**Title: Cinema Ticket Reservation System in C++**

*Description: The project involves developing a cinema ticket reservation system in C++. The system should allow the user to search for available movies, showtimes, and cinema halls, reserve tickets, and pay for them.*

For this project, you will use the following data structures:

**Linked list:** You will use a linked list to store information about the available movies. Each element of the list will be a structure containing information about a specific movie, including its title, duration, classification, synopsis (overview), and trailer.

**Array**: You will use an array to store information about movie showtimes. Each element of the array will be a structure containing information about the showtimes of a specific movie, including the start time, end time, and cinema hall.

**Queue**: You will use a queue to store ticket reservation requests. Requests will be added to the queue in the order they are received.

**Binary search tree:** You will use a binary search tree to store information about cinema halls. The halls will be stored in the tree using their number as the key.

The program will be written in **C++ using object-oriented programming concepts**. You will create classes for the different types of data structures used in the program. The program can have a graphical user interface or can simply be a console application.

Additional features to consider for the system include:

**Using AVL trees** to store information about available movies, sorted by title, duration, or classification, to facilitate searching and sorting.

**Using decision trees** to suggest movies based on user preferences, taking into account factors such as genre, actor, director, duration, and classification.

Adding the ability for users to rate the movies they have seen, using a data structure such as a hash table to store ratings and comments.

Using a **graph** to model the relationships between movies, allowing users to see recommended movies based on their preferences.

Using a **stack** to store current reservations, making it easy to cancel or modify them.

Implementing a recommendation system to help users find movies that match their interests or friend group.

Adding an age-based recommendation feature using an age database to recommend appropriate movies based on the user's age.

Adding a customization feature to allow users to choose their own seat in the cinema hall. By using a matrix to represent seats in the hall, you can allow users to choose their own seat in the cinema hall.

Implementing a loyalty point system to encourage users to book regularly, using a data structure such as a **hash table** to store information about users and their points.

Adding employee management features to allow administrators to track sales, manage employees, and update information about movies and showtimes.

Implementing an attendance monitoring feature to allow cinemas to track attendance in real-time and adjust ticket prices accordingly. Use a data structure of your choice to store information about cinema attendance and ticket prices.

Implementing a price reduction feature for users who book multiple tickets at the same time. Using a data structure of your choice (a **binary tree** may work), you can reduce prices for users who book multiple tickets.