# Evaluation

## What works in the program:

* Able to reads multiple CSV files from a text file containing their paths.
* It reads the CSV data efficiently, accommodating vary header orders.
* It ignores or discards rows with empty or incorrect data. Only valid data is processed, regardless of header arrangement.
* All options have been implemented and working as expected.
* Able to export ‘windtempsolar.csv’ with the sensor reading.

## Design Structure

1. Date class: Which represents dates, including day, month, and year.
2. Time class: Which represents time, including hour, and minute.
3. Measurement class (Parent): Serves as the base class for specific types of measurements.
4. Child Classes:
   1. WindSpeed: Records wind speed measurements.
   2. SolarRadiation: Tracks solar radiation measurements.
   3. Temperature: Manages temperature measurements.
5. SensorRecType Class: This composite class bundles together all sensor measurements along with date and time details.
6. BST Class: Each node having at most two children. Values in the left child are less than the parent, and those in the right child are greater.
7. AVL Class: Serves as a self-balancing binary search tree. It ensures that the height difference between child subtrees of any node is at most one, maintaining balance.
8. AoAVLMap Class: Uses a map data structure to organize sensor data efficiently. It employs years as keys, with arrays of AVL nodes as corresponding values. Each array represents months, while each AVL node stores sensor data for specific dates and times.
9. Processor Class: Implements file input/output functionalities following the singleton pattern. It's responsible for loading CSV file paths, processing data, and outputting results.
10. InputValidator Class: Validates user inputs for month and year, ensuring they're within acceptable ranges and formats.
11. SensorMeasurementType Enum: Enumerates different types of sensor measurements, providing a structured way to refer to them.
12. Menu Class: Holds the options implementation which will be used in main.

Key: Year

Value:

Array

AVL

map

Array of AVL