Department of Computer Engineering
University of Peradeniya
CO523 - Programming Languages

Lab 01: Introduction to Programming Paradigms

Bonus Task

You are building a grade processing backend for a university. You are provided with a raw dataset containing student records. Each record includes a student's name, their unique ID, and a list of raw scores from various assignments.

Your goal is to write a Pure Functional Program (stateless) that processes this data to generate a final "Dean's List" report.

Processing Logic:

Calculate Average: For every student, calculate their weighted average score based on their list of assignment marks.

Filter Qualifiers: Keep only the students who have a final average score of 80.0 or higher.

Format Output: Transform the data into a list of strings with the format: "ID: [Student ID] | Name: [Name in Uppercase] | GPA: [Score]" sorted by score in descending order.

Constraints (Strict Enforcement)

NO LOOPS: You are strictly forbidden from using for or while loops.

NO CLASSES: Do not define any classes. Use dictionaries or tuples for data.

NO VARIABLE MUTATION: You cannot change a variable once it is set (e.g., x = x + 1 is banned). You must return new data structures.

REQUIRED FUNCTIONS: You must utilize map(), filter(), reduce() (from functools), and lambda functions.

Reference: https://realpython.com/python-functional-programming/

Download the provided **Lab01_Bonus.py** file and use it as the starting point for your implementation.

After successful implementation, rename your script as EXXYYY.py, where EXXYYY represents your E number, and submit it to FEeLS by the given deadline.