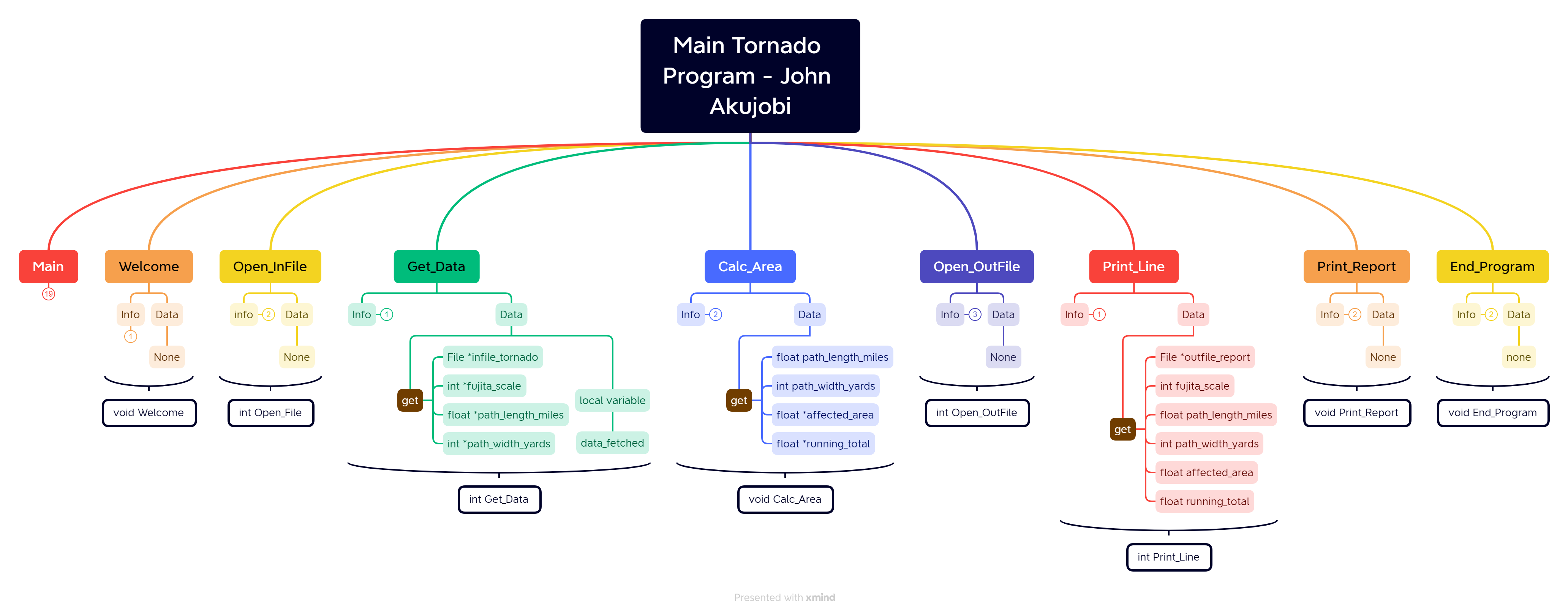
**CSC 150 – Program Design Document**

**Structure Chart**



**Data Storage (Defined in Main)**

File \*infile\_tornado

* Pointer to Input file that holds the tornado.txt file

File \*outfile\_report

* Pointer to Output file that connects to Report.txt file

int fujita\_scale

* first data on each line
* scale of 0 - 6

float path\_length\_miles

* Path length of tornado

int path\_width\_yards

* path\_width of the tornado in yards

float affected\_area

* calculated area affected by each tornado

float running\_total

* the running total of affected area

### Functions ****(for each function, give the function’s prototype and 1 or 2 lines describing how the function works.)****

1. void Welcome ();
   * Prints a welcome statements and tells the user the purpose of the program
2. int Open\_File (infile\_tornado);
   * Opens the tornado file and reads from it
   * Prints error or success message to the terminal
   * Returns 404 if unsuccessful
3. int Get\_Data (File \*infile\_tornado, int \*fujita\_scale, float \*path\_length\_miles, int \*path\_width\_yards);
   * It reads a line of data from the tornado.txt
   * Stores them into the pointers
   * Uses a local variable [data\_fetched]
4. void Calc\_Area (float path\_length\_miles, int path\_width\_yards, float \*affected\_area, float \*running\_total);
   * Calculates the area affected for each tornado and keeps a running total of the areas
   * Uses the formula [path\_width\_miles \* path\_length\_yards /1760]
     + Divided by 1760 to convert the yards to miles
5. int Open\_OutFile (outfile\_report);
   * Creates/ Opens the Repot.txt file
   * Tells the terminal if file is successfully opened or not
   * Returns 404 if unsuccessful
6. int Print\_Line (File \*outfile\_report, int fujita\_scale, float path\_length\_miles, int path\_width\_yards, float affected\_area, float running\_total);
   * Prints one line into the report file
7. void Print\_Report ();
   * Prints all the lines to the report and then prints the total area affected
     + While Get\_Data ==1,
     + it calc Calc\_Area to calculate the area
     + then calls Print\_Line to print the information to the file
     + After this loop ends, it prints the Total Area to the file using variable running\_total
     + Then prints a success message to the terminal
   * Prints each line to the terminal to let user know the progress
8. void End\_Program ();
   * Closes the two files
   * Prints an exit message to the terminal to signify the end of the program