HOSTEL MANAGEMENT SYSTEM

This project is designed to allocate hostel rooms to students based on their CGPA. The program reads student data from a file, processes it to determine the highest CGPA students, and the allocation follows a priority system where students with higher CGPAs are given preference for AC rooms. If rooms are unavailable, students are placed in the next available room category. If all rooms are filled, the remaining students are listed as unallocated.

How the Code Works:

1. **Classes**:
    - Student: Represents a student with roll number, name, and CGPA.
    - Hostel: Manages room availability, allocation, and tracks unallocated students.
2. **Room Allocation**:
    - Students are allocated rooms based on a predefined priority order, starting with AC rooms. If no rooms are available, the student is marked as unallocated.
3. **Input Handling**:
    - The program reads room availability from user input and student data from a text file, converting it into Student objects.
4. **Heap Usage**:
    - A heap is used to prioritize students by CGPA, ensuring that students with higher CGPAs are allocated rooms first.
5. **Output**:
    - The program prints the room allocations and lists any students who could not be allocated a room due to insufficient availability.

Time Complexity: O (n log n)

Space Complexity: O(n)