**TEST PLAN**

This test plan is made to test the behavior of each classes in my program with the only exclusion of the Menu class which main responsibility is prompting a user for an input and showing the menu which is functionally straightforward. Each function here can be accessed in the UnitTestFolder which contains multiple folders to test each class and one folder that contains all the tests in one file (TestAll – folder). These files is the exact ones used for my main program. Each corresponding Test Id have the following format: VEC# = TestVector Folder/.cpp, DATE/TIME# = TestDateTime Folder/.cpp, CALC# = TestCalculator Folder/.cpp, FILE# = TestFileHandler Folder/.cpp, RESULTS# = TestResults Folder/.cpp.

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| **TestID** | **Test Description** | **Test Data** | **Expected Results** | **Actual Results** | **Pass or Fail** |
| VEC1 | Vector Integer Storage | Vector<int> with values [5, 9, 3] | test[0] = 5, test[1] = 9, test[2] = 3 | Matches expected values | Pass |
| VEC2 | Vector SensorRecType Storage | Vector with 3 SensorRecType objects | Specific speed, temperature, solar\_radiation values match | Matches expected values | Pass |
| DATE1 | Set and Get Day | Day set to 10 | GetDay() returns 10 | Returns 10 | Pass |
| DATE2 | Set and Get Month | Month set to 8 | GetMonth() returns 8 | Returns 8 | Pass |
| DATE3 | Set and Get Year | Year set to 2025 | GetYear() returns 2025 | Returns 2025 | Pass |
| TIME1 | Set and Get Minutes | Minutes set to 30 | GetMinutes() returns 30 | Returns 30 | Pass |
| TIME2 | Set and Get Hours | Hours set to 12 | GetHours() returns 12 | Returns 12 | Pass |
| CALC1 | Average Speed Calculation | Speed values [4.4, 6.5, 8.6] | Mean = 6.5 | Calculates 6.5 | Pass |
| CALC2 | Speed Standard Deviation | Speed values [4.4, 6.5, 8.6] | Standard Deviation = 2.1 | Calculates 2.1 | Pass |
| CALC3 | Average Temperature | Temperature values [20.7, 25.1, 29.5] | Mean = 25.1 | Calculates 25.1 | Pass |
| CALC4 | Temperature Standard Deviation | Temperature values [20.7, 25.1, 29.5] | Standard Deviation = 4.4 | Calculates 4.4 | Pass |
| CALC5 | Total Solar Radiation | Solar Radiation values [415.25,423.76, 432.27] | Total = 0.2 | Calculates 0.2 | Pass |
| FILE1 | Write to File | Content: "hello this is the content" | File created with exact content | Matches input content | Pass |
| FILE2 | Read CSV File | Predefined CSV data | First record with speed = 22 | Reads expected values | Pass |
| FILE3 | Read Source File | Predefined source data | First record with speed = 22 | Reads expected values | Pass |
| RESULTS1 | Validate Month | SensorLog with 2007 data, Month 3 | Returns true for valid month | Returns true | Pass |
| RESULTS2 | Display Average Speed | Sensor data for January 2007 | Displays Average: 6.5km/h, StdDev: 2.1 | Matches expected output | Pass |
| RESULTS3 | Display Total Solar Radiation | Sensor data for 2007 | Displays Total Solar Radiation: 0.2f | Matches expected output | Pass |
| RESULTS4 | Print All to CSV | Sensor data for 2007 | Creates WindTempSolar.csv with all month data | File created with expected format | Pass |