Lab 01 (Dated 18-09-2020)

1. Series of Powers

Input a number (positive integer) and print series of numbers starting from 1 to number in their own powers, at the end print their sum. Say number is 4. You have to print 1 4 27 256 288.

Input Format

4

Output Format

1 4 27 256 288

Solution:

```
int power(int n){
    int i=n, p=1;
    while (i-->0)
        p = p * n;
    return p;
}
```

```
int main() {
    int n, p, sum=0;
    cin>>n;
    for (int i=1;i<=n;i++){
        p = power(i);
        cout << p << ' ';
        sum += p;
    }
    cout << sum;
    return 0;
}
```

2. Count Common Row Wise

Find row wise count of common elements. Given two set of 2D arrays. Find common elements in both arrays. Both arrays have same number of rows but different number of columns. First line of input has three numbers. First number is number of rows, second number represent number of columns in first 2D array and third number represent number of columns in second 2D array. See Input/ Output format for more understanding.

Input Format

3 3 5
23 45 64
32 54 94
13 24 16
12 25 45 64 10
32 54 90 18 98
23 14 16 90 80

Constraints

No of columns <= 10000
No of columns <= 100000

Output Format

2
2
1

Solution:

```
int findCommon(int *x, int *y, const int S1, const int S2){
    int count=0, i, j;
    for (i=0;i<S1;i++)
        for (j=0;j<S2;j++)
            if (x[i]==y[j])
                count++;
    return count;
}
```

```
int main() {
    int **x, **y, row_count, column_count1, column_count2, i, j;
    cin>>row_count>>column_count1>>column_count2;
    x=new int*[row_count];
    y=new int*[row_count];
    for ( i=0;i<row_count;i++){
        x[i]=new int[column_count1];
        y[i]=new int[column_count2];
        for ( j=0;j<column_count1;j++)
            cin>>x[i][j];
    }
    for (i=0;i<row_count;i++)
        for ( j=0;j<column_count2;j++)
            cin>>y[i][j];
    for (i=0;i<row_count;i++)
        cout<<findCommon(x[i], y[i], column_count1, column_count2)<<'\n';
    return 0;
}
```

3. Count Common Row Wise

Find row wise count of common elements. Given two set of 2D arrays. Find common elements in both arrays. Both arrays Read rows number from user and Print Floyed's Triangle.

Input Format

4

Constraints

0< rows <=50

Output Format

1 2 3 4
5 6 7
8 9
10

Solution:

```
int main() {
    int rows, num = 1;
    cin >> rows;
    for (int i = 1; i <= rows; i++) {
        for (int j = rows; j >= i; j--) {
            cout << num << ' ';
            num++;
        }
        cout << '\n';
    }
    return 0;
}
```