School Management Detailed Functional Design
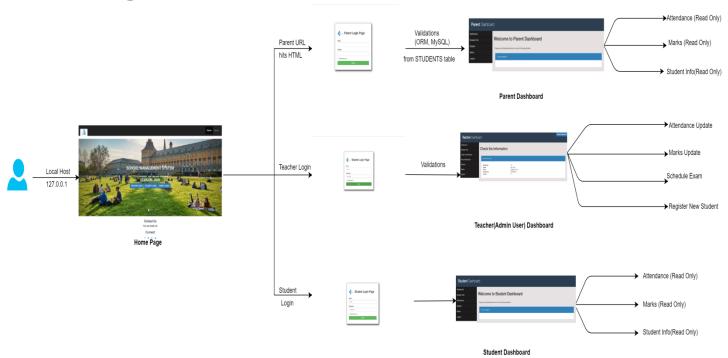
Introduction

School Management application is a solution for school admin where he can register new students in school, mark attendance of the particular students, schedule exams and many such functionalities.

Users of this application can be parents, students and teachers/admins, where parents and students can check, attendance, marks, student info,subjects and other information.

This documents walks through workflow of this application and glimpse of how the application was made.

Detailed Functional Design

Workflow Diagram

Project Workflow

First we need to start the Django project via running a command – python manage.py runserver.

After hitting the command we will get the url or IP address i.e.. https://127.0.0.1, we need to paste the URL into the web browser.
Now we are at the Homepage or Welcome Screen which comprises of Home, About, Parent Login, Student Login and Teacher Login/admin and in the backend using the HTML, CSS and Bootstrap.

Regarding the buttons:

1) Home – It will behave as refresh button which means whenever you hit the Home Button you will jump on the Home Screen.
2) Parent Login – Here Student, Parent can login. Here is a button which will help you to jump on the Login Screen to the new Page which is https://127.0.0.1/parent_login/.

3) Student Login – Here Student can login. Here is a button which will help you to jump on the Login Screen to the new Page which is https://127.0.0.1/student_login/
4) Teacher Login – Here Teacher can login. Here is a button which will help you to jump on the Login Screen to the new Page which is https://127.0.0.1/teacher_login/

Parent Login – Here Parent can Login via the Student Name and their Roll No field.
They will Get Authenticated via providing the correct details. If the Parent Credentials are incorrect then it jumps back to the Home page again by displaying the error message. After the you can try again by clicking the Parent Login button to enter the same Login page.
After Logged in we are at the https://127.0.0.1/dashboard/ which will take you to the Parent Dashboard.
The Dashboard comprises of :
1) Dashboard
2) Student Info
3) Subjects
4) Marks
5) Logout

Dashboard: This will show you the Message that You are logged in. Below that you select the respective options.
"Welcome to Parent Dashboard"

Student Info: Here Parent can check the details of the Student,

a) Roll No
b) Name
c) Email
d) Parent Name
e) Address
f) Contact No
g) Department
h) Course ID

Subjects: This will help you to take the Details of the Course Teacher Name and which subject they are teaching.

a) Teacher Name
b) Subjects

Marks: This will display the Marks of the Student in the Particular Subjects.

Logout: This will help you to Logout from the Parent Dashboard and you can go back to the HomePage.

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Student Login – Here Student can Login via their credentials into the Email address and Password field.
They will Get Authenticated via providing the correct details. If the Student Credentials are incorrect then it jumps back to the Home page again by displaying the error message. After the you can try again by clicking the Student Login button to enter the same Login page.
After Logged in we are at the https://127.0.0.1/dashboard/ which will take you to the Parent Dashboard.
The Dashboard comprises of :
1) Dashboard
2) Student Info
3) Attendance
4) Subject
5) Marks
6) Logout

Dashboard: This will show you the Message that You are logged in. Below that you select the respective options. "Welcome to Student Dashboard"

Student Info: Here Parent can check the details of the Student,

1) Roll No
2) Name
3) Email
4) Parent Name
5) Address
6) Contact No
7) Department
8) Course ID

Attendance: It will display the Student Date and Student column in the Date describes the current date or today's date and status is Present/Absent. Student can check whether they are Present or not.

Subjects: This will help you to take the Details of the Course Teacher Name and which subject they are teaching.

a) Teacher Name
b) Subjects

Marks: This will display the Marks of the Student in the Subjects.

