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# CSC 365 Lab 1-b Writeup

**Initial Decisions:**
For this lab, our team chose to continue using Python as the programming language since we already used it for part A. This way we could extend the existing code base easily without needing to transition to a new environment. Python's extensive libraries for handling data, like `pandas`, were beneficial for efficiently reading and manipulating datasets. We met up over the week using version control to manage our progress and work together.

**Internal Architecture:**
Our code primarily relied on the `pandas` library to handle data operations. For both `list.txt` and `teachers.txt`, we read the files into `pandas` DataFrames (`df_students` and `df_teachers`), which allowed for easier filtering, grouping, and analysis.

**Task Breakdown:**

- Extended Search Requirements (Dhanvi): Dhanvi focused on implementing the extended search requirements such as listing students by classroom, finding teachers by classroom, and generating reports on classroom enrollments.

- Analytics Functionality (Lakshana): Lakshana focused on the analytics portion of the lab. This included calculating GPA averages by grade, teacher, and bus route.

**Testing:**
We conducted our testing together, where we were able to focus on the correctness of the search and analytics functionalities as well as the coverage of our error handling. Our testing lasted about 1.5 hours, during which we uncovered several bugs: Initially, GPA values were returned with long decimal points, so we implemented rounding functionality to make the output more readable. We also discovered many edge cases, such as inputs that contained letters where numbers were expected so we added error messages to handle these cases appropriately.

**Final Notes:**
Overall, this lab was a valuable learning experience. It helped us improve our understanding of working with datasets and manipulating data to meet specific requirements.