Assignment

1.

Given an unsorted array that contains even number of occurrences for all numbers except two numbers. Find the two numbers which have odd occurrences

Examples:

```
Input: {12, 23, 34, 12, 12, 23, 12, 45}
Output: 34 and 45

Input: {4, 4, 100, 5000, 4, 4, 4, 4, 100, 100}
Output: 100 and 5000

Input: {10, 20}
Output: 10 and 20
```

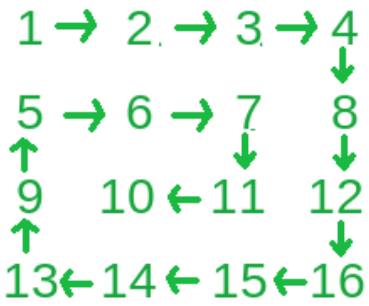
2.

Given a 2D array, print it in spiral form. See the following examples.

Examples:

Input: {{1, 2, 3, 4},
{5, 6, 7, 8},
{9, 10, 11, 12},
{13, 14, 15, 16 }}
Output: 1 2 3 4 8 12 16 15 14 13 9 5 6 7 11 10
Explanation: The output is matrix in spiral format.

Matrix:



Output:

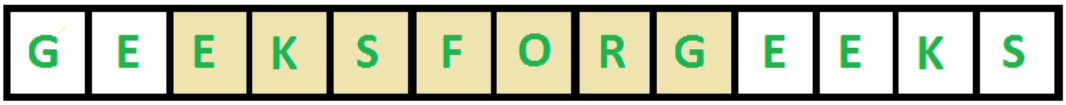
1, 2, 3, 4, 8, 12, 16, 15, 14, 13, 9, 5, 6, 7, 11, 10

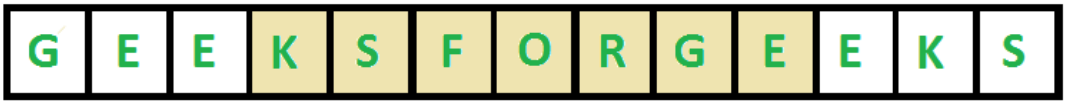
3.

Given a string **str**, find the length of the longest substring without repeating characters.

Example:

> *For "ABDEFGABEF", the longest substring are "BDEFGA" and "DEFGAB", with length 6.*
>
> *For "BBBB" the longest substring is "B", with length 1.*
>
> *For "GEEKSFORGEEKS", there are two longest substrings shown in the below diagrams, with length 7*





4.

Given a set represented as a string, write a recursive code to print all the subsets of it. The subsets can be printed in any order.

Examples:

```
Input :  set = "abc"
Output : "". "a", "b", "c", "ab", "ac", "bc", "abc"

Input : set = "abcd"
Output : "" "a" "ab" "abc" "abcd" "abd" "ac" "acd"
         "ad" "b" "bc" "bcd" "bd" "c" "cd" "d"
```

5.

We are given a row-wise sorted matrix of size r*c, we need to find the median of the matrix given. It is assumed that r*c is always odd.

Examples:

```
Input : 1 3 5
        2 6 9
        3 6 9
Output : Median is 5
If we put all the values in a sorted
array A[] = 1 2 3 3 5 6 6 9 9)

Input: 1 3 4
       2 5 6
       7 8 9
Output: Median is 5
```