

1st page : Home , About, Register, Login, Contact

us

If click on **home** then :

- At the top-left: Logo + small project name.
- At the top-right: Navigation buttons → Home, About, Register, Login, Contact Us.
- Center: Big heading “**Student Performance Prediction and Feedback System**” with a sub-heading tagline.
- Below: Illustrative images like graphs, pie charts, and student progress icons.
- A “Get Started” button to redirect users to login/register.
- Footer with copyright and project details.

If click on **About** then :

Center heading : **Student Performance Prediction and Feedback System**, having a tagline as “empowering students & faculty with AI-Driven insights”

And next below in short para

Our **Student Performance Prediction and Feedback System** helps polytechnic students and faculty analyze academic performance, identify risk levels, and generate personalized feedback.

Why this system?

Students often face challenges in tracking progress, while faculty require insights into class-wide performance. This system bridges that gap with AI-powered analytics.

Core Features:

- Student risk prediction (High/Medium/Low).
- Faculty dashboards with subject-wise analysis.
- Personalized feedback for improvement.
- Simple data upload (CSV/manual).
- Secure login for Admin, Faculty, and Students.

Demo:

A short video walkthrough will demonstrate how to register, upload student data, view reports, and generate feedback.

Privacy:

Your data is safe. Only authorized users can access student records, ensuring complete privacy and security.

If click on **Register** then :

- When the user clicks “Get Started” on the homepage or direct click on register at navigation button on home page, they are redirected to a single dialog box with two main divisions:

- **Register | Login** (tabs at top).

Faculty Registration

- **Name**
- **Faculty ID** (unique)
- **Username** (check availability)
- **Password**
- **Email** (Optional)

If click on **Login** then :

Login Form (Faculty)

- Username
 - Password
- ⌚ After login, redirect users based on their role:.
- Faculty → Faculty Dashboard.

If click on **Contact us** then :

The “Contact Us” option on the homepage scrolls to the bottom of the page instead of opening a new tab.

This section contains:

- 🏫 College/Team Address
- ☎ Phone number
- 📩 Email address

At the bottom: © 2025 Student Performance Prediction & Feedback System. All Rights Reserved

2nd page: (after login of Faculty)

After a successful login, the **Faculty Dashboard** provides following:

- ◊ Top Section (20% of the page) this will be same in all 4 sections below:
 - Blue header → “Welcome back, [Faculty Name]”
 - Right side → Faculty email + Logout button.

And a row type 5 sections will be displayed as follows

1. **Data Upload**
2. **Student Report**
3. **Results Search**
4. **Graph Analysis**
5. **Uploaded Files Details**

If go to **Data upload** then :

- ◊ Top Section (20% of the page) this will be same in all 4 sections below:
 - Blue header → “Welcome back, [Faculty Name]”
 - Right side → Faculty email + Logout button.

- ◊ Bottom Section (80% of the page)

1. Data Upload

The **Data Upload** section allows faculty to upload student performance data in two ways:

- **CSV Upload**
- **Manual Entry**

◊ CSV Upload

- A **dropdown** allows the faculty to choose the type of file being uploaded:
 - **Mid-1**
 - **Mid-2**
 - **Semester (End Exam)**
- Faculty can also **download a sample CSV format** to prepare files correctly.
- While uploading the file its ask for name the file, eg: 1st year 2nd sem or 3rd year 5th sem etc.
- Once a file is uploaded, a **Preview Table** is displayed before saving to the database.

Features of CSV Upload:

- **Preview Table** – Displays all uploaded data before final submission.
- **Edit Mode** – A single **Edit button** enables inline editing of any row/column.
- **Status Message** – Example: “ 4 records ready for processing.”
- **Error Highlighting** – Missing or invalid data (e.g., empty PIN, marks > maximum) is highlighted in **red**.
- **Duplicate Detection:**
 - **Scenario 1 (Entire file uploaded twice):**
 - System checks a composite key → (PIN + Exam_Type + Semester + Subject_Code).
 - If exact data already exists, system shows warning:

⚠ Data for PIN 23189-CS-001 (4th Sem Mid-1) already exists. Do you want to Overwrite or Skip?

- **Scenario 2 (Some duplicate students in file):**
 - Duplicates are highlighted in **yellow** in the Preview Table.
 - Faculty chooses: **Overwrite / Keep Old / Skip**.

- **File Tagging** – The preview section shows which file was uploaded. Example:

📂 Uploaded: 4th Sem – Mid-1 Data

Preview Table Columns:

- For **Mid Exam files**:
| PIN | Name | SC-401 | CS-402 | ... | HU-410 | Attendance |
- For **End Sem files**:
| PIN | Name | SC-401 | CS-402 | ... | HU-410 | Attendance | Rubrics | Total | Credits |
SGPA | CGPA | Result |

◊ Manual Entry

If faculty prefer not to upload a CSV file, they can manually add student details.

