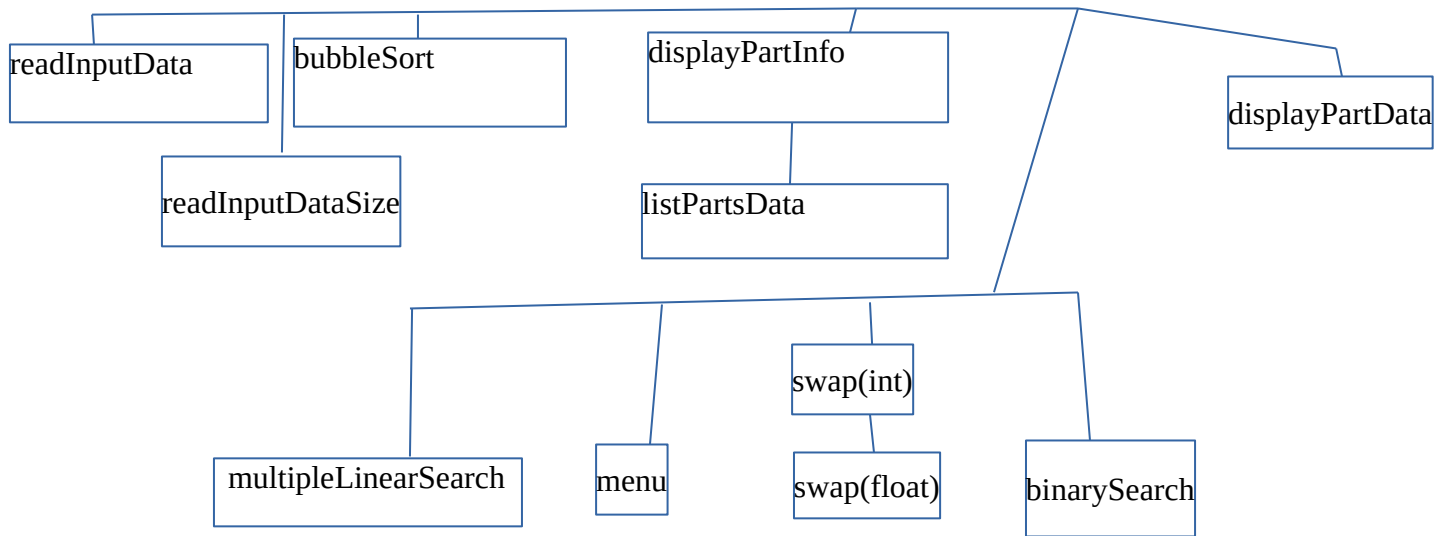


CSC 250 – Program Design Document

Structure Chart



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

```
void displayPartInfo(int, int, int); // displays the partNumber, partCost, and partQuantity in aligned columns
```

```
void readInputData(ifstream &a, unique_ptr<int[]> &, unique_ptr<float[]> &, unique_ptr<int[]> &, int); //reads the input from parts2.txt and stores the information in the given arrays; number, cost, and quantity respectively
```

```
int readInputDataSize(ifstream &); //reads the first data piece of parts.txt and returns it as the number of parts to be read
```

```
void swap(unique_ptr<float[]> &, int, int); //swaps the values in a float array at the two given indexes
```

```
void swap(unique_ptr<int[]> &, int, int); //swaps the values in an int array at the two given indexes
```

```
void bubbleSort(unique_ptr<int[]> &, unique_ptr<float[]> &, unique_ptr<int[]> &, int); //sorts the three arrays given based on the first integer array (partNumbers) using the given int size
```

```
void listPartsData(unique_ptr<int[]> &, unique_ptr<float[]> &, unique_ptr<int[]> &, int); //lists the part data of all the parts in the given arrays in labeled aligned columns (uses displayPartInfo())
```

```
int binarySearch(unique_ptr<int[]> &, int, int, int); //recursive binary search that searches the given integer array using the given start and end values for the integer query
```

```
int multipleLinearSearch(unique_ptr<int[]> &, unique_ptr<int[]> &, int, int);//searches the given integer array of the given integer size for the given integer query and puts the indexes of all values matching the query into the second given integer array; returns the size of results array
```

```
int menu(string);//displays the menu and returns the users input choice (1-4)
```

Time Estimate

	Estimated Time (min)	Actual Time(min)
Program Design	10	15
(list each function name and the time required to code each)		
<u>readInputData()</u>	10	7
<u>sortInputData()</u> → <u>bubbleSort()</u>	5	3
<u>displayInputData()</u> → <u>listPartsData()</u>	10	4
<u>getUserQuery()</u>	5	<u>0 (removed)</u>
<u>binarySearch()</u>	5	2
<u>printQueryResults()</u> → <u>replaced by displayPartInfo() & listPartsData()</u>	5	<u>0 (removed)</u>
<u>printPartData()</u>	5	5
<u>swap(int)</u>	Not Estimated	2
<u>swap(float)</u>	Not Estimated	1
<u>multipleLinearSearch()</u>	Not Estimated	12
<u>menu()</u>	Not Estimated	4
<u>main()</u>	Not Estimated	21
<u>----Program 3 Additions----</u>	-----	-----
<u>readInputDataSize()</u>	5	2
<u>Implement unique_ptr</u>	15	40
<u>----Program 3 Additions----</u>	-----	-----
Program Test	10, 5	15,10
Total Time	65, 70	91, 143