Magnitude Comparator

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```
library IEEE;
use IEEE.STD_LOGIC_1164.all;
use IEEE.NUMERIC_STD.all;
entity CmpN is
generic (N  : positive := 8);
port(input0 : in std_logic_vector(N-1 downto 0);
     input1 : in std_logic_vector(N-1 downto 0);
      equal : out std_logic;
   notEqual : out std_logic;
   ltSigned : out std_logic;
 ltUnsigned : out std_logic);
end CmpN;
architecture Behavioral of CmpN is
begin
      equal <= '1' when (input0 = input1) else '0';
      notEqual <= '1' when (input0 /= input1) else '0';
      ltSigned <= '1' when (signed(input0) < signed(input1)) else '0';
      ltUnsigned <= '1' when (unsigned(input0) < unsigned(input1)) else '0';
end Behavioral;
```