**Advanced Java Homework – Base Conversions**

Write a program that performs the following tasks:

* Display a friendly greeting to the user
* Prompt the user for the value to convert (a String)
* Accept that String
* Prompt the user for the value of the initial base (an integer)
* Accept that integer
* Prompt the user for the desired base of the output (an integer)
* Accept that integer
* If the String is not a legal expression of a number in the initial base, display an error message and exit the program.
* Convert the value represented by the String in the initial base to the desired base.
* Display the result.

The program should also accept all three parameters from the command line if provided. Command-line parameters are accepted in the same order as the input prompts. We will accept any base from 2 to 36. Base 36 uses the ten integers 0-9 and the twenty-six letters A-Z.

The validator and the actual conversion routine should be contained in methods:

public static boolean isValidInteger(String theValue, int theBase){

// contract: returns true if theInteger is a valid expression in theBase;

// false otherwise.

public static String convertInteger(String theValue, int initialBase, int finalBase){

// contract: converts theInteger from initialBase to finalBase and returns the

// result as a String.

// precondition: theValue must be a valid expression in initialBase.

Note that for every method that you write, you should state the contract and any preconditions as shown above. If the preconditions aren’t met, the method *should* throw an exception but we don’t know how to do that yet, so just exit the program.

You will need to use the BigInteger class, which allows arbitrary-length integers. So your conversion algorithm is:

* Check the validity of the input String
* Convert the input String into a BigInteger (in base 10) as shown in class.
* Convert that BigInteger into a String representation of that value in the desired target base as shown in class.

We will go over the algorithm and review command-line parameters in class.

S**ubmit your Java source code in the Moodle drop box.**