**Code:**

* **Design Module**

// Code your design here

// Takes two numbers; perform the desired operation(+, -, x, /)

// 08 bits inputs

module calculator( input wire [7:0] first\_num, // first operand

input wire [7:0] second\_num, // second operand

// 2 bits operation 00 = plus; 01 = minus; 10=mult; 11=div;

input wire [1:0] operation,

output wire [15:0] result );

reg [15:0] temp\_out;

always@(\*)

begin

if(operation == 2'b0)

temp\_out = first\_num + second\_num; // Add operation

else if(operation == 2'b01)

temp\_out = second\_num - first\_num; // sub operation

else if(operation == 2'b10)

temp\_out = first\_num \* second\_num; // multiplication operation

else if(operation == 2'b11)

temp\_out = first\_num/second\_num; // divide operation

end// end always block

assign result = temp\_out;

endmodule

* **TestBench**

// Code your testbhttps://www.edaplayground.com/x/9Ajk#testbench0ench here

// or browse Examples

module calc\_tb();

reg[7:0] num\_a;

reg[7:0] num\_b;

reg[1:0] oper;

wire[15:0] res;

//instantation - telling that calc ky name sy caulator wala function banao aur yeh values dalo

calculator calc(num\_a,num\_b,oper,res);

// values do

initial begin

#10

num\_a = $random;

num\_b = $random;

#10

oper = 0;

#10

oper = 1;

#10

oper = 2;

#10

oper = 3;

#10

$finish;

end

//for wave-form in eda playground

// initial begin

// $dumpfile("dump.vcd");

// $dumpvars();

// #100

// $finish;

// end

endmodule

**Output:**

A screenshot of a computer

Description automatically generated with medium confidence