**DAT 2101: ALGORITHMS AND DATA STRUCTURES**

**Instructions: Submission will be through class presentation on 12th June 2025.**

This individual project involves designing a system that uses core data structures and algorithms to analyze and interact with a dataset on CO₂ emissions from African countries. You will implement custom data structures to store, query, and process the data efficiently using Python. This project integrates concepts from the entire course, including linked lists, trees, heaps, and hash tables.

**Required: Python codebase implementing the following, clearly demonstrate the time and space complexity of key operations**

1. Search Emissions by Country: Retrieve all emissions records for a specific country.
2. Total Emissions Per Year: Compute total CO₂ emissions by year across all countries.
3. Top N Emitting Countries: Return countries with highest emissions for a selected year.
4. Emissions by Sector: Filter and aggregate emissions based on sectors.
5. Emissions Trend for a Country: Return emissions trend (sorted by year).
6. Insert New Emission Record: Add a new data record (simulate real-time input).
7. Undo Last Insertion: Rollback last addition.