Logout: This will help you to Logout from the Student Dashboard and you can go back to the HomePage.

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Teacher Login/Admin – Here Teacher can Login via their credentials into the Email address and Password field They will Get Authenticated via providing the correct details. If the Student Credentials are incorrect then it jumps back to the Home page again by displaying the error message. After the you can try again by clicking the Teacher Login button to enter the same Login page.
After Logged in we are at the https://127.0.0.1/dashboard/ which will take you to the Parent Dashboard.
The Dashboard comprises of :
1) Dashboard
2) Teacher Info
3) Today's Attendance
4) View Attendance
5) Subject
6) Marks
7) Logout
8) Student Registration

Dashboard: This will show you the Message that You are logged in. Below that you select the respective options. "Welcome to Student Dashboard"

Teacher Info: Here Parent can check the details of the Student,

1) Teacher ID
2) Name
3) Email
4) Contact No
5) Course

Today's Attendance: Here Teacher will get an Add Attendance Button through which teacher can mark the Attendance of the Student which are studying in their class. It will show the square checkbox and after clicking the Add Attendance it will automatically get saved in the Student Dashboard records and Teacher Dashboard which will help the teacher to remember who are Actually Present or Absent.

View Attendance: Here Teacher can see the list of student who are present on the Particular day. They can check on the basis of date that the students were present on the particular date or not. Inside that date button teacher can go and check the list of student present and absent.

Subjects: This will help you to show how many Subjects that Teacher teaches for a particular course.

Marks: Now in marks teacher can update the marks of the students who all are present with the respective student's name corresponding the number of subject's students is learning. This will to keeping the records updated.

Logout: This will help you to Logout from the Teacher Dashboard and you can go back to the HomePage.

Student Registration: This is also the Important functionality of the Teacher to singup or register the New users who are new joiners. This will ask for the following fields i.e..

1) Roll No
2) Name
3) Email
4) Password
5) Gender
6) Parent Name
7) Address
8) Phone Number
9) Department (BE or Pharma)
10) Course Name

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Table Structure

school_course:
```
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| course_id   | varchar(10)  | NO   | PRI | NULL    |       |
| course_name | varchar(200) | NO   | UNI | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
```

school_student:
```
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| roll_no       | varchar(20)  | NO   | PRI | NULL    |       |
| name          | varchar(200) | NO   |     | NULL    |       |
| student_email | varchar(100) | NO   |     | NULL    |       |
| password      | varchar(200) | NO   |     | NULL    |       |
| gender        | varchar(1)   | NO   |     | NULL    |       |
| parent_name   | varchar(201) | NO   |     | NULL    |       |
| address       | longtext     | NO   |     | NULL    |       |
| phone_no      | varchar(10)  | NO   | UNI | NULL    |       |
```

```
| department    | varchar(30)  | NO  |     | NULL |       |
| course_id     | varchar(10)  | NO  | MUL | NULL |       |
+---------------+--------------+-----+-----+--------+-------+
```

school_teacher:
```
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| teacher_id   | varchar(20)  | NO   | PRI | NULL    |       |
| teacher_name | varchar(200) | NO   |     | NULL    |       |
| email        | varchar(100) | NO   |     | NULL    |       |
| password     | varchar(200) | NO   |     | NULL    |       |
| phone_no     | varchar(10)  | NO   | UNI | NULL    |       |
| course_id    | varchar(10)  | NO   | MUL | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
```

school_attendance:
```
+-----------------+--------------+------+-----+---------+----------------+
| Field           | Type         | Null | Key | Default | Extra          |
+-----------------+--------------+------+-----+---------+----------------+
| id              | int(11)      | NO   | PRI | NULL    | auto_increment |
| student         | varchar(200) | NO   |     | NULL    |                |
| teacher         | varchar(200) | NO   |     | NULL    |                |
| attendance_date | date         | NO   |     | NULL    |                |
| update_date     | datetime(6)  | NO   |     | NULL    |                |
| course_id       | varchar(10)  | NO   | MUL | NULL    |                |
+-----------------+--------------+------+-----+---------+----------------+
```

school_subject:
```
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| subject_id   | varchar(20)  | NO   | PRI | NULL    |       |
| subject_name | varchar(200) | NO   |     | NULL    |       |
| course_id    | varchar(10)  | NO   | MUL | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
```

school_exam:
```
+------------+--------------+------+-----+---------+----------------+
| Field      | Type         | Null | Key | Default | Extra          |
+------------+--------------+------+-----+---------+----------------+
| id         | int(11)      | NO   | PRI | NULL    | auto_increment |
| exam_id    | varchar(20)  | NO   |     | NULL    |                |
| marks      | int(11)      | NO   |     | NULL    |                |
| course_id  | varchar(10)  | NO   | MUL | NULL    |                |
| subject_id | varchar(20)  | NO   | MUL | NULL    |                |
+------------+--------------+------+-----+---------+----------------+
```

