Notes on Computer Project #4

Comments about the assignment and responses to frequently asked questions will be added to this file as necessary.

***** comments added on 09/17/18 *****

1) Please note the following statement from the assignment handout:

  The deliverables for this assignment are:

    proj04.design   -- the text file for your design
    proj04.netlist.c -- the implementation file for your solution

  Be sure to use the specified file names, and to submit your files for
  grading via the "handin" program.

It is possible to submit your solution files multiple times: the last files which you submit will be graded.

2) The following is a more complete example than is given on the handout. Assume the circuit is designed to process the following PID:

  A20019802

After removing all but the first occurrence of each digit, the remaining unique digits of this PID are:

  A20198

Thus, this circuit will generate a 4-bit representation of the sequence:

  A20198A20198A... (repeating the original order of the digits)

The Boolean functions which generate the four-bit hexadecimal digits in this sequence can be reduced to:

  W = z + wy'
  X = 0
  Y = wz'
  Z = w'y'

Four D flip-flops will be used to store the current hexadecimal digit, which is the input to the combinational logic.

3) The "component" that you are to develop is a specialized counter. It will receive two input signals (Init and Clock in the diagram above) and will produce four output signals representing the four-bit count (w, x, y and z in the diagram above).

Thus, function "circuits" in your "sim" implementation should contain the four D flip-flops, as well as the combinational logic to advance to the next count in the sequence.

Function "simnet", which is the test fixture for the specialized counter, should contain the two pulsers used to generate the initialization and clock signals, and the four probes used to display the four-bit count.

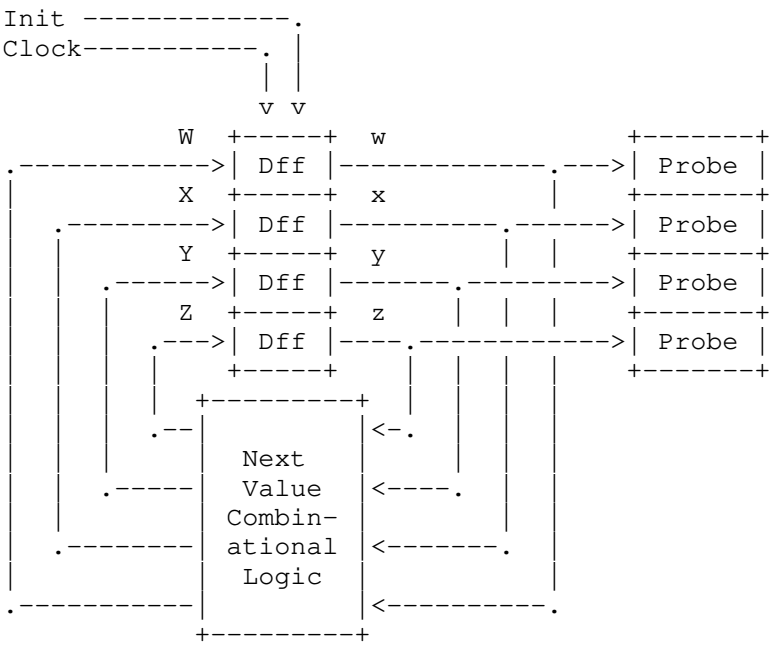
The declaration of function "circuits" should be:

```
  void circuits( SD, Signal, Signal, Signal, Signal, Signal, Signal );
```

The six signals should have the following meanings:

1) Initialization signal
2) Clock signal
3) Four-bit count (most significant bit first)

4) A diagram of your circuit might appear as follows:



The only four inputs to the combinational logic are the outputs of the four D flip-flops.

--M. McCullen