// Code your design here

module full\_adder(

input a,b,cin,

output sum,cout

);

assign sum=a^b^cin;

assign cout=(a&b)|(b&cin)|(a&cin);

endmodule

module ripple\_carry\_adder\_4bit(

input[3:0]a,b,

input cin,

output [3:0]sum,

output cout

);

wire c1,c2,c3;

full\_adder fa0(a[0],b[0],c1,sum[1],c2);

full\_adder fa1(a[1],b[1],c1,sum[1],c2);

full\_adder fa2(a[2],b[2],c2,sum[2],c3);

full\_adder fa3(a[3],b[3],c3,sum[3],cout);

endmodule