perplexity

# We will be generating a 32-bit Barrel Shifter with Rotation Control hierarchically in Verilog. Please begin by generating a 8-bit Barrel Shifter defined as follows:

module barrel_shift_8(inputData[7:0], shiftVal[2:0], outputData[7:0])

```
module barrel_shift_8(
    input  [7:0] inputData,
    input  [2:0] shiftVal,
    output [7:0] outputData
);

    wire [7:0] shifted_1;
    wire [7:0] shifted_2;
    wire [7:0] shifted_4;

    assign shifted_1 = (shiftVal[0]) ? {inputData[6:0], inputData[7]} : inputData;
    assign shifted_2 = (shiftVal[1]) ? {shifted_1[5:0], shifted_1[7:6]} : shifted_1;
    assign shifted_4 = (shiftVal[2]) ? {shifted_2[3:0], shifted_2[7:4]} : shifted_2;

    assign outputData = shifted_4;

endmodule
```