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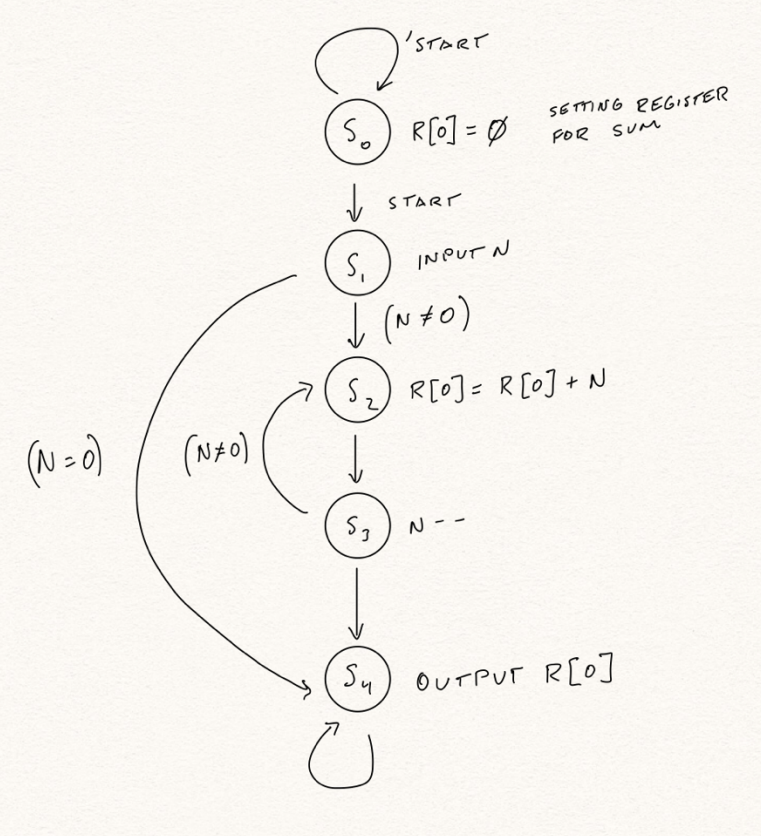
Instructor's comments:

## Introduction / Theory of operation

- For this lab experiment, we will be designing the control unit for the GDP that was designed in lab experiment #6. We will be creating the CU module to implement the summation algorithm, instantiate it within the top-level GDP module, verify it with a testbench and waveform and display it on the DE2 board.

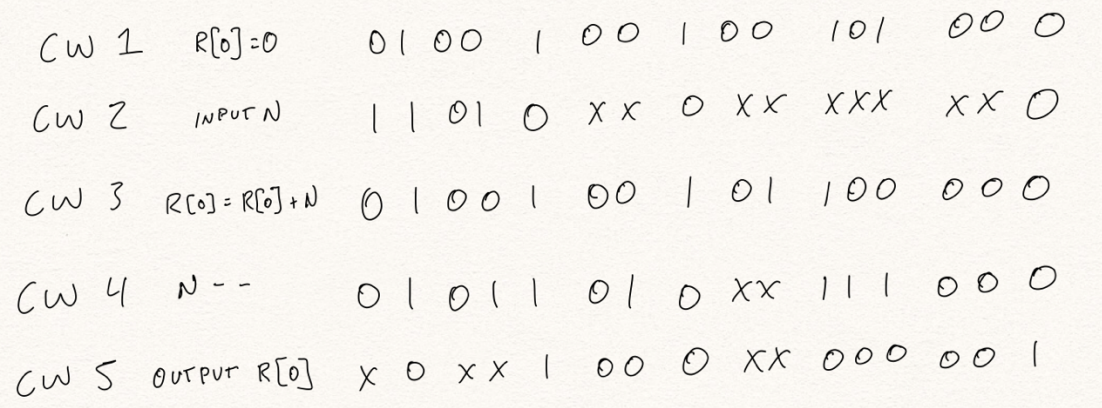
## Prelab main content

*1. Implement a state graph for the summation algorithm and verify it with fig 4. Is it possible to have a different state graph than the one mentioned in fig 4?*




It is not possible to have a different state graph than the one mentioned in fig 4. This is because the state graph follows specific steps, states and next states in order to implement the algorithm.

*2. Implement the control words for the state graph that you created in 1 and verify it with fig 6. Is it possible to have a different control words than the one mentioned in fig 6?*




It is possible to have different control words because someone may use different registers to store the value of sum and input n. Changing the register will cause a change in the control words. Instead of 00, one may use 01, 10, or 11 this will cause the control words to be different than the control words that I created.