# CPS310 - 2024 Fall - Assignment #1

## DUE DATE: No later than Sep. 29th (Sun.) midnight

## REQUIREMENTS

- Each group will hand in only **one submission**.
- **Print names of all members** are required in submissions.
- **All code is required to be runnable**.
- **All conclusions need to be rigorously defended.**
- If your submission is NOT on GitHub, then all source code and document for each submission are required to be packed in a **ZIP file**. The name of this ZIP file is suggested to follow the format: `CPS310_2024_Fall_HW[Assignment Index]_[Print Names of All Group Members].zip`. This zip file will be sent to Fanchao via email.
- If your submission is on GitHub, please send Fanchao your Github repo link.
- **Late submissions are NOT accepted** unless you have the permission from Fanchao.

## Problems (100 points in total)

0. Download the input data file `input.csv`. It includes two columns. One is named `val1`, and the other is named `val2`. `val1` is real number, and `val2` is string. The document of each function is required. You must check the validity of every input. Exceptions must be carefully handled. Your submission must include: 1) your Python source file, and 2) your `output.txt`. You can choose to use any third-party libraries as needed, e.g., `pandas`.
1. Write a function to load the input file `input.csv` into a data structure (e.g., a list or a pandas DataFrame).
2. Write a function, taking the data output from 1 as input, to sort the data records by `val1`, and output the sorted data (in-place or in another data structure).
3. Write a function, taking the sorted data as input, to find the $5^{th}$ and $10^{th}$ greatest elements in terms of `val1`, and output their corresponding values of `val2` in a tuple.
4. In `main`, print out the output of the third function on screen, and save the output values in two separate lines in a file named `output.txt`.