From the circuit diagram, the BTNx is active High or active Low? Please provide your analysis.

Since the button gives 3.3v when pressed, and 0v when idle, it's **Active High**

What is a bounce? How do you programmatically debounce the input? Please provide your analysis.

Bounce means when the physical input oscillates cause digital input read value switched between 0 and 1 rapidly for a period of time.

To debounce divide a clock into slower cycle holding time for input to get steady.

Please show your method for implementing a single pulser. (e.g. draw a state diagram, or verilogHDL code)

```verilog
module singlePulser(
   output reg d,
   input clk, pushed
);
reg ps;

initial ps=0;

always @(posedge clk)
begin
  d = 0;
  if (pushed == ~ps) begin
    if(ps == 1)
       ps=0;
    else if (pushed == 1) begin
       d = 1;
       ps = 1;
    end
  end
end
endmodule
```