Fields in Manual Form:

- Student Name
- PIN Number
- Year (Dropdown)
- Semester (Dropdown)
- Subject Code (strictly validated against Subjects Table)
- Marks Obtained
- Attendance (%)
- (Optional, for Semester exams: Rubrics, Total, SGPA, CGPA, Result)

Validation:

- Subject Code must exist in the Subjects table.
- If an invalid code is entered → error shown:

 Invalid Subject Code. Please check syllabus mapping.

Preview before Submit:

- After manual entry, data is displayed in the **Preview Table** (same as CSV preview).
- Faculty can use the **Edit button** to correct mistakes before final save.

◊ **Subject Mapping (Admin Role)**

- Subjects are not typed manually by faculty.
- An **Admin** uploads a one-time **Subjects Mapping CSV** with columns:
| Subject_Code | Subject_Name | Branch | Year | Semester |
- This ensures consistency between **subject codes** in uploaded files and **subject names** shown on dashboards.
- If a faculty uploads a marks file with an unknown subject code → system rejects it.

If go to **student report** then :

This is basically 2

parts:

Student Report

The **Student Report** section allows faculty to view and analyze the performance of students in a structured and interactive way. It is divided into two parts:

◊ **1. Top Controls (Filters & Actions)**

At the top of the Student Report page, faculty can quickly filter and manage student data through:

- **Branch, Section, Year, Semester** – dropdown filters to select the batch.
- **Search Box** – search directly by *PIN number* or *Name* for faster access.
- **Sorting Options** – sort students by *Name*, *PIN*, *Risk Status*, or *Class Average*.
- **Export Button** – export the current filtered data as **CSV or PDF** for record-keeping.

◊ **2. Overview Panel (20% section)**

A small dashboard area displays **overall statistics** of the selected batch:

- Total Students
- High Risk Count
- Medium Risk Count
- Low Risk Count
- Average Attendance
- Average Class Performance (SGPA/Class Average)

 This gives faculty a quick snapshot of the batch performance before looking at individual records.

◊ **3. Student List (80% section)**

The main content displays a **table of students** with the following columns:

- | PIN | Name | Attendance | Risk Status | Class Average | Action |
- **PIN & Name** → Identifies each student uniquely.

- **Attendance** → Displays percentage with color coding (Green >75%, Yellow 60–75%, Red <60%).
 - **Risk Status** → High / Medium / Low risk categorization.
 - **Class Average** → Student's performance compared to class average.
 - **Action** → A *View Details* button for each student.
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◊ 4. View Details (Popup Modal)

When faculty clicks **View Details**, a popup appears with:

- **Student Info** → PIN, Name, Year, Section.
- **Subject-wise Marks Table** → Shows marks from past completed exams (Mid-1, Mid-2, Semester).
 - If no data exists → “No exam data exists for this student yet.”
- **Risk Subjects** → Highlighted in red if below the threshold.
- **Attendance %** → Displayed with traffic-light coding.
- **Personalized Feedback** → Automatically generated based on student performance.
- **More Details Button** → Redirects to a dedicated page showing the **student's entire semester-wise performance** with graphs and historical trends.

If go to **Results search** then :

Results Search

The **Results Search** module enables faculty to quickly fetch and analyze the complete semester-wise performance of individual students. This feature provides both detailed subject-level data and an overall performance trend.

◊ 1. Top Bar (10%)

- Left side: **Welcome message** (e.g., “ Welcome, FacultyName”)
 - Right side: **Logout button**
 - The design remains consistent with other faculty dashboard pages.
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◊ 2. Navigation Bar

A navigation bar is provided for easy movement between different modules:

- Data Upload
- Student Report
- **Results Search (active)**
- Graph Analysis
- Data Files

The currently active tab (*Results Search*) is highlighted for clarity.

◊ 3. Search Box

Faculty can search for students using:

- **PIN number (mandatory input)**
 - **Optional search by Name** for convenience
 - **Recent Searches** dropdown to quickly recheck last 5 students
 - A **Search button** is provided on the right side of the input field
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◊ 4. Semester Navigation + Results Table

Once a student is found, a results box is displayed:

- **Left side:** Vertical list of buttons for each semester (*Sem1 → Sem6*)
- **Right side:** A results table that dynamically loads data for the selected semester

Table Columns:

| Subject Code | Subject Name | Mid-1 | Mid-2 | Internal | Semester | Total Marks | Grade | Result |

Additional Features:

1. **Grade/Result** → Displays subject-wise grade and Pass/Fail status
2. **Overall Score Row (bottom)** → Shows *Total Marks* and *Percentage* of that semester
3. **Missing Data Handling** → If semester data does not exist, display:
 - “No records for this semester.”

