Crash Test Report: Course Allocation System Analysis

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Summary

A comprehensive test of the University Course Assignment System was conducted to validate the allocation logic of courses to professors across various categories. The test case results indicate that all courses have been successfully allocated. However, a notable observation was that some professors in the X3 category were assigned a workload of 0.5 courses, which is below their maximum capacity of 1.5 courses.

Test Case Details

Objective

To ensure all courses are allocated correctly according to the professors' categories and preferences.

Outcome

All courses were allocated, confirming the system's capability to handle the assignment process effectively.

Observations

Professors in category X3, designed to handle 1.5 courses, were allocated only 0.5 courses in some instances. All professors in categories X1 and X2 were allocated courses according to their respective capacities (0.5 and 1.0 courses).

Analysis

The code logic adhered to the designed algorithm, processing through categories X1 to X3 and assigning courses based on availability and preference. The allocation of a lower workload to X3 professors, despite having the capacity for more, suggests that the issue does not stem from the allocation logic.

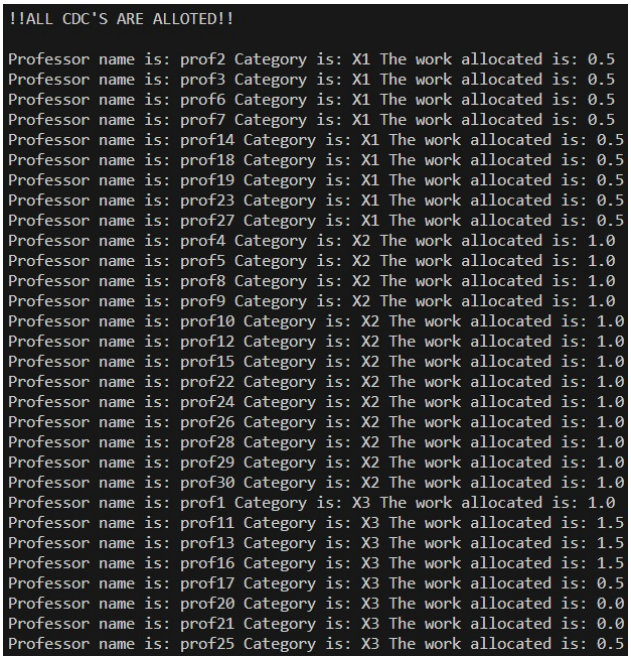

Figure 1: Test Case Image

Root Cause

Upon examination, it was determined that the under-allocation for certain X3 category professors is attributed to the configuration of their preference lists rather than a fault in the system's code. It appears that:

- The preference lists provided by these professors did not include enough courses to fill their maximum workload, leading to their reduced allocation.
- There might have been an insufficient number of available courses after allocations to X1 and X2 categories were completed.

Conclusion

The system functions correctly within the bounds of its defined logic. The under-allocation issue observed is a result of the input data concerning professors' preference lists rather than a flaw in the system's operational logic. This finding highlights the importance of comprehensive preference listing by the professors to utilize their full course capacity.

Recommendations

- Professors should be encouraged to list a sufficient number of course preferences to match their workload capacity.
- Additional validation could be introduced to alert administrators if a professor's preference list is too short to meet their category's capacity.
- A review mechanism could be implemented to ensure preference lists are comprehensive and updated regularly to reflect course availability and professors' expertise areas.