Question 1

You are given with a NxN matrix which contains only 0s and 1s. e.g.

1 0 1 1 0
0 1 1 1 0
1 1 1 1 1
1 0 1 1 1
1 1 1 1 1

Your job is to write a function which will set every row that contains a 0 to all 0s and set every column that contains a 0 to all 0s. The output for the above input matrix will be:

0 0 0 0 0
0 0 0 0 0
0 0 1 1 0
0 0 0 0 0
0 0 1 1 0

Fucntion Prototype:

```
Int[][] ZeroPass(int[][] inputMatrix)
```

Question 2

You are given with an array of integer containing only numbers from 0 to 9. Write a program to move all 0's to the beginning of the array and 1's to the end of the array and rest all in same order. The best algorithm uses contact memory O(1) and O(n) time complexity.

Example –

Input –{3,2,6,0,1,1,0,8,3,2,6,0} Output – {0, 0, 0, 3, 2, 6, 8, 3, 2, 6, 1, 1}

Function Prototype:

int[] ReArrange(int[] array)

Question 3

You are given a string S. Write a function to find the longest substring of the given string S which contains at most **2 unique characters**. If there are more than 1 substrings of max length, then return any one.

Example:

```
S = "abbbcccbcbddeeffffabbbcbc"
Output = ["bbbcccbcb"]

S = "helloworld"
Output = ["ell", "llo", "owo"]

S = "mississippi"
Output = ["ississi"]
```

Prototype of the function –

```
string[] LongestTwoUniqueCharsSubstring(string S)
```