

# Project Description:

*Test Generator System*

## Project Overview

The Test Generation System is a comprehensive platform designed to facilitate learning and assessment. It provides a robust environment for students to take tests, track their progress, and manage their favorite Questions. Administrators can create questions and categorized Question Bank with the ability to modify categories, ensuring a dynamic and up-to-date learning experience.

### User

The User class serves as the foundation for all individuals interacting with the system. It encapsulates the basic information and functionalities common to all users, regardless of their specific role. This includes personal details like name, email, and contact information, as well as core actions such as logging in, logging out, and managing their profile. The User class ensures a consistent base level of functionality and data management across the system.

### Student

Students are the primary learners within the system. The Student class, building upon the User base, represents individuals engaging with assessments. It tracks a student's academic progress, including their grade level, the number of tests they've passed, and the total time they've spent on assessments. Students can mark Questions as favorites for easy access later using the categorized question Banks, and the system maintains a record of tests they've taken.

### Admin

Administrators play a crucial role in managing and maintaining the system. The Admin class, also extending from User, represents individuals with elevated privileges. Admins are responsible for creating and managing question banks, categories. They have the ability to modify system content, ensuring that Questions remain current and relevant. The Admin class includes functionalities for content creation, modification, and deletion, as well as overseeing the overall structure of the testing system.

### Question

Each Question object signifies an individual assessment item, encompassing the question itself, possible answers, and specifics such as the category and difficulty level. Moreover, Question objects monitor performance metrics, like the number of user attempts. The Question class is designed to be flexible, accommodating various question types and testing formats.

### Test

The Test class represents a collection of questions assembled for assessment . It includes metadata such as the test's name, creation date, duration, and maximum score. Tests are associated with a specific category. The Test class generates questions randomly and calculate final scores for students. It serves as the primary interface between students and the assessment content.

### Category

The Category class helps in structuring the questions within the system. It allows for the grouping of related material, making it easier for admins to manage content and for students to navigate. Categories can contain multiple questions and can be associated with various tests, providing a flexible system for content organization.

### Question Bank

The Question Bank class serves as a repository for an Admin's questions or Student Favorites, streamlining the management and retrieval process across various categories. It enables the Admin to add, remove, or modify questions within the bank, among other functions. These storage systems make the process of creating tests more structured by offering a collection of readily available questions for assessment.



## Conclusion

The Testing System offers a solid foundation for both learning and evaluation. Its modular structure promotes effortless scalability and customization. Additionally, the distinct delineation of roles for students and administrators guarantees precise access management and feature allocation.

With its adaptable approach to organizing questions, exams, and classifications, the system is ideal for various educational settings, ranging from small classroom evaluations to extensive, formalized testing environments.



# UML Class Diagram

