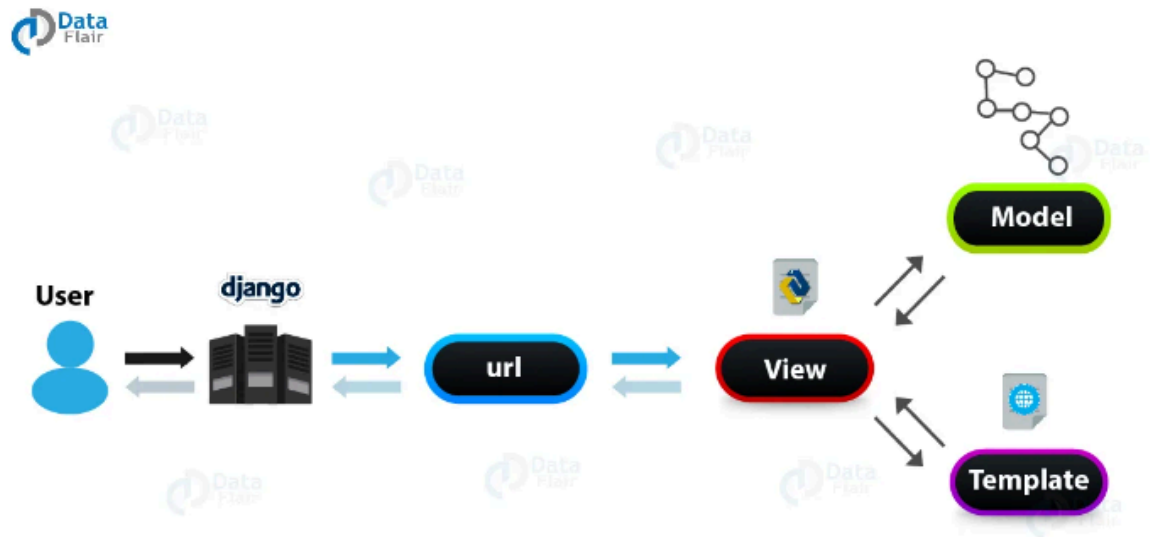
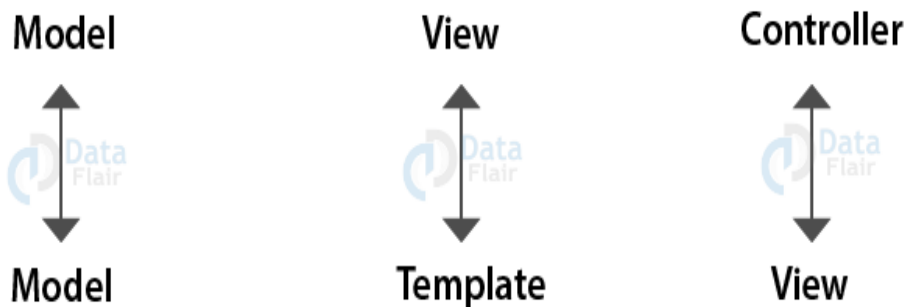


# Classroom Management System Report

## Workflow of the Project



Used Model-Template-view instead of Model-view-Controller



Model: Data Description

Views: Handles the display of users

Template: Controls the user interaction

Controller: Presentation Layer for users

# Entities

## 1. Teacher:

- Attributes:
  - TeacherID (Primary Key)
  - TeacherName

## 2. Student:

- Attributes:
  - StudentID (Primary Key)
  - StudentName

## 3. Course:

- Attributes:
  - CourseID (Primary Key)
  - CourseName
  - TeacherID (Foreign Key references Teacher.TeacherID)

## 4. Assignment:

- Attributes:
  - AssignmentID (Primary Key)
  - AssignmentTitle
  - TeacherID (Foreign Key references Teacher.TeacherID)

## 5. Marks:

- Attributes:
  - StudentID (Foreign Key references Student.StudentID)
  - CourseID (Foreign Key references Course.CourseID)
  - AssignmentID (Foreign Key references Assignment.AssignmentID)
  - MarksObtained

# Relationships

## 1. Teacher creates Assignments (One-to-Many):

- A Teacher can create many Assignments.
- An Assignment is created by one Teacher.

## 2. Students see Assignments (Many-to-Many):

- All Students can see all Assignments.
- Each Assignment can be seen by all Students.

## 3. Students get Marks (Many-to-Many):

- A Student can get Marks for many Assignments (and Courses if applicable).
- Marks are recorded for a Student in a specific Assignment (and Course if applicable).

