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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| Vector | Class |  | Vector class |  |
| AddTo(T t) | void | + | Adds a t value to the back of the vector | Needed to add to the vector |
| Empty() | Void | + | Empties the whole vector | Allows the vector to be re used. |
| SetSize(int n) | void | + | Sets the size of the vector to n | Allows for the vector to be expanded to a specific value. |
| Expand() | void | - | Increases the size of the vector | Allows the vector to expand size when needed. |
| operator=(Vector<t>) | Vector<t> | + | Copies one vector to the other | Allows the equals operator to be used for the vector class |
| operator[] (int n) | T | + | Square brackets operator for the vector | Allows a specific entry to be returned to the user |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| ProcData | Class |  | Abstract class for storing and processing data | Used to group data together, allows for polymorphism and method overloading for other types of data |
| GetData(RawData & MD) | void | + | Reads the raw data into the class | Used to get all necessary data into one class |
| FindStart() | void | + | Finds the start of the desired data | Finds the start of the desired data based on user month and year |
| FindEnd() | void() | + | Finds the end of the desired data | Finds the end of desired data based on user month and year |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| RadProcData | Class |  | Class for storing and processing radiation data | Concrete class derived from ProcData |
| GetData(int start, int end, RawData & MD) | void | + | Reads the radiation data into the class | Used to store all radiation info in one class from RawData |
| calcRad(float n) | float | + | Converts the radiation value to the correct format | Used to convert the data from the file into the desired format |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| WindProcData | Class |  | Class for storing and processing windspeed data | Concrete class derived from ProcData |
| GetData(int start, int end, RawData & MD) | void | + | Reads the radiation data into the class | Used to store all wind data in one class from RawData |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| AirProcData | Class |  | Class for storing and processing ambient air temp data | Concrete class derived from ProcData |
| GetData(int start, int end, RawData & MD) | void | + | Reads the radiation data into the class | Used to get all Air data in one class from RawData |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| Date | Class |  | Class for storing date values |  |
| LeapYear(int n) | bool | - | Checks if the year is a leap year or not | Used to check if the year is leap year or not and returns the value. |
| MonthCheck(int n) | void | - | Checks validity of a month value | Used to check a month input is valid |
| DayCheck(int n) | void | - | Checks the validity of a day value | Used to check a day input is valid |
| YearCheck(int n) | void | - | Checks the validity of a year value | Used to check a year input is valid |
| operator=(Date & d) | Date | + | Equals operator for Date | Allows use of the equals operator for the date class |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| Time | Class |  | Class for storing time values |  |
| operator=(Time & t) | Time | + | Equals operator for Time | Allows the use of the equals operator for Time class |
| CheckSecond(int n) | void | - | Checks validity of a second value | Used to check a second input is valid |
| CheckMinute(int n) | void | - | Checks the validity of a minute value | Used to check a minute input is valid |
| CheckHour(int n) | void | - | Checks the validity of an hour value | Used to check an hour input is valid |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| InputConfig | Struct |  | Struct for storing the desired input format and the key for sorting data | Clusters a group of data together |
| SetInput() | void | + | Sets the desired input | Sets a vector of strings for the desired input for logic later in the program |
| SetKey(Vector<string> | void | + | Sets the key | The key takes the a desired data field and its location in the data file |

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| **Name** | **Type** | **Protection** | **Description** | **Justification** |
| AllData | class |  | Class for storing the raw data read in |  |

Made this class all private, while making ProcData fully public with the thought of “all unprocessed data must be fully encapsulated, while processed data will stored in a class for grouping, allowing easier overloaded functions and information parsing, and be treated as if it was in just a variable in main”. The raw data will be re used multiple times and must not be able to be easily altered, while the processed data is kept until is it printed, then no longer needed. This however causes the “GetData” methods to break Demeter’s law (assuming the vector must also be private).