**B.Tech Second Year (CS/IT)**

**Assignment #7**

**Part 1**

**Assignment description:** A rational number is a number in the form of https://lh3.googleusercontent.com/iD4n_BzxpnEizeKf29FK4cthT8Rqa7SwRul22qyi8d9m0O9EKQ02S7o6bNyhapdMwp4ltfr63K6iD_4Ob0j56_RW2z6n-D8ra4oeI_MAfTtWxDlaK1hOEvryu6SyREfBAaX9H9cwhere https://lh5.googleusercontent.com/t9JSJU-kJz1rGcqA-qRJw9-5sWW4X21qz9PnU1T9pTQPCBO43bnF-k6wHUkE-mwpGc6a48a4Zn_RBr3BsfsdUxU5SqbX6SqKJPIdnUXCrfoNnJ0qeqOJRY_QvnTGTnECSjQP-zU and https://lh4.googleusercontent.com/xEQzxIFZVWnuJQ0b6kCd4Ssa24OzsYek5hlQayVYdPhdDoxQ8xYxBI5FOx9k1oAQN1uSbhnr1ZDCEacANg8WExBxEVsChcEyz8G_RaIHFan0t5DM89-S5vswqYIkmt7PT0WAzVware integers andhttps://lh6.googleusercontent.com/ipsXRuEb0u6Zx7ypUFnsDWYivjA6tSb_5ABa3n9rTEB98UnSywu9DNg9i405SfF6sIzyrTl4OdiecRDgd2z8eK0pveqVHbpsuxbqgHo-DJz7jshfi0zZpdIescNrgwGCwC_zhDQ. Rational numbers can be added, subtracted, multiplied, and divided. Write a Java application that will be able to add, subtract, multiply, divide, compare, convert to floating point, and find absolute value for rational numbers.

Your program should be written in Object Oriented Programming style. The program should accept two rational numbers from the user using any method and output results of operations to console. Your program should solve operations **efficiently** and **be able to recover** from bad inputs. Use exception handling mechanism so as not to crash the program.

Example Inputs:

1234 / 5678 and 8765 / 4321

0 / 1        and 34 / 675

apple / 23   and  23 / 0

**Part 2**

Write a Java Program to find the factorial of ‘n’ integers (as command line arguments CLA). Write your own exception “MyExcep” to validate integer values to be in certain range.

Sample call: **java ExceptionDemo 8 – 6 14 abcd 5**

1. Static main method invokes another method “factorial()”
2. CLA which are strings but interpreted as integer values.
3. The user-defined exception class MyExcep should have proper constructors / overridden toString() method to display exception message along with the wrong input number that had generated the exception.
4. NumberFormatException and Your Exception class MyExcep( n<0 and n>12 )