Jackson State University
Department of Computer Science
CSC 438/539 Systems and Software Security, Spring 2014
Instructor: Dr. Natarajan Meghanathan
Project 3: Java Secure Coding Standards
Maximum Points: 100   **Deadline:** April 2, 2014: 7.30 PM

Develop a Java program that evaluates the following polynomial (one assigned for each student using a random number program run in class). Your program should input the values of the variables a, b, c and d of type *short*. The output of your polynomial computation should be still of type *short*.

(a) Your program should satisfy the secure coding standards and issues discussed in class (module 4).
(b) You could create one or more functions to handle all possible scenarios of inputs and side-effects of execution.
(c) If needed, you needed to resolve the precedence of the operators in a term/expression and evaluate the polynomial accordingly. State how you resolved the precedence.
(d) Add code to appropriately handle any unacceptable input values (like infinity, NaN) and those that lie outside the range of acceptable values for a *short*.
(e) Add code to handle issues like NumberFormatException, division by zero, etc.
(f) Any overflow errors should be appropriately caught and displayed.
(g) **You should NOT use the BigInteger class** in this project. If you use, you will get ZERO points.

Poly. #	Polynomial	Student Name
1	$(a*b) + (c^3 / (d - a^2)) - (a \% b)$	Mina Zhou
2	$(a / c + d) * (b^3 - a^2) + (b \% d)$	Kenyarder Lewis
3	$((a - (b \% c)) * (c + d)) / (a / b)^2$	Vikasini Chandrashekar
4	$(a * b + c) * ((d \% c) - a^3 / c^2)$	Allison Gray
5	$(a - b^2) + ((c^2 * d) / b) - (a \% d)$	Bharath Gajjela
6	$(b \% a) - ((d * a^2 + b^3) * (c / d))$	Elisha Maddirala
7	$(d / (a^2 - b^3)) + ((c - a) * (d \% c))$	Lawrence McClendon
8	$(c \% d) / (d - a * b) + (b^2 - c^3)$	Susmita Atluri
9	$((a * b) + (c \% a)) - (d * b^3 / a^2)$	Lemnyuy Bernard
10	$(a + b)^3 - (a - b)^2 * (b/c) + (d \% a)$	Harene Natarajan
11	$(b^2 - c^3) * (a + d - b) / (a \% b)$	Ravi Ankamma
12	$(a^2 / c) - (b + d)^2 \% (c * a - b)$	Mike Hill
13	$(a * b \% d) + (a - b^3 / c^2) - (a / d)$	Alvin Yuan
14	$(a * b)^2 / (c + d - b) \% (a^3 + b^2)$	Pratik Jannela
15	$(d - a)^3 * (c + b \% a) - (a / (b - c)^2)$	Naquisha Jackson
16	$(a \% b) + (b^3 + c^2) * d - (b / c)^3$	Madhusudhana Janga

What to Submit
(1) Hardcopy of your Java code, along with the screenshots of the outputs for different inputs. Clearly list the different test cases. Submit the hardcopy in class on April 2nd.
(2) Record your video, explaining the different functions of your code, starting from the main function. Also, illustrate the execution of your code for different inputs/test cases. Upload the video through GoogleDrive and e-mail the link to natarajan.meghanathan@jsums.edu

Selecting Test Cases:
You can refer to the attached slides (in the course website, next to this project posting) on Equivalence Partitions and use it as a reference and come up with the various test cases to test your project.