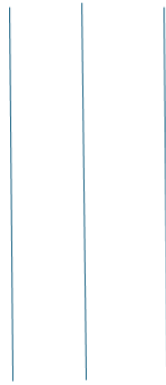


# **CSC 710 – STRUCTURE AND DESIGN PROGRAMMING LANGUAGE**



## **ASSIGNMENT 1**

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1. There are three Program for each language (i.e. C++, Java, and Python):
2. Two arbitrary sizes of integer arrays (array\_1 and array\_2) are generated randomly. No need to enter the array size and array number.
3. You must enter the value for target to perform the binary search for it.

## Test cases for python:

```
Please enter a target value to do binary search:
5
Array 1: 17 44 89 27 37 95 41 30 33 23 31 90
89
Array 2: 7 89 23 77 4 58 96 36 35 45 25 44 51 20 8 41 32 59 49 16 94 74 84 64 43 9
89
The insertion sort result is [17, 23, 27, 30, 31, 33, 37, 41, 44, 89, 90, 95]

The Bubble sort result is [4, 7, 8, 9, 16, 20, 23, 25, 32, 35, 36, 41, 43, 44, 45, 49, 51, 5
8, 59, 64, 74, 77, 84, 89, 94, 96]

The Merge sort result is [4, 7, 8, 9, 16, 17, 20, 23, 25, 27, 30, 31, 32, 33, 35, 36, 37, 41
, 43, 44, 45, 49, 51, 58, 59, 64, 74, 77, 84, 89, 90, 94, 95, 96]

The target 5 was not found in the array.
```

```
Please enter a target value to do binary search:
6
Array 1: 32 35 59 40 44 75 85 61 81 33 38 73 64 26 89 97 56 95 2 6 78 52 47 71 82
59
Array 2: 91 37 69 54 94 85 3 87 76 51 8 55 1
37
The insertion sort result is [2, 6, 26, 32, 33, 35, 38, 40, 44, 47, 52, 56, 59, 61, 64, 71,
73, 75, 78, 81, 82, 85, 89, 95, 97]

The Bubble sort result is [1, 3, 8, 37, 51, 54, 55, 69, 76, 85, 87, 91, 94]

The Merge sort result is [1, 2, 3, 6, 8, 26, 32, 33, 35, 37, 38, 40, 44, 47, 51, 52, 54, 55,
56, 59, 61, 64, 69, 71, 73, 75, 76, 78, 81, 82, 85, 87, 89, 91, 94, 95, 97]

The target 6 was found at index 3.
```

## Test cases for C++:

- To run C++ language Program, you need to type “g++ -std=c++11 Programm\_Cplusplus.cpp -o Prog.out & ./Prog.out” in visual studio code terminal.

```
yuvrajpant@Yuvrajs-MacBook-Pro Question_1 % g++ -std=c++11 Programm_Cplusplus.cpp -o Prog.out &
& ./Prog.out
Enter a target value to do binary search (it should be an interger: )
4
Array 1:39 37 96 48 78 3 81 24 21 5 40 24 69 88
Array 2:24 20 14 45 13 10 8 31 76 48 23 64 4 82 94 39 66 52 8 32 17 43 21 33 76 7
The Insertion sort result is: 3 5 21 24 24 37 39 40 48 69 78 81 88 96
The Bubble sort result is: 4 7 8 8 10 13 14 17 20 21 23 24 31 32 33 39 43 45 48 52 64 66 76 76
82 94
The Merge sort result is: 3 4 5 7 8 10 13 14 17 20 21 23 24 31 32 33 37 39 40 43 45 48 52 64 66
69 76 78 81 82 88 94 96
Binary_Search_Result: The target 4 was found at index 1.
```

```
yuvrajpant@Yuvrajs-MacBook-Pro Question_1 % g++ -std=c++11 Programm_Cplusplus.cpp -o Prog.out &
& ./Prog.out
Enter a target value to do binary search:
2
Array 1:60 19 44 80 5
Array 2:80 8 85 71 68
The Insertion sort result is: 5 19 44 60 80
The Bubble sort result is: 8 68 71 80 85
The Merge sort result is: 5 8 19 44 60 68 71 80 85
Binary_Search_Result: the target 2 was not found in the array.
```

## Test cases for JAVA:

```
Enter a target value to do binary search:
```

```
4
```

```
Array 1: 50 91 98 75 28 92 100 77
```

```
Array 2: 96 1 90 79 97 42 12 77 93 93 26
```

```
The Insertion sort result is: 28 50 75 77 91 92 98 100
```

```
The Bubble sort result is: 1 12 26 42 77 79 90 93 93 96 97
```

```
The Merged sort result is: 1 12 26 28 42 50 75 77 79 90 91 92 93 96 97 98 100
```

```
Binary_Search_Result: The target 4 was not found in the array.
```

```
Enter a target value to do binary search:
```

```
25
```

```
Array 1: 52 52 30 26 43 52 90 96 2 82 73 51 94 15 8 9 52 25 16 77 34 91 74 27 87 73 67
```

```
Array 2: 14 70 34 53 50 85 80 23 4 31
```

```
The Insertion sort result is: 2 8 9 15 16 25 26 27 30 34 43 51 52 52 52 52 67 73 73 74 77 82 87 90 91 94 96
```

```
The Bubble sort result is: 4 14 23 31 34 50 53 70 80 85
```

```
The Merged sort result is: 2 4 8 9 14 15 16 23 25 26 27 30 31 34 43 50 51 52 53 67 70 73 74 77 80 82 85 87 90 91 94 96
```

```
Binary_Search_Result: The target 25 was found at index 8.
```