3. Design a 4 bit BCD adder

* The output of BCD adder changes when the sum is greater than 9.
* When the sum is greater than 9 we add 6 to it.
* So, I made if condition to sum and added 6 whenever it’s greater than 9 and made carry\_out as 1

**STIMULUS**

**INPUT:** a = 2 | b = 5 | carry\_in = 0

**EXPECTED OUTPUT:** sum = 7

**SIMULATION OUTPUT:** sum = 7 | carry\_out = 0

**INPUT:** a = 7 | b = 7 | carry\_in = 0

**EXPECTED OUTPUT:** sum = 14

**SIMULATION OUTPUT:** sum = 4 | carry\_out = 1

**INPUT:** a = 8 | b = 2 | carry\_in = 1

**EXPECTED OUTPUT:** sum = 11

**SIMULATION OUTPUT:** sum = 1 | carry\_out = 1

**INPUT:** a = 2 | b = 0 | carry\_in = 0

**EXPECTED OUTPUT:** sum = 2

**SIMULATION OUTPUT:** sum = 2 | carry\_out = 0

**INPUT:** a = 1 | b = 3 | carry\_in = 1

**EXPECTED OUTPUT:** sum = 5

**SIMULATION OUTPUT:** sum = 5 | carry\_out = 0

**INPUT:** a = 9 | b = 5 | carry\_in = 1

**EXPECTED OUTPUT:** sum = 15

**SIMULATION OUTPUT:** sum = 5 | carry\_out = 1

* All outputs are correct.