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-- Company:
-- Engineer:
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-- Create Date: 04.01.2022 11:43:52
-- Design Name:
-- Module Name: DFM - Behavioral
-- Project Name:
-- Target Devices:
-- Tool Versions:
-- Description:
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-- Dependencies:
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-- Revision:
-- Revision 0.01 - File Created
-- Additional Comments:
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```

```
library IEEE;
use IEEE.STD_LOGIC_1164.ALL;
use IEEE.NUMERIC_STD.ALL;
```

```
entity DFM is
    Port ( CLK : in STD_LOGIC;
           Btn : in STD_LOGIC;
           Niveau : out STD_LOGIC;
           Detect : out STD_LOGIC);
end DFM;
```

```
architecture Behavioral of DFM is
```

```
    signal BtnCurr,BtnPrev : STD_LOGIC:= '0';
    signal Q,D : STD_LOGIC_VECTOR(1 downto 0):= "00";
    signal EF,EP : STD_LOGIC:= '0';
```

```
begin
    --PARTIE 1
    process(CLK) begin
        if RISING_EDGE (CLK)then
            BtnCurr <= Btn;
            BtnPrev <= BtnCurr;
        end if;
    end process;

    --PARTIE 2 début
    D(1) <= (NOT(Q(1)) and Q(0)) or ((Q(1) and NOT(Q(0)))
    and (BtnCurr or BtnPrev));

    D(0) <= (NOT(Q(1)) and NOT(Q(0))) and(BtnCurr and
    NOT(BtnPrev));

    process(CLK) begin
        if RISING_EDGE (CLK)then
            Q(1) <= D(1);
            Q(0) <= D(0);
        end if;
    end process;
    -- PARTIE 2 fin

    -- PARTIE 3
    EF <= EP XOR Q(0);

    process(CLK) begin
        if RISING_EDGE (CLK)then
            EP <= EF;
        end if;
    end process;

    Detect <= Q(0);
    Niveau <= EP;

end Behavioral;
```