My Project

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1.1 File List

Here is a list of all files with brief descriptions:

Chapter 2

File Documentation

2.1 BubbleSort.cpp File Reference

```
#include <iostream>
#include <ctime>
#include <fstream>
#include <cstdlib>
```

Functions

- void swap (int ∗i, int ∗j)
- void bubbleSort (int a[ ], int n)
- void printArray (int a[ ], int size)
- int ∗ generateArray (int n)

  makes an array

2.1.1 Function Documentation

2.1.1.1 bubbleSort()

```
void bubbleSort (
            int a[ ],
            int n )
```

Parameters

takes	in an integer array and a single integer

Precondition

an array with a value

Postcondition

the array is sorted

Note

the process of how an array is sorted using bubble sort

Returns

sorted array

2.1.1.2 generateArray()

```
int* generateArray (
            int n )
```

makes an array

2.1.1.3 printArray()

```
void printArray (
            int a[],
            int size )
```

2.1.1.4 swap()

```
void swap (
            int * i,
            int * j )
```

Parameters

takes	in two integer pointers

Precondition

two integer pointers

Postcondition

the two integer pointers values are replaced

Note

Swap function

Returns

none

2.2 main.cpp File Reference

```
#include <iostream>
#include <ctime>
#include <cstdio>
#include <cstdlib>
#include "BubbleSort.cpp"
#include "MergeSort.cpp"
#include "RadixSort.cpp"
```

Functions

- void fillFunc (int arr[ ], int n)
- void sortArrayWithBubbleSort (int arr[ ], int n)
- void sortArrayWithMergeSort (int arr[ ], int n)
- void sortArrayWithRadixSort (int arr[ ], int n)
- int main ()

2.2.1 Function Documentation

2.2.1.1 fillFunc()

```
void fillFunc (
            int arr[ ],
            int n )
```

2.2.1.2 main()

```
int main ( )
```

2.2.1.3 sortArrayWithBubbleSort()

```
void sortArrayWithBubbleSort (
             int arr[],
             int n )
```

2.2.1.4 sortArrayWithMergeSort()

```
void sortArrayWithMergeSort (
             int arr[],
             int n )
```

2.2.1.5 sortArrayWithRadixSort()

```
void sortArrayWithRadixSort (
             int arr[],
             int n )
```

2.3 MergeSort.cpp File Reference

```
#include <iostream>
#include <ctime>
#include <stdlib.h>
#include <stdio.h>
#include <fstream>
```

Functions

- void merge (int arr[ ], int a, int b, int c)
- void mergeSort (int arr[ ], int l, int r)

2.3.1 Function Documentation

2.3.1.1 merge()

```
void merge (
             int arr[],
             int a,
             int b,
             int c )
```

Parameters

takes	in an integer array, and 3 integer values

Precondition

an array full of random numbers that are sorted or unsorted, with pivots to divide from

Postcondition

an sorted array which is formed by dividing the unsorted array and merging

Note

merge function

Returns

none

creates two temp array's

Copies data to the temporary arrays

Merge the temp arrays back into arr[l..r]∗/

Copies the last seperate remaining elements of A[], if there are any

2.3.1.2 mergeSort()

```
void mergeSort (
             int arr[],
             int l,
             int r )
```

2.4 RadixSort.cpp File Reference

```
#include <iostream>
#include <ctime>
#include <stdlib.h>
#include <stdio.h>
#include <fstream>
```

Functions

- int getMax (int arr[ ], int n)

  returns the value of maximum index of the certain array
- void countSort (int array[ ], int n, int exp)
- void radixsort (int arr[ ], int n)

2.4.1 Function Documentation

2.4.1.1 countSort()

```
void countSort (
            int array[],
            int n,
            int exp )
```

A function which implements the counting sort of an array based on the number that you enter in as exp

Parameters

takes	in an integer array, two integer variables

Precondition

an unsorted array with random numbers

Postcondition

a sorted array that uses the similar count sort algorithm but orders by position values

Note

Count sort

Returns

none

the output array

Builds the output array

Copies the output array to arr[], so that arr[] now contains sorted numbers according to current digit

2.4.1.2 getMax()

```
int getMax (
            int arr[],
            int n )
```

returns the value of maximum index of the certain array

2.4.1.3 radixsort()

```
void radixsort (
            int arr[],
            int n )
```

pre condition: an array and an integer size for the array post condition, sorts the array parameters, int array and an int value Find the maximum number to know number of digits