Assignment 1: Reverse Number Generation

Data Structure and Algorithms

Hanjun Kim

Compiler **O**ptimization **Re**search **Lab**

Yonsei University

How to reverse a number

- Algorithm
  1. Declare given, reverse and modulus numbers, and initialize them
     - int reverse = 0
     - int given, modulus = 0
     - cin >> given
  2. Initialize a reverse number to 0
     - reverse = 0
  3. Divide the given number by 10 and find modulus
     - modulus = given % 10
  4. Multiply the reverse number by 10
     - reverse *= 10
  5. Add the modulus and reverse number
     - reverse += modulus
  6. Divide a given number by 10
     - given /= 10
  7. Repeat the step from 3 to 6 until the output comes

Assignment: Reverse number generation

- Implement a program that generates a reverse number for an input with additional rules
  - Rule 1: Reverse the input number
  - Rule 2: Write the modulus twice if the modulus is even
  - Rule 3: Print an error message if the input is a negative number
    (Use try-catch statement)
  - We will assume that the input values include only numbers.
- Example
  - Input: 123 -> Output: 3221
  - Input: 135 -> Output: 531
  - Input: 1230 -> Output: 3221
  - Input: -123 -> Output: Negative number!

Assignment: Reverse number generation

- Given files
  - main.cpp, reverse.h, reverse.cpp: an overall structure of the program
- Update and submit reverse.cpp and README files to LearnUs
- Due: 11:00PM on April 4th