**CSC 250 – Program Design Document**

**Structure Chart**

total\_partic

readData

main

**123 659 235 523**

**331 126 178 99**

total\_each\_activity

total\_each\_year

highest\_partic

lowest\_partic

write\_file\_results

**Function Design (give the prototype and a short description for each function)**

// Reads data from the activities.txt file and stores it in a 2D array.

void readData(int my\_array[ROWS][COLS]);

// Calculates the total participation for each year and stores it in yearlyTotal.

void total\_each\_year(int my\_array[ROWS][COLS], int yearlyTotal[COLS]);

// Calculates the total participation for each activity and stores it in activityTotal.

void total\_each\_activity(int my\_array[ROWS][COLS], int activityTotal[ROWS]);

// Calculates and returns the overall total of all participations.

int total\_partic(int my\_array[ROWS][COLS]);

// Determines and returns the activity with the highest participation value.

int highest\_partic(int my\_array[ROWS][COLS]);

// Determines and returns the activity with the lowest participation value.

int lowest\_partic(int my\_array[ROWS][COLS]);

// Writes the results, including the totals and highest/lowest participation activities, to 'results.txt'.

void write\_file\_results(int my\_array[ROWS][COLS], int yearlyTotal[COLS], int activityTotal[ROWS], int overallTotal, int highestp, int lowestp);

**Time Estimate**

|  |  |  |
| --- | --- | --- |
|  | **Estimated Time** | **Actual Time** |
| Program Design | **30** | **45** |
| readData | **25** | **38** |
| total\_each\_year | **30** | **36** |
| total\_each\_activity | **30** | **30** |
| total\_partic | **35** | **27** |
| highest\_partic | **35** | **43** |
| lowest\_partic | **20** | **20** |
| write\_file\_results | **30** | **173** |
| Program Test | **25** | **20** |
| **Total Time** | **260min** | **432min** |