



Alumni Monitoring Platform

ADTs used

Vector /
Linked List

Purpose: Store alumni records dynamically with easy insertion and traversal.

- Used for: Registration, storing profiles, traversing through alumni data.

Class /
Record ADT

Purpose: Encapsulate alumni information in one structure.

Used for: Holding fields like Name, Email, Password, Department, Graduation Year.

Map / Hash
Table

Purpose: Provide fast lookup in constant time on average.

- Used for: Login verification (by email or ID), quick profile search.

Queue

Purpose: Ensure First-In-First-Out (FIFO) order.

- Used for: Handling user requests, notifications, or mentorship applications sequentially.

Stack

Purpose: Follow Last-In-First-Out (LIFO) order.

Used for: Undo operations, tracking recent changes or edits in profiles.

Set / Binary
Search Tree

Purpose: Maintain sorted alumni data without duplicates.

- Used for: Displaying alumni in sorted order (e.g., by name, department, or graduation year).

Graph(optional
/ advanced)

Purpose: Represent relationships or connections between alumni.

- Used for: Alumni network visualization, mentorship mapping, or friend connections.

File I/O

Purpose: Persistent storage on disk for long-term data retention.

- Used for: Saving and loading alumni records, requests, and profiles between program runs.