Practica8. Diagramas de estado.

**Experimento 1.** Codifica en VHDL el contador ascendente de 4 bits

```vhdl
library ieee;
use ieee.std_logic_1164.all;

entity cnt2bitc is
  port (clk, reset: in std_logic;
        count: out std_logic_vector(1 downto 0));
end;

architecture behavior of cnt2bitc is
  subtype state is std_logic_vector (1 downto 0);
  signal present_state, next_state : state;
  constant state0: state := "00";
  constant state1: state := "01";
  constant state2: state := "10";
  constant state3: state := "11";

begin
  process (clk)
  begin
    if rising_edge(clk) then
      if ( reset='1' ) then
        present_state <= state0;
      else
        present_state <= next_state;
      end if;
    end if;
  end process;

  process (present_state)
  begin
    case present_state is
    when state0 =>
      next_state <= state1;
    when state1 =>
      next_state <= state2;
    when state2 =>
      next_state <= state3;
    when state3 =>
      next_state <= state0;
    when others =>
      next_state <= state0;
    end case;
    count <= present_state;
  end process;

end behavior;
```
Experimento 2. Crea top.

Experimento 3. Crea TOP