◊ **5. NLP Feedback Box**

Below the results table, a **personalized feedback box** is displayed for the selected semester.

- Feedback highlights strengths, weaknesses, and areas for improvement.
- Example:
 - “Strong in DBMS & Java, keep it up.”
 - “Needs improvement in Mathematics and Attendance.”
- **Color-coded feedback** (Green = Positive, Yellow = Needs Attention, Red = Critical) ensures clarity at a glance.

◊ **6. Performance Graph**

At the bottom of the page, a **performance trend graph** is always displayed.

- X-axis → Semesters (Sem1 to Sem6)
- Y-axis → Overall percentage (%)
- The graph shows the student's **overall score per semester** as a trend line.
- Clicking on semester buttons only changes the table above; the graph continues to display the **full multi-semester trend**.
- Optional: A **Class Average line** (dashed) can be added for comparison.

If go to **Graph Analysis** then :

Graph Analysis

The **Graph Analysis** module provides faculty with powerful visual insights into student performance. It transforms batch-level marks into easy-to-understand charts and progress cards, helping faculty identify weak subjects and risk distribution quickly.

◊ **1. Filters (Top Controls)**

- Faculty can filter graphs by **Branch, Year, Semester**.
- This module is **interlinked with Student Report**:
 - Whatever **Branch, Year, Semester** is selected in the Student Report → the same is automatically applied here.
 - This avoids re-selecting filters and ensures consistency across modules.

◊ 2. Subject-wise Performance Cards

For each subject in the selected semester, a card is displayed with:

- **Average Performance (%)** → Formula:

Average Performance=Sum of marks of all students in that subjectNumber of students\text{Average Performance} = \frac{\text{Sum of marks of all students in that subject}}{\text{Number of students}}

Average Performance=Number of studentsSum of marks of all students in that subject

- Display: **Progress bar + Percentage badge**
- Example: *Database Management Systems (CS402)* → 68% Average
- These cards allow faculty to instantly see how well students are performing in each subject.

◊ 3. Graphs & Dashboards

(a) Subject Average Comparison (Bar Graph)

- **Graph Type:** Vertical Bar Graph
- **X-axis:** Subjects (Subject Codes/Names)
- **Y-axis:** Average Marks (0–100%)

Calculation:

Subject Average=Sum of marks of all students in subjectNumber of students\text{Subject Average} = \frac{\text{Sum of marks of all students in subject}}{\text{Number of students}}

Purpose:

- Displays performance comparison across all subjects in the selected semester.
- Helps faculty quickly identify subjects where students perform well vs. weak subjects needing attention.

(b) Risk Distribution (Pie Chart)

- **Graph Type:** Pie Chart
- **Categories:** High Risk, Medium Risk, Low Risk students
- **Calculation:**
 - Count of students in each risk level ÷ Total students × 100
- **Purpose:**
 - Provides a clear picture of how many students fall into each risk category.
 - Helps faculty immediately spot at-risk groups and plan interventions.

◊ 4. Advantages of Graph Analysis

- Converts large volumes of marks into easy-to-read visuals
- Highlights weak subjects and at-risk students at a glance
- Saves time for faculty during evaluations
- Professional, examiner-friendly, and easy to extend with future graphs

Summary of Graph Types Used:

1. **Progress Cards (per subject)** → Quick average % display
2. **Bar Graph** → Subject Average Comparison (X = Subjects, Y = Avg %)
3. **Pie Chart** → Risk Distribution (High/Medium/Low risk split)

If go to **Uploaded files details** then :

Uploaded Files Details

The **Uploaded Files Details** section allows faculty to manage all previously uploaded student data files. It provides an overview of files and ensures that faculty can recheck or delete files when required.

◊ **1. File List Table**

All uploaded files are displayed in a table with the following columns:

Sr. No File Name Original File Name Uploaded On Action
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- **Sr. No** → Auto-generated serial number.
- **File Name** → Custom name entered by faculty during upload.
- **Original File Name** → Actual system filename (e.g., student_marks.csv).
- **Uploaded On** → Date & time of upload (automatically generated).
- **Action** → Contains two buttons:
 - **View Data** → Opens the file contents in a tab with student data in preview format.
 - **Delete** → Removes the file from database and storage (with confirmation popup).

◊ **2. File Preview (when “View Data” clicked)**

- Opens a new tab or modal.
- Displays student data in a structured table (same format as Data Upload Preview).
- Example columns:

PIN Name Subject Codes / Marks Attendance

- Purpose: Quick verification of uploaded data.
 - Note: Editing is not allowed here (only possible during initial upload stage).
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◊ **3. Improvements & Safeguards**

- **Confirmation on Delete** → A confirmation popup ensures files are not accidentally deleted.
 - Example: “Are you sure you want to delete Mid-1 CSE 4th Sem file? This action cannot be undone.”