SOFTWARE SYSTEM FOR ENGINEERING JOINT SEAT ALLOCATION

UCS2201 – Fundamentals and Practice of Software Development

TEAM NUMBER: 8

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Our Engineering Joint Seat Allocation System consists of several modules, each serving a specific purpose, and they are linked together to implement the overall functionality of student and college preference filling, allocation, and display. Here's how the modules are linked in the code:

Main Module: The main module is the entry point of the program. It initializes variables and arrays, reads data from *"studentpreference.txt"* and *"college.txt"* files into corresponding arrays (studentarr and collegearr). It then enters a loop for stable matching to allocate students to colleges.

File-based Data Storage Module: This module is responsible for handling file-based data storage. It defines functions like no_of_students(), check_password(), is_present(), and check_advanced() to read data from different files and check information like the number of students, student passwords, program presence, and JEE Advanced status.

Student Login Module: This module handles the student login process. It starts by reading the student's name and password as input. It then verifies the entered credentials using check_password() from the File-based Data Storage Module. If the credentials are correct, it checks if the student has already given preferences by checking the *"studentpreference.txt"* file. If not, it prompts the student to choose between preference filling and allocation. Based on the choice, it either allows the student to enter preferences and stores them in the file or displays the allocated program using display_alloted_program().

College Login Module: This module is responsible for the college login process. It reads the college name from the user and then opens the *"college_allotment.txt"* file to fetch college information and assigned students. It iterates through the colleges, compares the entered college name, and displays the corresponding college's information along with the assigned students.

Writing Data Module: This module includes functions like write_clg() and display_alloted_program() to write data to files. write_clg() writes the allocated program information to the console, and display_alloted_program() reads the *"Allotment.txt"* file to display the allocated program for a given student.

COMPILATION OF MODULES:

The main module reads data from files into arrays.

It enters a loop for stable matching to allocate students to colleges.

During the stable matching process, the main module calls the Student Login Module for each unassigned student to allow them to fill preferences or view the allocated program.

The Student Login Module uses functions from the File-based Data Storage Module to check student credentials, preferences, and JEE Advanced status.

If a student chooses to fill preferences, the preferences are written to the "studentpreference.txt" file using the Writing Data Module.

If a student chooses to view the allocated program, the College Login Module is called to display the assigned students for the chosen college.

This way, the modules work together to create a system where students can log in, fill preferences, get allocated programs, and colleges can log in to see assigned students. The data is stored and retrieved using file-based storage operations, simulating a basic database system. However, this approach has limitations in terms of scalability and data consistency compared to dedicated database systems.