## Cardinalities:

- One Teacher can have many Students (or Courses) - Many-to-Many (Optional)
- One Teacher can create many Assignments - One-to-Many
- All Students can see all Assignments - Many-to-Many
- One Student can get Marks for many Assignments (and Courses) - Many-to-Many

## Features Implemented

- Lots of students can sign up.
- Teachers can give students assignments and students can see them.
- Students can check their own marks.
- Student Dashboard shows the highest, lowest, and average marks for the whole class.
- Teachers can see how many assignments have been submitted.
- Everything can be shown in graphs and charts.
- Teachers can change marks if needed.
- Teachers can get reports that show how the whole class is doing and how each student is doing.

# Project Demo

## 1. On opening the application Student and Teacher Login

## Login

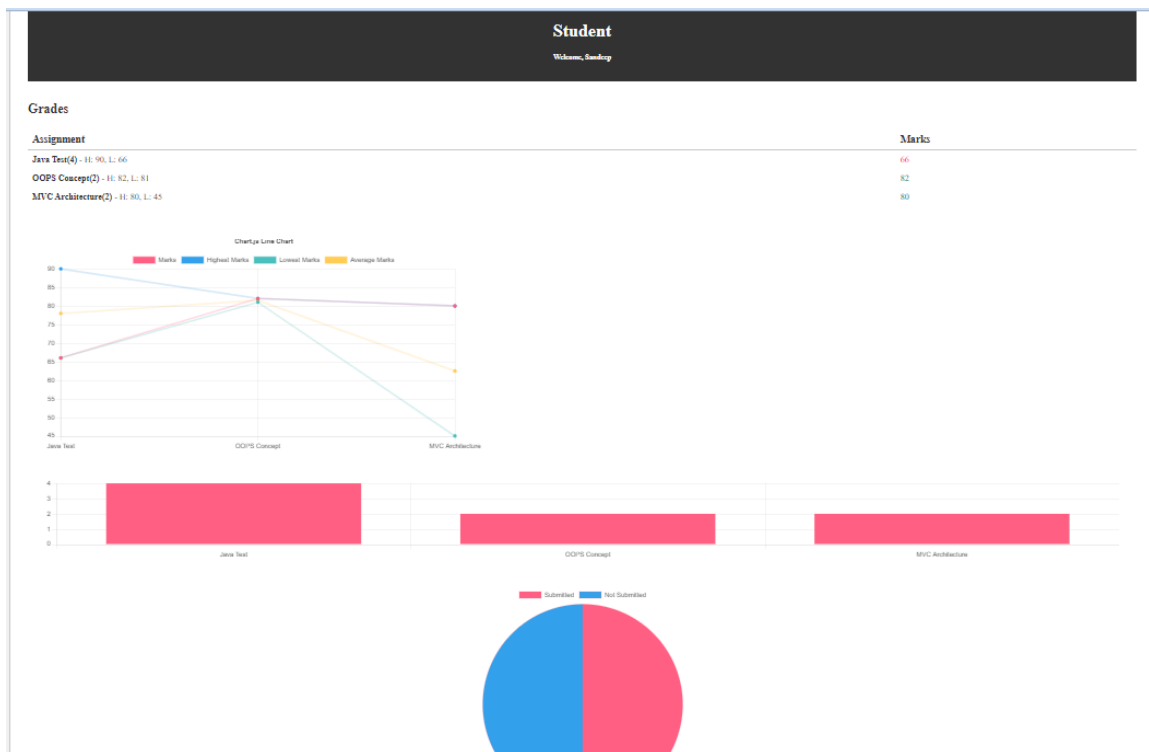
Username:

Password:

Login

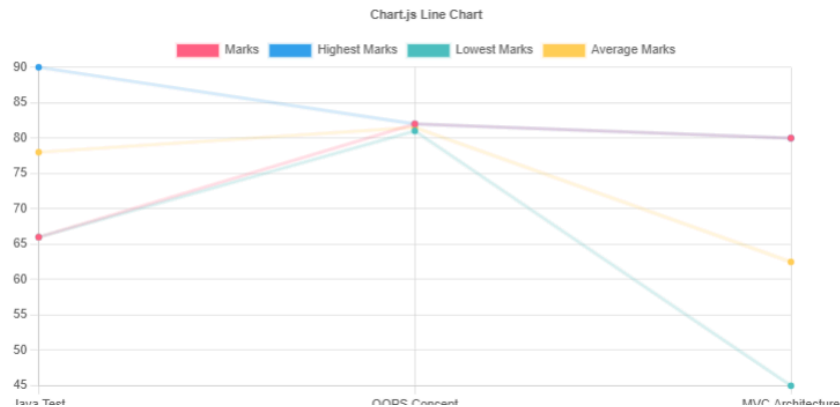
•

## 2. Student Dashboard



## Grades

Assignment	Marks
Java Test(4) - H: 90, L: 66	66
OOPS Concept(2) - H: 82, L: 81	82
MVC Architecture(2) - H: 80, L: 45	80



