perplexity

# Please generate a 32-bit Barrel Shifter with Rotation Control design in Verilog defined as:

module barrel_shift_32_w_rotation_ctrl(sel_left_or_right_rotate, inputData[31:0], shiftVal[4:0], outputData[31:0]);
//Insert code here
endmodule

```
module barrel_shift_32_w_rotation_ctrl(
    input sel_left_or_right_rotate, // 0 for left shift, 1 for left rotate, 2 for right s
    input [31:0] inputData,
    input [4:0] shiftVal,
    output reg [31:0] outputData
);

    reg [31:0] tempData;

    always @(sel_left_or_right_rotate, inputData, shiftVal) begin
        case (sel_left_or_right_rotate)
            0: // Left shift
                outputData = inputData << shiftVal;
            1: // Left rotate
                tempData = inputData << shiftVal;
                outputData = {tempData[31 - shiftVal:0], inputData[31:32 - shiftVal]};
            2: // Right shift
                outputData = inputData >> shiftVal;
            3: // Right rotate
                tempData = inputData >> shiftVal;
                outputData = {inputData[shiftVal - 1:0], tempData[31:shiftVal]};
            default:
                outputData = inputData;
        endcase
    end

endmodule
```