CS313 - TA Management System

Introduction:

The VCU CS department's undergraduate population is quickly expanding every year. As class sizes grow, student outcomes and retention rates depend on effective course management. Undergraduate teaching assistants (TAs) can be a major resource in courses by helping students individually, grading, and many other tasks. A management system is needed to most effectively utilize TAs and allow courses to function smoothly. The purpose of this project is to design a system which will enable efficient communication and course management.

Proposed Solution:

Our proposed solution will consist of the following three components:

1. **Data Storage System**: organized data on current, past, and potential TAs, course topics, requirements, and rubrics, listings of student questions, suggestions, grades, and course outcomes
2. **Web Access**: a portal allowing professors to store and access course information, creating a channel for communication between students and instructors or TAs, and allow professors to delegate and oversee online grading duties to TAs
3. **Departmental Policy Proposal**: documents subject to departmental undergraduate committee approval which defines expectations for: TA-student ratio, TA recruitment, TA training, TA duties and expectations, resources and budget, and professor advisorship responsibilities

Needs Addressed:

- Method for TA recruitment
- Guidelines for TA training
- Maintaining an optimal TA-student ratio
- Arranging TA office hours and help-sessions
- Managing TA grading for consistency and reliability
- Highlighting topics which students find confusing

Beneficiaries:

1. **Professors**: a major workload of teaching responsibilities will be efficiently allocated to TAs while maintaining the professor's ability to oversee course activities.
2. **Teaching Assistants**: more clearly defined responsibilities and the ability to efficiently handle these responsibilities in a centralized system.
3. **Students**: gaining more access to dedicated help, more efficient course information sharing, and more interpretable feedback from graded assignments.
4. **Academic Department**: achieving higher retention rates, better student outcomes, and efficient storage of course data for evaluations such as ABET accreditation.
5. **Industry**: a larger number of well-educated CS graduates will be produced to fill the many empty technical positions across various industries

Broader Impacts:

These issues in education are not specific to VCU Computer Science, so this system may be easily expanded to manage TAs and course information in other fields and in other universities to enable better education and tracking of student progress in higher education. The main goal of this course management system is to ensure the best utilization of undergraduate TAs as a resource, but the system will also address other vital information including informing professors about student needs and storing course information in a centralized, long-term, digital format for the CS department to easily access for internal reports and external accreditation. The system will also counteract the shortage of CS-educated professionals in industry by improving the scalability and quality of CS education.

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