EECS 1022 P Jan 13 Lecture

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Do This Week

- Lab Shake & Colour: prepare, do pre-lab quiz, go to your lab section, and do report
- Read Ch 3 of textbook
- The Sandbox1 project (see announcement on Moodle)
- Read and digest lecture material
- Do assignment 2
- The ePortfolio URL mentioned in the lab ePub is incorrect. The correct one is:
  http://eportfolio.eecs.yorku.ca/

Integer Arithmetic Issues

- For integer types such as `int` and `long`, division by 0 (an undefined operation) result in `ArithmeticException` being thrown.
- Programmer can catch it and try to recover.

Integer Arithmetic Over/Under-flow

- The integer types are closed by treating the range as circular.
- No exception is thrown for overflow and underflow.
- If appropriate, programmer can add tests to detect overflow and underflow.
- `java.lang.Math` provides methods that do arithmetic and throw `ArithmeticException` in case of overflow and underflow.
- `BigInteger` provides other arbitrary-precision arithmetic.

Real Arithmetic Issues

- Real types `float` and `double` provide closure by adding special values `+Infinity` and `−Infinity` to the range.
- No exception is thrown for undefined operations like division by 0; instead the special value `NaN` (not a number) is the result.