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-- Name:     Roger Grayson
-- Date:     9-10-02
-- Purpose:  Generic     N-bit Comparator
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library IEEE;
use IEEE.std_logic_1164.all;
use ieee.std_logic_unsigned.all;

entity compare is
    generic(N:integer:=2);
    port( A,B: in std_logic_vector(N-1 downto 0);
        E,L,G: out std_logic);
end compare;

architecture process_arch of compare is

begin
    process(A,B)
    begin
        E <= '0'; L <= '0'; G <= '0';  --initialize
        if A = B then E <='1'; end if;
        if A > B then G <='1'; end if;
        if A < B then L <='1'; end if;
    end process;
end process_arch;

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-- Name:     Roger Grayson
-- Date:     11-5-02
-- Purpose:  1-bit comparator
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library IEEE;
use IEEE.std_logic_1164.all;
use ieee.std_logic_unsigned.all;

entity compare1 is
    port( A,B: in std_logic;
        E,L,G: out std_logic);
end compare1;

architecture process_arch of compare1 is

begin
    process(A,B)
    begin
        E <= '0'; L <= '0'; G <= '0';  --initialize
        if A = B then E <='1'; end if;
        if A > B then G <='1'; end if;
        if A < B then L <='1'; end if;
    end process;
end process_arch;
```