DML commands for testing on new system

Username: admin

Password : qwerty123

Database : MYSQL

use test;

Insert Queries:

Course Table –

insert into school_course(course_id, course_name) values ('C01', 'IT');

insert into school_course(course_id, course_name) values ('C02', 'Mech');

insert into school_course(course_id, course_name) values ('C03', 'EC');

insert into school_course(course_id, course_name) values ('C04', 'Dental');

Student Table -

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('101', 'Yash Singh', 'yash@gmail.com', '123456', 'M', 'H Singh', 'Elementa 1', '9876543210', 'BE', 'IT');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('102', 'Vijay Singha', 'vijay@gmail.com', '123456', 'M', 'V Singha', 'Elementa 2', '8976543210', 'BE', 'IT');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('103', 'Himanshu Gupta', 'himanshu@gmail.com', '123456', 'M', 'Him Gupta', 'Elementa 3', '9786543210', 'BE', 'EC');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('104', 'Prajyoti Das', 'prajyoti@gmail.com', '123456', 'F', 'P Das', 'Elementa 4', '9875643210', 'BE', 'EC');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('105', 'Arpita Jain', 'arpita@gmail.com', '123456', 'F', 'A Jain', 'Elementa 5', '9822543210', 'BE', 'Mech');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('106', 'Shreya Vishwa', 'shreya@gmail.com', '123456', 'F', 'S Vishwa', 'Elementa 6', '9776543210', 'BE', 'Mech');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('107', 'Ravinash Raj', 'ravinash@gmail.com', '123456', 'M', 'R Raj', 'Elementa 7', '9887643210', 'Pharma', 'Dental');

insert into school_student(roll_no, name, student_email, password, gender, parent_name, address, phone_no, department, course_id) values ('108', 'Anshul Jain', 'anshul@gmail.com', '123456', 'M', 'Ajay Jain', 'Elementa 8', '9866543210', 'Pharma', 'Dental');

Teacher Table –

insert into school_teacher(teacher_id,teacher_name,email,password,phone_no,course_id) values ('T01', 'Ajay Singh', 'ajay@gmail.com', '123456', '8769543210', 'IT');

insert into school_teacher(teacher_id,teacher_name,email,password,phone_no,course_id) values ('T02', 'Roop Kumar', 'roop@gmail.com', '123456', '8769588210', 'Mech');

insert into school_teacher(teacher_id,teacher_name,email,password,phone_no,course_id) values ('T03', 'Anjali Tiwari', 'anjali@gmail.com', '123456', '8669543210', 'EC');

insert into school_teacher(teacher_id,teacher_name,email,password,phone_no,course_id) values ('T04', 'Ankush Sharma', 'ankush@gmail.com', '123456', '8769542871', 'Dental');

Subject Table –

insert into school_subject(subject_id, subject_name , course_id) values ('DSA', 'Data Structures', 'C01');

insert into school_subject(subject_id, subject_name , course_id) values ('ML', 'Machine Learning', 'C01');

insert into school_subject(subject_id, subject_name , course_id) values ('TH', 'Thermodynamics', 'C02');

insert into school_subject(subject_id, subject_name , course_id) values ('MD', 'Medicine', 'C04');

insert into school_subject(subject_id, subject_name , course_id) values ('OS', 'Oral Surgery', 'C04');

insert into school_subject(subject_id, subject_name , course_id) values ('DC', 'Digital Circuits', 'C03');

insert into school_subject(subject_id, subject_name , course_id) values ('SS', 'Signals and Systems', 'C03');

insert into school_subject(subject_id, subject_name , course_id) values ('MT', 'Material Technology', 'C02');

Assumptions

- There are few teachers(or admins) already enrolled in the school at Day1 of using this application.