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| **TEST 1** | **DESCRIPTION** | **ACTUAL TEST CALL** | **EXPECTED OUTCOMES** | **PROGRAM OUTCOMES** | **SUCCESS(FAIL/PASS)** |
| menuOne | Testing menu one to check if the correct average wind speed and sample dev for a month(1-12) of year is calculated and displayed . For this test ,I will check for the year 2010 .This will confirm if all data is read in correctly at least for the month 2010.This test will confirm that there are no duplications of data.(multiply by 3.6 to get value in km/h) | menuOne (DC)  month= (1 to 12)  year=2010 | |  | | --- | | Avg wind speed: (not in km/h and 1dp)  Jan-6.436281 | | Feb-5.975558 | | Mar-5.723246 | | Apr-4.600602 | | May-3.845241 | | Jun-3.759898 | | July-3.923146 | | Aug-3.638584 | | Sep-5.113915 | | Oct-5.572037 | | Nov-6.085375 | | Dec-6.862648  Sample dev: (not in km/h and 1dp)   |  | | --- | | Jan-2.413324 | | Feb-2.8302 | | Mar-2.933836 | | Apr-2.937359 | | May-2.762893 | | Jun-2.77311 | | Jul-3.354006 | | Aug-2.934747 | | Sep-3.345407 | | Oct-2.908457 | | Nov-3.065733 | | Dec-3.495557 |   **For January expected output:( in km/h and 1dp)**  **January 2010:**  **Average speed:23.2 km/h**  **Sample stdev:8.7** | | FIGURE 1  FIGURE 2 | PASS |
| Menu one | Enter a date and month that does not exist in the program | menuOne (DC)  month=12  year=2020 | **December 2010: No Data** | FIGURE 3 | PASS |

**TEST PLAN ICT283 ASSIGNMENT2:Weatherproject**

The program will output values to 1 dp and converted to the appropriate units. All the files in the data folder is loaded into the structure for testing. (met\_index.txt will have all the filenames of the existing datafile). NOTE:

Due to floating numbers, the output will be slightly different compared to the value we calculated in excel for the date/month or year.

**PROGRAM OUTPUT FOR TEST1:**

NOTE:REFER TO EXCEL FILE: MetData\_Jan01-2010-Jan01-2011-ALL TESTING MENU

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Figure

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| TEST 2 | DESCRIPTION | ACTUAL TEST CALL | EXPECTED OUTCOMES | PROGRAM OUTPUT | SUCCESS(FAIL/PASS) |
| menuTwo | This is to test is to check if menu two is working correctly. It should output the average ambient temperature and sample dev for each month of a given year. If there is no data for a given year output “no data” or no data for a given month output month: “No data”. This test will confirm that there no duplication of data. | menuTwo(DC)  year=2016 | AVERAGE TEMP (no rounding to 1 dp)   |  | | --- | | Jan-24.92531 | | Feb-23.97061 | | March-22.77395 | | Apr-19.31419 | | May-15.01858 | | June-13.33965 | | Jul-12.3098 | | Aug-12.39834 | | Sep-12.38349 | | Aug-15.6156 | | Nov-19.69447 | | Dec-20.82105 |   SAMPLE DEV (NO ROUNDING TO 1 DP):   |  | | --- | | Jan-5.285916 | | Feb-6.116281 | | Mar-5.028259 | | Apr-4.057084 | | May-4.043386 | | June-3.453936 | | July4.010222 | | Aug-3.554401 | | Sep-3.702668 | | Oct-4.24757 | | Nov-5.880684 | | Dec-5.069642 | | **EXPECTED OUTCOMES (ROUND TO 1 DP)**  **2016**  **January: Average temp:24.9degrees C, Sample dev:5.3**  **February: Average temp:24degrees C, Sample dev:6.1**  **March: Average temp:22.8degrees C, Sample dev:5**  **April: Average temp:19.3degrees C, Sample dev:4.1**  **May: Average temp:15degrees C, Sample dev:4**  **June: Average temp:13.3degrees C, Sample dev:3.5**  **July: Average temp:12.3degrees C, Sample dev:4**  **August: Average temp:12.4degrees C, Sample dev:3.6**  **September: Average temp:12.4degrees C, Sample dev:3.7**  **October: Average temp:15.6degrees C, Sample dev:4.2**  **November: Average temp:19.7degrees C, Sample dev:5.9**  **December: Average temp:20.8degrees C, Sample dev:5.1** | |  | | FIGURE 4  FIGURE 5 | PASS |
| menuTwo | To test that it output no data for that year. | menuTwo(DC)  year=2020 | **2020**  **January: No Data**  **February: No Data**  **March: No Data**  **April: No Data**  **May: No Data**  **June: No Data**  **July: No Data**  **August: No Data**  **September: No Data**  **October: No Data**  **November: No Data**  **December: No Data** | FIGURE 6 | PASS |

