

School Management System

This project implements a basic school management system in Python. It consists of classes representing a School, Classroom, Subject, Teacher, and Student.

1. School:

- Attributes:

- name: Name of the school.
- address: Address of the school.
- teachers: Dictionary to store teachers associated with subjects.
- classrooms: Dictionary to store classrooms.

- Methods:

- add_classroom(classroom): Adds a classroom to the school.
- add_teacher(subject, teacher): Adds a teacher to a specific subject.
- student_admission(student): Enrolls a student into a classroom.
- calculate_grade(marks): Static method to calculate the grade based on marks.
 - grade_to_value(grade): Static method to convert grade to its corresponding value.
 - value_to_grade(value): Static method to convert value to its corresponding grade.
 - __repr__(): String representation of the school, including classroom details and student exam marks.

2. Classroom:

- Attributes:

- name: Name of the classroom.
- students: List to store students.
- subjects: List to store subjects taught in the classroom.

- Methods:

- add_student(student): Adds a student to the classroom.
- add_subject(subject): Adds a subject to the classroom.
- take_semester_final(): Conducts semester final exams for all subjects.
- get_top_students(): Method to sort students by grade (TODO).

3. Subject:

- Attributes:
 - name: Name of the subject.
 - teacher: Teacher associated with the subject.
 - max_marks: Maximum marks for the subject.
 - pass_marks: Passing marks for the subject.
- Methods:
 - exam(students): Conducts exam for students and records their marks.

4. Person:

- Attributes:
 - name: Name of the person.

5. Teacher (inherits from Person):

- Attributes:
 - Inherits name from Person.
- Methods:
 - teach(): Placeholder method for teaching.
 - evaluate_exam(): Evaluates exams and returns random marks.

6. Student (inherits from Person):

- Attributes:
 - Inherits name from Person.
 - classroom: Classroom the student is enrolled in.
 - marks: Dictionary to store marks obtained in subjects.
 - subject_grade: Dictionary to store grades obtained in subjects.
 - grade: Final grade of the student.
- Methods:
 - calculate_final_grade(): Calculates the final grade of the student.
- Properties:
 - id: Getter and setter for student ID.