***Parent Dashboard - Grade Prediction LMS***

***Introduction***

The *Parent Dashboard* in the Grade Prediction LMS (Forecaster Website) is designed to provide parents with insights into their child’s academic performance. The dashboard allows parents to track grades, monitor progress, receive alerts, and communicate with teachers.

***Features of the Parent Dashboard***

***1. Secure Authentication & Access Control***

* Each parent must log in using a *secure username and password*.
* Role-based access ensures that parents can only view *their child's* data.
* Two-factor authentication (2FA) for additional security (optional).

***2. Student Academic Overview***

* Displays *current semester grades* in a summary format.
* Shows GPA/CGPA trends over different semesters.

***3. Subject-wise Performance Tracking***

* Allows parents to view *individual subjects' performance*.
* Grades for each subject, along with improvement suggestions.
* Marks distribution: Assignments, Quizzes, Midterms, and Final Exam.

***4. Performance Trends & Analytics***

* *Graphical representation* of grade trends (line charts, bar graphs, pie charts).
* Predictive analytics to *forecast future grades* based on past performance.
* AI-based recommendations for improving weak subjects.

***5. Attendance & Participation Tracking***

* Displays attendance percentage and missed classes.
* Highlights participation in class activities and discussions.
* Sends alerts if attendance falls below a certain threshold.

***6. Teacher Feedback & Comments***

* View *teacher’s feedback* on student’s performance.
* Direct messages from teachers regarding student progress.
* Request meetings with teachers through an integrated system.

***7. Notifications & Alerts***

* *Automated alerts* for low grades, missing assignments, or attendance issues.
* Upcoming tests, exams, and important deadlines.
* Personalized recommendations based on student’s progress.

***8. Parent-Teacher Communication Portal***

* In-built *messaging system* for communication with teachers.
* *Request meetings* with subject teachers or academic advisors.
* Receive reports and updates on student’s performance.

***9. Downloadable Reports & Certificates***

* *Download student performance reports* (PDF format).
* Access *certificates* for academic achievements or participation in events.

***10. Multi-Child Support (For Parents with More Than One Student)***

* Switch between multiple children's dashboards.
* Compare performance insights across multiple students (if applicable).

***Technical Implementation***

***Tech Stack for Development***

* *Backend:* Django (Python) for server-side processing.
* *Frontend:* HTML, CSS, JavaScript, Bootstrap (for UI design).
* *Database:* PostgreSQL/MySQL for storing student records.
* *Authentication:* Django authentication system with role-based access.
* *Data Visualization:* Chart.js, Matplotlib, or D3.js for grade graphs.
* *Messaging System:* Django Channels (for real-time messages).

***API Integrations***

* *Grade Prediction API* – Fetch AI-based grade forecasts.
* *Messaging API* – Enable communication between parents and teachers.
* *Email & SMS API* – For sending notifications and alerts.

***Conclusion***

The *Parent Dashboard* will be a key feature of the Grade Prediction LMS, helping parents stay updated on their child's academic journey. This system will enhance communication between parents, students, and teachers while ensuring academic success through data-driven insights.