- Student can view their marks, highest, lowest and average marks of the class whose assignments are graded
- On hovering the points on the graph he can observe his graded assignments analytics of class.
- If he gets less than the class average his marks shows in red color.

## Another Student Dashboard



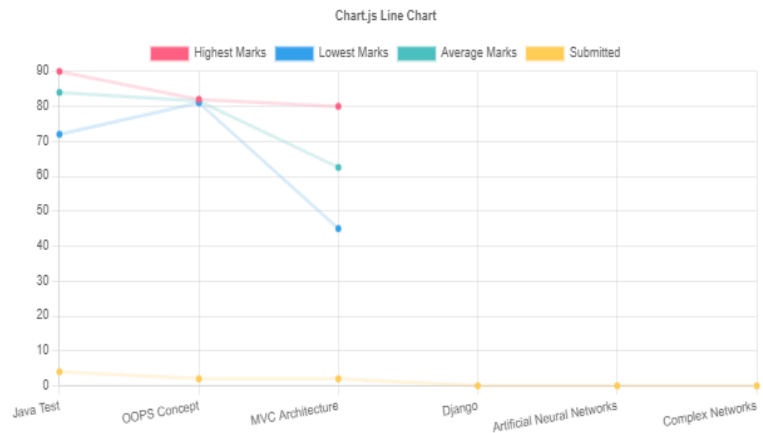
# Teachers DashBoard

## Teacher Dashboard

### All Assignments

#### Assignment

Java Test
OOPS Concept
MVC Architecture
Django
Artificial Neural Networks
Complex Networks



### Add New Assignment

Teachers can see the assignments assigned to students

Teachers can add new assignment

### Java Test Grades

Roll	Name	Marks	Edit
1	Sandeep	66	<input type="button" value="Edit"/>
2	Alice	72	<input type="button" value="Edit"/>
3	Bob	84	<input type="button" value="Edit"/>
4	Emma	90	<input type="button" value="Edit"/>

### Grade New Student

Select Student	▼
<input type="text"/>	
<input type="button" value="Grade"/>	

- Teacher can update the grades of the students
- Can assign new grade of new assignment for new students.

## API Endpoints

URL	HTTP Method	Description
/register	POST	Creates a new user with username, password, and role (student or teacher). Returns success message and user data.
/login	GET	Retrieves all users (for administrative purposes?). Not recommended for general use due to security concerns.
/login	POST	Logs in a user with username and password. Returns success message and user data on successful login.
/assignments	GET	Retrieves all assignments. For each assignment, calculates and adds highest marks, lowest marks, average marks, and number of grades submitted.
/assignments	POST	Creates a new assignment with a specified name. Returns success message and assignment data.
/grades/assignment/<aid>	GET	Retrieves all grades for a specific assignment (aid). Appends usernames to each grade entry.
/grades/assignment/<aid>	POST	Creates or updates a grade for a specific assignment (aid) and user (uid). Requires user ID and marks. Returns success message and grade data.
/grades/user/<uid>	GET	Retrieves all grades for a specific user (uid). Appends assignment names, usernames, highest marks, lowest marks, average marks, number of grades for the assignment, and total number of assignments to each grade entry.

## Development of project

**Frontend:** Next.js - A React framework for building fast and SEO-friendly web applications.

- **Backend:** Django - A high-level Python web framework that simplifies development.
- **Data visualization:** React Charts A library for creating interactive charts within your React frontend

## Functionalities BreakDown

### User Management:

- Users can register with a username, password, and role (student or teacher).
- Login functionality allows users to access the system.

### Assignments:

- Teachers can create assignments.
- The system retrieves all assignments for viewing.
- It calculates additional information for each assignment, including highest marks, lowest marks, and average marks.

### Grades:

- Teachers can submit grades for students (assuming a separate endpoint exists for this functionality).
- Students can view their grades for all assignments.
- additional information for each student's grade entry, including assignment name, username, highest marks in the class, lowest marks, average marks, and the total number of assignments.
- Charts are likely used to visualize this data in an interactive way.



