The problem being addressed is the need for a simple school management system that allows administrators to manage students, staff, and course assignments. Currently, many small educational institutions rely on manual spreadsheets or inefficient tools that make it difficult to keep records organized or scalable. The scope of this solution includes tracking student information, class assignments, and managing teacher workloads, while allowing for easy updates and future scalability.

This proposed system uses object-oriented design to define a hierarchy of classes, using inheritance and multiple inheritance to represent shared behaviors and responsibilities. For example, both Teachers and Students are considered Persons in the system, but they have unique attributes and behaviors. Additionally, a TeachingAssistant class will demonstrate multiple inheritance as it combines properties of both a Student and a Teacher.

Person
Name
Email
get_contact_info()

Student
student_id
major
enroll_in_course()

Course
course_id
title
credits
add_student()
assign_teacher()

Administrator
admin_level
generate_reports()

Teacher
employee_id
department
assign_grade()

Teaching Assistane
ta_hours
hold_office_hours()