

# Digital Pakistan Speed Programing Competition Online Mock Contest

## Instructions

- Do not open the booklet unless you are explicitly told to do so. You can only read these instructions below.
- If you have any question regarding the problems, seek a clarification from the judges using DOMJudge.
- Before submitting a run, make sure that it is executable via command line. For Java, it must be executable via "javac" and for GNU C++ via "g++". Java programmers need to remove any "package" statements and source code's file name must be the same as of main class. C++ programmers need to remove any getch() / system("pause") like statements.
- Do not attach input files while submitting a run, only submit/attach source code files, i.e., \*.java or \*.cpp or \*.py.
- Language supported: C/C++, Java and Python3
- Source code file name should not contain white space or special characters.
- You must take input from Console i.e.: Standard Input Stream (stdin in C, cin in C++, System.in in Java, stdin in Python)
- You must print your output to Console i.e.: Standard Output Stream (stdout in C, cout in C++, System.out in Java)
- Please, don't create/open any file for input or output.
- Please strictly meet the output format requirements as described in problem statements, because your program will be auto judged by computer. Your output will be compared with judge's output byte-by-byte and not tolerate even a difference of single byte. So, be aware! **Pay special attention to spaces, commas, dots, newlines, decimal places, case sensitivity etc.**
- All your programs must meet the time constraint specified.
- The decision of judges will be absolutely final.

**Problem 05: Electoral Boundaries**

Time limit: 1 second

The changing dynamic of All Community Housing Society forces an early re-election for the president position. The society is very large and consists of many different blocks uniquely identified by a number  $I$  to  $N$ . Some blocks are connected with each other and some not making them isolated. The election commission of the society received various suggestion for setting up polling booths across the society. The society wants to facilitate all the residents of the blocks to cast their votes at their ease.

The election commission wants to divide all these blocks into  $M$  distinct polling districts. However, there's a special requirement for the way these districts are organized:

- Every block must be assigned to exactly one polling district.
- For any two blocks that are directly connected by a road, the polling districts they belong to must be consecutive. In other words, if one block is placed in district  $X$  and its connected neighbor is in district  $Y$ , then the absolute difference between  $X$  and  $Y$  must be exactly  $1$ .

The challenge for the election commission is to determine the maximum number of polling districts ( $M$ ) that can be created to facilitate voters. If it turns out to be impossible to arrange the blocks into such districts, the answer should be  $-1$ .

**Input**

The first line of the input consists of  $t$ , ( $1 \leq t \leq 50$ ) representing the total number of test cases given. The first line of the test cases represents, ' $N$ ' ( $2 \leq N \leq 10^3$ ) representing ' $N$ ' blocks. The next line contains  $W$  ( $1 \leq W \leq 10^6$ ) representing number of connecting roads. The next  $W$  lines contains two space separated block numbers representing a road between the two blocks.

**Output**

Output consists of  $t$  lines, each line contains exactly one number, representing the maximum number of distinct polling districts ( $M$ ).

Sample input	Sample Output
4	4
6	-1
6	3
1 2	6
1 4	
1 5	
2 6	
2 3	
4 6	
3	
3	
1 2	
2 3	
3 1	
3	
1	
2 3	
6	
5	
1 2	
2 4	
1 5	
4 3	
3 6	