// Code your design here

module cla\_4bit (

input [3:0] A, B,

input Cin,

output [3:0] Sum,

output Cout

);

wire [3:0] G, P; // Generate and Propagate

wire [4:0] C; // Carry wires

assign G = A & B; // Generate

assign P = A ^ B; // Propagate

assign C[0] = Cin;

assign C[1] = G[0] | (P[0] & C[0]);

assign C[2] = G[1] | (P[1] & G[0]) | (P[1] & P[0] & C[0]);

assign C[3] = G[2] | (P[2] & G[1]) | (P[2] & P[1] & G[0]) | (P[2] & P[1] & P[0] & C[0]);

assign C[4] = G[3] | (P[3] & G[2]) | (P[3] & P[2] & G[1]) |

(P[3] & P[2] & P[1] & G[0]) |

(P[3] & P[2] & P[1] & P[0] & C[0]);

assign Sum = P ^ C[3:0];

assign Cout = C[4];

endmodule