SOFTWARE 4:
HAILSTONE NUMBERS

STUDENT RUBRIC

DEMO RUBRIC

Completion Requirements:

- ✓ The final diagram should have the same basic component layout as the lab instructions. Do not use hex keyboards and hex displays, as they will not suffice for the input and output requirements of this lab.
- ✓ You must label your binary switches and outputs. The final circuit should be highly organized, since the wiring can get rather convoluted in this lab.

REPORT RUBRIC

Since this lab covers content that was on the last exam, the theory section is very light, and the deliverables section is fairly simple. Consequently, MUCH emphasis is placed on the question, as it is the only part of this lab assignment that deals with new content.

Scoring (out of 3 points):

- ✓ **[0.6 points]** Theory:
  - [0.4] Briefly describe how the operations (3x+1 and x//2) are implemented. These descriptions should be no more than a couple sentences each.
  - [0.2] How does the multiplexor detect whether the number is odd/even and switch between operations?

- ✓ **[0.4 points]** Deliverables:
  - [0.4] Include six test cases. Three of these should be odd values, and the other three even. The input is 5 bits and the output is 7 bits.

- ✓ **[0.4 points]** Discussion section. Should conform to standard lab report guidelines.

- ✓ **[1.6 points]** Question 1: Continuous Generation
  "What could you add to your design to enable the Hailstone sequence to be continuously generated?"
  - The response to this question should be highly detailed and *specific*. A strong answer will take up roughly half of a page, and maybe include a diagram. Make sure to reference both the mechanism for continuous generation and the potential pitfalls of our existing design.
  - *Note: You'll need to review module 10 to effectively answer this question. Vague or general responses will not be graded favorably.*