**TEST MENU TWO:**

REFER: Metdata-Jan-Dec2016 testing data file

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Figure 4

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Figure 5

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Figure 6

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| **TEST 3** | **DESCRIPTION** | **ACTUAL TEST CALL** | **EXPECTED OUTCOMES** | **PROGRAM OUTPUT** | **SUCCESS (FAIL/PASS)** |
| menuThree(DC) | This test will check if the menu Three calculates the total solar radiation correctly for each month of a given year.This test will ensure that there has no duplicates of data.if there is no data for a given month it is displayed as monthname:No data  (Only values that are >=100 are read) | menuThree(DC)  year=2014 | **2014**  **January:1.3kWh/m^2**  **February:No Data**  **March:183.5kWh/m^2**  **April:137.4kWh/m^2**  **May:86.3kWh/m^2**  **June:79.5kWh/m^2**  **July:84.1kWh/m^2**  **August:112.3kWh/m^2**  **September:145kWh/m^2**  **October:200.6kWh/m^2**  **November:220.1kWh/m^2**  **December:268.6kWh/m^2** | FIGURE 7 | PASS |
| menuThree(DC) | Test that no data is output for a year that does not exists in the structure | Year=2019 | **2019**  **January: No Data**  **February: No Data**  **March: No Data**  **April: No Data**  **May: No Data**  **June: No Data**  **July: No Data**  **August: No Data**  **September: No Data**  **October: No Data**  **November: No Data**  **December: No Data** | FIGURE 8 | PASS |

**PROGRAM OUTPUT:TEST3:**

For this test it was hard to manually read through each file and month due to a huge amount of data.

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Figure 7

A screenshot of a cell phone

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Figure 8

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| **TEST 4** | **DESCRIPTION** | **ACTUAL TEST CALL** | **EXPECTED OUTCOMES** | **PROGRAM OUTPUT** | **SUCCESS(PASS/FAIL)** |
| menuFour | This test will check whether a WindTempSolar.csv is created and the correct data in inserted in the required format. If no data for a particular month nothing is output for that month. No conversion and rounding was done in the expected output column for speed(multiply the value by 3.6 to confirm the correct output in km/h. | menuFour(DC)  year=2007 | AVG SPEED SAMPLE DEV S   |  |  | | --- | --- | | Jan-6.229966 | Jan-3.015704 | | Feb-6.552477  Mar-No data  Apr-No data | Feb-3.333859  Mar-No data  April-No data | | May-1.85804 | May-40.1639 | | Jun-6.291204 | June-3.335582 | | Jul-6.887321 | July-4.110079 | | Aug-5.429211 | Aug-3.842975 | | Sep-5.563657 | Sept-3.975338 | | Oct-5.495738 | Oct-3.282469 | | Nov-6.271065 | Nov-2.834951 | | Dec-6.770057 | Dec-3.051257 |   AVG TEMP SAMPLE DEV   |  |  | | --- | --- | | 21.98086 | 5.955951 | | 22.96137  No data  No data | 5.157735  No data  No data | | 13.15282 | 4.151754 | | 14.05202 | 3.754605 | |  |  | | 14.51619 | 3.214084 | | 13.8338 | 3.949091 | | 14.54816 | 3.727989 | | 16.04844 | 4.3948 | | 20.50953 | 5.399231 | | 20.68047 | 5.821014 | | FIGURE 9 | PASS |
| menuFour | This test will check If no data is for a particular year the correct output is displayed. | menuFour(DC)  year=2020 | **2020**  **No data** | FIGURE 10  2020  No data | PASS |

**PROGRAM OUTPUT:TEST4**

**REFER:** **Metdata-Jan-Dec2007 testing**

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| **TEST 5** | **DESCRIPTION** | **ACTUAL TEST CALL** | **EXPECTED OUTCOME** | **PROGRAM OUTPUT** | **SUCCESS(PASS/FAIL)** |
| Choice exception handling | This is to test that the program does not loop infinitely if the user enter either a choice out of the range 1-5 or enter a string/char by mistake | isChoiceValid(choice)  choice=8  choice=x | "Enter a value between 1-5"  "Please try again"  “Please enter numbers only!" | FIGURE 11  FIGURE 12 | PASS |
| checkMonthValidity |  | Month=checkMonthValidity(month)  Month=15 |  | FIGURE 13 | PASS |
| checkYearValidity |  | Year=checkYearValidity(year)  Year=2020 |  | FIGURE 13 | PASS |
| menuFive | This test check whether the program terminate when user enter 5 | Choice=5  Exit(1) | - | FIGURE 14 | PASS |

**PROGRAM OUTPUT:TEST5**

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