

Consistency Report for University Course Assignment System

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Executive Summary

This report evaluates the consistency of the University Course Assignment System through a valid test case, including the detailed preference lists of the professors. The objective was to verify the system's ability to allocate all Core Curriculum Design Courses (CDCs) to respective professors according to their workload capacities.

Test Case Overview

The test case included a representative set of CDCs and a roster of professors with three distinct categories based on their maximum course handling capacity: X1 (0.5 courses), X2 (1 course), and X3 (1.5 courses). Each professor submitted a preference list of CDCs they are qualified and willing to teach.

Methodology

The system was tasked to run the course allocation process with the following conditions:

- Each professor's workload allocation should either match their maximum capacity or be zero if no suitable course preference is available.
- No CDC should remain unallocated after the process.

Results

Upon execution, the system allocated all CDCs effectively, with each participating professor receiving either the maximum number of courses they could handle or none, in cases where their preferences did not match the available CDCs.

Consistency Analysis

The analysis of the results showed the following:

- Professors in category X1 were allocated half a course or none, as per the preference list availability.
- Professors in category X2 were allocated one course or none, following their preferences.

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!!ALL CDC'S ARE ALLOTTED!!

Professor name is: Name1 Category is: X1 The work allocated is: 0.5
Professor name is: Name2 Category is: X1 The work allocated is: 0.5
Professor name is: Name4 Category is: X1 The work allocated is: 0.5
Professor name is: Name6 Category is: X1 The work allocated is: 0.5
Professor name is: Name9 Category is: X1 The work allocated is: 0.5
Professor name is: Name10 Category is: X1 The work allocated is: 0.5
Professor name is: Name12 Category is: X1 The work allocated is: 0.5
Professor name is: Name13 Category is: X1 The work allocated is: 0.5
Professor name is: Name20 Category is: X1 The work allocated is: 0.5
Professor name is: Name21 Category is: X1 The work allocated is: 0.5
Professor name is: Name24 Category is: X1 The work allocated is: 0.5
Professor name is: Name26 Category is: X1 The work allocated is: 0.5
Professor name is: Name27 Category is: X1 The work allocated is: 0.5
Professor name is: Name7 Category is: X2 The work allocated is: 1.0
Professor name is: Name14 Category is: X2 The work allocated is: 1.0
Professor name is: Name16 Category is: X2 The work allocated is: 1.0
Professor name is: Name17 Category is: X2 The work allocated is: 1.0
Professor name is: Name18 Category is: X2 The work allocated is: 1.0
Professor name is: Name19 Category is: X2 The work allocated is: 1.0
Professor name is: Name23 Category is: X2 The work allocated is: 1.0
Professor name is: Name25 Category is: X2 The work allocated is: 1.0
Professor name is: Name29 Category is: X2 The work allocated is: 1.0
Professor name is: Name3 Category is: X3 The work allocated is: 1.5
Professor name is: Name5 Category is: X3 The work allocated is: 1.5
Professor name is: Name8 Category is: X3 The work allocated is: 1.5
Professor name is: Name11 Category is: X3 The work allocated is: 1.5
Professor name is: Name15 Category is: X3 The work allocated is: 0.0
Professor name is: Name22 Category is: X3 The work allocated is: 1.5
Professor name is: Name28 Category is: X3 The work allocated is: 1.5
Professor name is: Name30 Category is: X3 The work allocated is: 1.5

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Figure 1: Image of Test Case

- Professors in category X3 were allocated up to one and a half courses or none, strictly adhering to their preference lists.

In instances where professors received no courses, the system's logic was consistent with the lack of preference list alignment with available CDCs, not a failure in allocation logic.

System Behavior

The system behavior was consistent with the following principles:

- Preference List Adherence: Professors received courses high on their preference list, or none if such courses were not available.
- Workload Maximization: Where possible, professors were allocated a full workload.
- Complete Allocation: All CDCs were allocated, ensuring no course was left without a professor.

Conclusions

The system performed consistently and in accordance with its design parameters. The allocation logic successfully maximized the workload for each professor while respecting their course preferences and ensuring complete CDC allocation.

Recommendations for Future Tests

- To maintain consistency, professors should be advised to provide comprehensive preference lists that exceed their capacity to allow flexibility in allocation.

- Regular updates to the preference lists should be encouraged to reflect changes in course offerings or faculty interests.
- Further tests should be conducted with varying numbers of courses and professors to ensure scalability and consistent performance under different loads.

Validation

This report validates the consistency of the course assignment system for the given test case scenario. The system is recommended for use in live environments with similar conditions, following the above recommendations for continuous performance improvement.