Chubby Virus

Assignment 2
Data Structures
Algorithms
Due date: 13 March, 2020

Problem Statement: There is a virus affecting the Hydrabit. Dr. AN and RK have been assigned by the government. Both of them decided to use divide and conquer method which they learned from their Teaching Assistants. Dr. AN being very lazy, decides to measure the effectiveness of the cure which he developed, whereas Dr. RK goes out in the field to contaminate the virus.
Initially there are N antivirus molecules, numbered 1 to N and each molecule of antivirus engulfs the each molecule of virus. But in the end, all these molecules of the antivirus has to be combined so that all the virus can be destroyed in a single attempt. At each time, two antivirus molecule(which has already engulfed the virus molecule) combines to from a blob. Dr. AN comes up with the matrix to evaluate the effectiveness of the antivirus. At each moment in time, he calculated the size of the blob with the largest number of molecules. The overall effectiveness is sum of the size of the largest blog at each time.

Note
When two molecules combine, their blob combines to form a single blob. The number of blob is irrelevant.

Input
First line contains two space separated integers: N M.
The next M lines contains two space separated integers U V, indicating the molecules which combine.
Output
Print a single output, the sum of size of the largest blog at each time.

Constraints
$1 \leq N \leq 2 * 10^5$
$1 \leq M \leq 5 * 10^5$
$1 \leq U, V \leq N$

Time Limit: 1 sec
Memory Limit: 256 MB

Sample Test Case

Input	Output
4 3 1 2 2 3 3 4	9
4 3 1 2 3 4 2 4	8