

Vector0 ○

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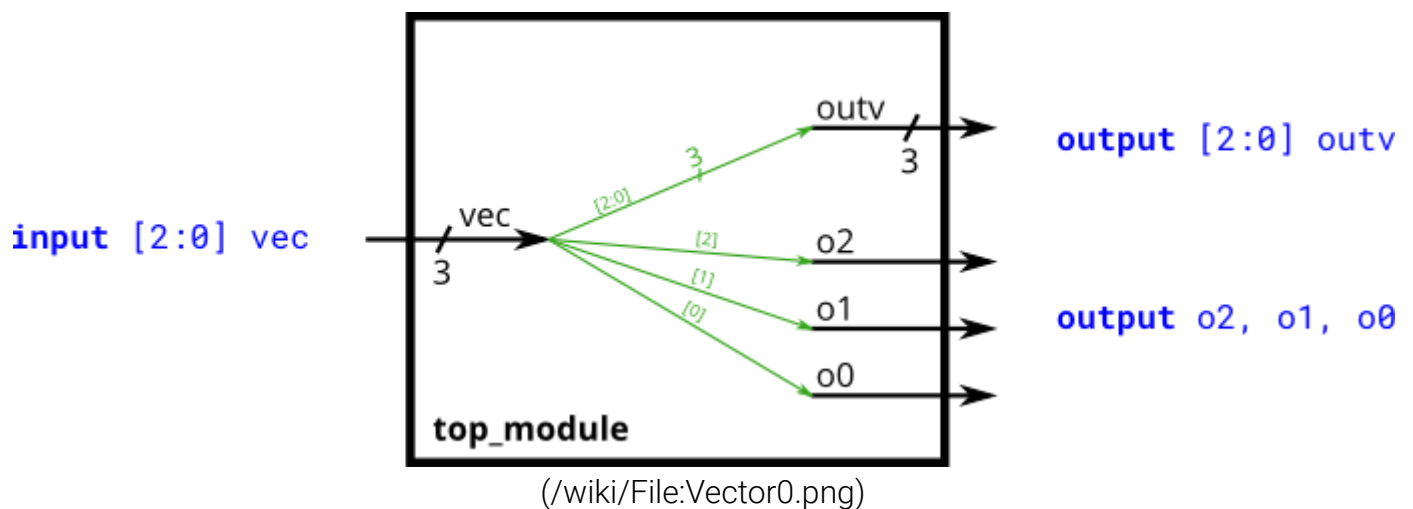
Vectors are used to group related signals using one name to make it more convenient to manipulate. For example, `wire [7:0] w;` declares an 8-bit vector named `w` that is functionally equivalent to having 8 separate wires.

Notice that the *declaration* of a vector places the dimensions *before* the name of the vector, which is unusual compared to C syntax. However, the *part select* has the dimensions *after* the vector name as you would expect.

```
wire [99:0] my_vector;      // Declare a 100-element vector
assign out = my_vector[10]; // Part-select one bit out of the vector
```

Build a circuit that has one 3-bit input, then outputs the same vector, and also splits it into three separate 1-bit outputs. Connect output `o0` to the input vector's position 0, `o1` to position 1, etc.

In a diagram, a tick mark with a number next to it indicates the width of the vector (or "bus"), rather than drawing a separate line for each bit in the vector.



Module Declaration

```
module top_module (
    input wire [2:0] vec,
    output wire [2:0] outv,
    output wire o2,
    output wire o1,
    output wire o0 );
```

Write your solution here

```
1 module top_module (  
2     input wire [2:0] vec,  
3     output wire [2:0] outv,  
4     output wire o2,  
5     output wire o1,  
6     output wire o0 ); // Module body starts after module declaration  
7  
8 endmodule  
9
```

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Solution

Complete problem first to see solution

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