structured lecture notes and teacher-uploaded resources.

- **Teacher tools:** Test creation, study material management, and student performance analytics.

- **Admin control:** Full management of users, tests, content, and platform statistics.

Outcome:

MathGenie provides a unified, adaptive, and transparent learning environment. Students prepare efficiently, understand material deeply, and gain confidence for ORT, while teachers and administrators manage and track progress seamlessly.