**Jaypee Institute of Information Technology, Noida**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING AND INFORMATION TECHNOLOGY

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**Project Title: Online Ticket Reservation System**

**Batch F10**

**Enrolment No. Name of Student**

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**Course Name:** Data Structure Lab

**Course Code:** 15B17CI371

**Program:** B. Tech. CSE

3rd Semester

**2024 – 2025**

**Introduction:**

Our project is based on the Online booking system targeting the railway system and its various functionalities such as booking, cancellation of tickets, waiting list, and other related functions. This project will help us to understand the real-life use case of the various data structures that we have studied so far.

**Important Features:**

**User Authentication:**

Firstly, a user will be asked to sign in into the system if they are already registered or will be asked to sign up and create user id and password in order to access the functionalities of the portal. And the data collected during this process will be stored in a file through the use of file handling so that the data is not lost even after the runtime.

**Dashboard:**

After successful log in a new dashboard will appear which will display the various functionalities offered by our program and will ask for the input from the user in order to offer that functionality. This dashboard provides the integration of various functions made in the program.

**Functionalities:**

* **Display of trains:** One of the functions will be displaying the train**.** This function will display the train number along with their source station, destination station, total number of seats, seats allocated. The train and their details are processed using BST in order to have better efficiency while searching for a train. The data of each train will be stored in a file in order to maintain the data security.
* **Ticket Booking:** This function will allow user to book the ticket for the desired train using its train id and will ask for the basic details in order to allocate the seat to the passenger. The data of the passengers of a train will be stored in a different file in order to keep the data safe even after the runtime.
* **Passenger List:** This function will display the list of the passengers with the given train id. This function also uses file handling for data management as well as the passenger list uses that data structure called linked list in order to maintain the integrity of the data provided by the user.
* **Waiting List:**  Once all the available tickets for the given train are exhausted the passenger will be moved to a waiting list and will be assigned a waiting list number so that in the case of cancellation of ticket, the person with least waiting list number will be assigned a seat. Hence waiting list is implemented using queue data structure and its data is also using file handling.
* **Ticket Cancellation:** The user can easily cancel their ticket by providing the required details such as train id and other details. After the cancelation of ticket, the number of allotted seats in that respective train will change also if there are people in the waiting list also. They will also move further in the list depending on the number of cancellations done.

**CONCLUSION:**

This project helps to understand the better functioning of various data structures that we have studied so far and helps to make our concepts even stronger.

**TOPICS USED:**

The project will utilize the following topics:

* File Handling
* OOPS
* Linked Lists
* Queues
* Searching Algorithms
* Hashing
* Other related Algorithms and Data Structures.

**Output Snippets:**









