**DA-IICT Placement Management System Documentation**

**Introduction**

The DA-IICT Placement Management System is a software tool designed to streamline the process of managing student placements within the Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT). It provides functionalities for adding and deleting students and companies, scheduling interviews, tracking interview results, and analyzing past placement data.

**Making a Database from Scratch**

This program does not use any external databases. The database in this program is implemented from scratch using clever file management.

**Motivation**

Managing placements in an educational institution involves handling a large volume of data, including student profiles, company information, and interview schedules. Manual management of this data can be time-consuming and error-prone. The Placement Management System aims to automate these processes, reducing administrative burden and ensuring efficient placement operations.

**Modules**

**1. Students Module**

* Add New Student: Allows administrators to add new students to the system.
* Delete Student: Enables administrators to remove a student from the system.

**2. Company Module**

* Add New Company: Allows administrators to add new companies to the system.
* Delete Company: Enables administrators to remove a company from the system.

**3. Interview Module**

* Schedule Interview: Facilitates the scheduling of interviews between companies and students.
* Cancel Interview: Allows administrators to cancel scheduled interviews.
* Change Interview Status: Enables administrators to update the status of interviews (e.g., complete or incomplete).
* Result Interview: Records the result of an interview, including whether the candidate was hired and the package offered.
* Mark Offer Accepted: Marks an offer as accepted by the student.

**4. Analyse Past Data Module**

* Filter Past Interviews: Allows users to filter past interviews based on criteria such as company name, batch year, and program.
* Print All Interview Details: Prints details of all interviews that match the selected filters.
* Calculate Median Package: Computes the median package offered across filtered interviews.
* Calculate Mean Package: Computes the mean package offered across filtered interviews.

**Functionality Details**.

**1. Add New Student**

* Description: This function enables administrators to add a new student to the system by providing relevant details such as student ID, full name, email, program, contact number, alternate number, and Skype ID.
* Time Complexity: O(1)
* Space Complexity: O(1)

**2. Delete Student**

* Description: Allows administrators to delete a student from the system by providing the student's ID.
* Time Complexity: O(n)
* Space Complexity: O(1)

**3. Add New Company**

* Description: Enables administrators to add a new company to the system by providing details such as company name, email, and contact number.
* Time Complexity: O(1)
* Space Complexity: O(1)

**4. Delete Company**

* Description: Allows administrators to remove a company from the system by providing the company's name.
* Time Complexity: O(n)
* Space Complexity: O(1)

**5. Schedule Interview**

* Description: Facilitates the scheduling of interviews between a company and a student by specifying details such as company name, student ID, interview date, time, and venue.
* Time Complexity: O(1)
* Space Complexity: O(1)

**6. Cancel Interview**

* Description: Allows administrators to cancel a scheduled interview by providing the company name and student ID.
* Time Complexity: O(n)
* Space Complexity: O(1)

**7. Change Interview Status**

* Description: Enables administrators to update the status of a scheduled interview (e.g., from incomplete to complete).
* Time Complexity: O(n)
* Space Complexity: O(1)

**8. Result Interview**

* Description: Records the result of an interview, including whether the candidate was hired and the package offered.
* Time Complexity: O(n)
* Space Complexity: O(1)

**9. Mark Offer Accepted**

* Description: Marks an offer as accepted by the student.
* Time Complexity: O(n)
* Space Complexity: O(1)

**10. Filter Past Interviews**

* Description: Allows users to filter past interviews based on criteria such as company name, batch year, and program.
* Time Complexity: O(n)
* Space Complexity: O(n)

**11. Print All Interview Details**

* Description: Prints details of all interviews that match the selected filters.
* Time Complexity: O(n)
* Space Complexity: O(n)

**12. Calculate Median Package**

* Description: Computes the median package offered across filtered interviews.
* Time Complexity: O(n log n)
* Space Complexity: O(n)

**13. Calculate Mean Package**

* Description: Computes the mean package offered across filtered interviews.
* Time Complexity: O(n)
* Space Complexity: O(n)

**14. Data Structures**

* Program predominantly uses vectors because they are dynamic and their size can be changed on the fly.

**Conclusion**

The DA-IICT Placement Management System is a comprehensive tool for managing student placements efficiently. By automating various processes and providing analytical capabilities, it helps administrators make informed decisions and streamline the placement process. With its user-friendly interface and robust functionality, the system serves as a valuable asset for the placement cell of DA-IICT.