📃 Code Explanation

🔧 Header Files & Constants

The program includes three standard C libraries:

- **stdio.h:** For input/output operations
- **stdlib.h:** For memory allocation and process control
- **string.h:** For string manipulation functions

Two constants are defined using #define:

- **STUD_FILE:** Path to the students data file
- **CRE_FILE:** Path to the credentials file

🔑 Login Function

The login function handles user authentication:

- Prompts for username and password
- Opens credentials.txt file
- Compares input with stored credentials
- Sets currentUser and currentRole if authentication succeeds
- Returns 1 for successful login, 0 for failure

👤+ Add Student Function

The addStudent function adds a new student record:

- Prompts for roll number, name, and mark
- Opens students.txt in append mode
- Writes the new record to the file
- Closes the file and confirms addition

≔ Display Students Function

The displayStudents function shows all student records:

- Opens students.txt in read mode
- Prints a formatted header
- Reads and displays each student record
- Closes the file when done

Q Search Student Function

The searchStudent function finds a student by roll number:

- Prompts for roll number to search
- Opens students.txt in read mode
- Iterates through records looking for a match
- Displays the found record or a not found message

🗑 Delete Student Function

The deleteStudent function removes a student record:

- Prompts for roll number to delete
- Creates a temporary file
- Copies all records except the one to delete
- Replaces the original file with the temporary one

✍️ Update Student Function

The updateStudent function modifies a student record:

- Prompts for roll number to update
- Creates a temporary file
- Copies all records, updating the matching one
- Replaces the original file with the temporary one

👥 Role-Based Menus

Three different menu functions provide role-based access:

- **adminMenu:** Full access to all operations
- **staffMenu:** Can add, display, search, and update
- **guestMenu:** Can only display and search

▶ Main Function

The main function controls program flow:

- Calls login function for authentication
- Displays role information
- Calls appropriate menu function based on role
- Returns 0 when program exits