Institute Seat Allocation System for New Admits

Ashish Manash Shubhang S. Galagali

The Ideation

In today's digital age, an automated Institute Seat Allocation System can efficiently manage seat distribution based on student priorities and institute preferences, replacing outdated manual methods. By leveraging algorithms and real-time data updates, the system ensures fair and transparent allocations. This solution enhances the admission process, improving student satisfaction and resource management for participating institutes.

Problem Statement

Develop a program which handles the task of seat allotment to students in an institute, according to the student's priority, among a list of participating institutes, accepting admissions through a common entrance examination.

List of Tasks to be Implemented (Not Exhaustive)

1. **Data Handling:**
   - **Student Registration:** Develop a registration module to capture student details, including rank and college preferences. Store registered students in a structured format (for example, a priority queue).
2. **Algorithmic Approach:** Develop an algorithm that automates the seat allocation process by traversing the list of institutes with respect to available seats in each institute (using a Tree).
3. **Allocation by Task Priority Handling:**
   - **Priority Queue Implementation:** Use a priority queue to manage students based on their ranks, ensuring that higher-ranked students are prioritized for seat allotment. Develop functions to add new students and rearrange the queue when withdrawals occur.
   - **Reallocation Logic:** Implement logic to pop the next eligible student from the queue when a seat becomes available, ensuring a fair and orderly process.
   - **Monitoring Withdrawals:** Implement functionality to effectively track and manage withdrawals from seats.
4. **Round-based Scheduling:**
   - Incorporate a mechanism for handling multiple allocation rounds, allowing students to maintain or update their preferences.
5. **Analysis of Results:**
   - Add visual elements (graphs or charts) to represent data trends, such as the number of students allotted seats in each institute and a few of the most preferred branches of study.

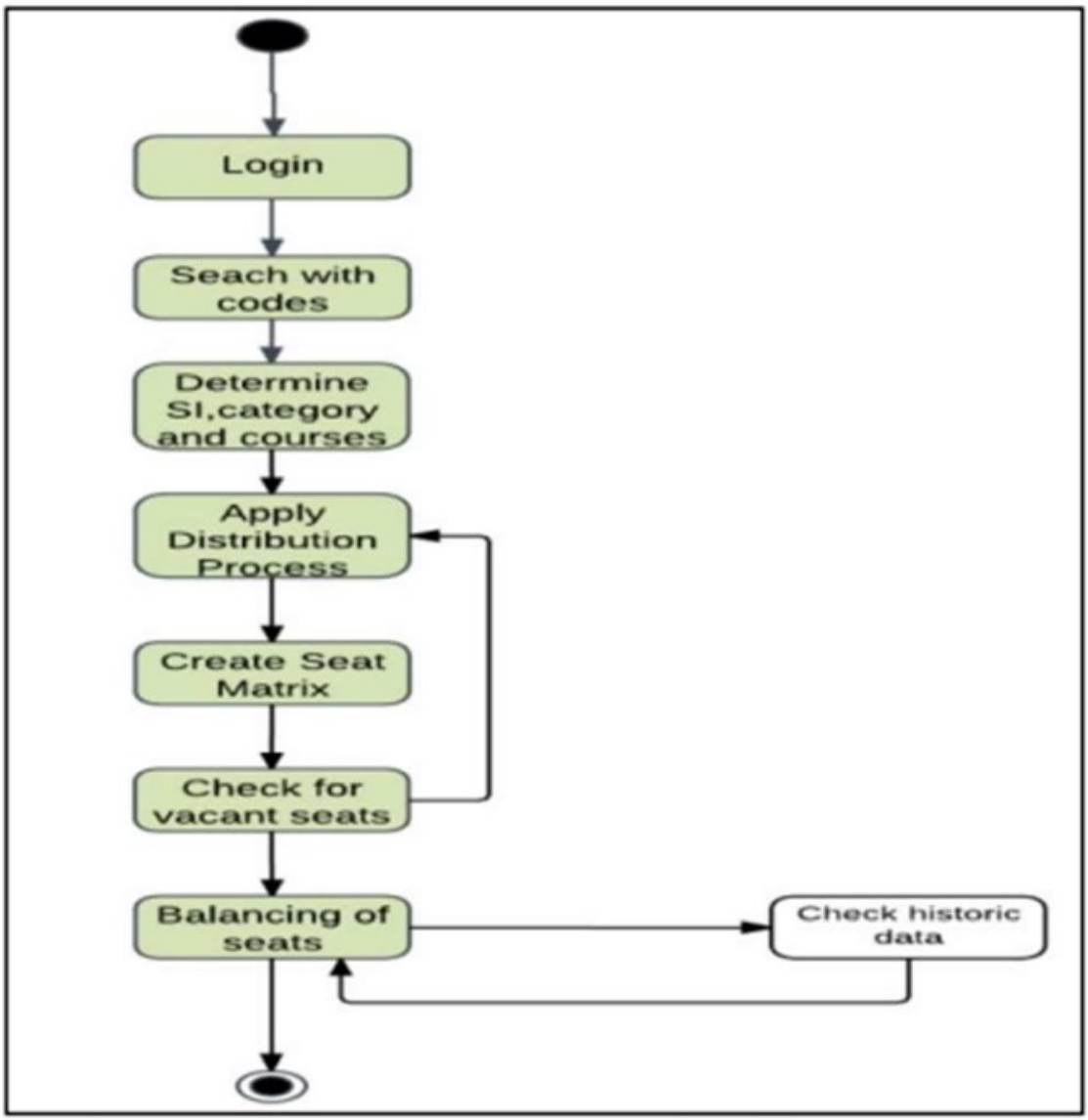

Figure 1: Block Diagram - Tasks to be handled.

Future Scope

- **Dynamic Updates:** Allow for real-time updates to the allotment process, especially when handling withdrawals or reallocation.
- **Student Interface:** Design a user-friendly interface for students to register, input preferences, and view allotment results. Use clear forms and buttons for easy navigation.
- **Results Display:** Create a results page that shows allotted colleges and branches, current rank status, and options for future rounds.
- **Additional Features:** Email notifications to students regarding their allotment status, important dates, and withdrawal notifications.

References

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