

## ASSIGNMENT 2

**Course Details: CS6308 Java Programming**

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### Exercise 1 - Sort

Write a program to read an integer of randomly in a 1D array and character array using the random integer.

Apply the method to sort the array content and return the number of comparisons done.

Apply method to Print the sorted array with array index position

Enter the number of elements: 6

```
-----  
| 0 | 1 | 2 | 3 | 4 | 5 |  
-----  
| 67 | 72 | 74 | 87 | 90 | 97 |  
-----  
| C | H | J | W | Z | a |  
-----
```

Hint: System.out.printf

random.nextBoolean() true to read for A-Z false for a-z

// Random number in the range [65, 90] for 'A'-'Z' randomNumber = 65 + random.nextInt(26);

// Random number in the range [97, 122] for 'a'-'z' randomNumber = 97 + random.nextInt(26);

(char) randomNumber; // Convert integer to character

Hint: Use a method to print the horizontal line based on the size n

"%d"	Format a string with as many numbers as are needed	"%s"	Format a string with as many characters as are needed
"%4d"	Format a string with the specified number of integers. Will pad with spaces to the left if not enough integers.	"%15s"	Format a string with the specified number of characters, and right-justify
"%04d"	Format a string with the specified number of integers. Will pad with zeros to the left if not enough integers.	"%-15s"	Format a string with the specified number of characters, and left-justify

## Exercise 2: Search element Occurrence

Write a program to read  $n$  random integer in a 1D array of A and B of size  $n$ . Apply method to search the occurrence of element in B and print the number of B element occurrence in A .

## Exercise 3: Sum of arrays

Write a program to read two 2D array. Apply method to perform column major sum and sort the array based on the sum of columns.

Sample Input:

1	3	4
1	2	4
3	1	2

 + 

2	1	3
5	-1	2
3	4	2

 => 

3	4	7
6	1	6
6	5	4

 => 

4	3	7
1	6	6
5	6	4

## Exercise 4: Magic square

Write a magic square game using 2d array such that All the row, column and diagonal sum are equal. Create a 3 X 3 grid using array of the integers 1 to  $n^2$ . Read the random integer for the middle position and then fill the other places to obtain magic square.

1) $a_{11}+a_{12}+a_{13}=k$ 2) $a_{21}+a_{22}+a_{23}=k$ 3) $a_{31}+a_{32}+a_{33}=k$	1) $a_{11}+a_{21}+a_{31}=k$ 2) $a_{12}+a_{22}+a_{32}=k$ 3) $a_{13}+a_{23}+a_{33}=k$	1) $a_{11}+a_{22}+a_{33}=k$ 2) $a_{13}+a_{22}+a_{31}=k$
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13	8	15
14	12	10
9	16	11