Vector2 ✓

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A 32-bit vector can be viewed as containing 4 bytes (bits [31:24], [23:16], etc.). Build a circuit that will reverse the *byte* ordering of the 4-byte word.

```
aaaaaaaabbbbbbbbccccccccdddddddd => ddddddddccccccccbbbbbbbbaaaaaaaa
```

This operation is often used when the endianness (https://en.wikipedia.org/wiki/Endianness) of a piece of data needs to be swapped, for example between little-endian x86 systems and the big-endian formats used in many Internet protocols.

Module Declaration

```
module top_module(
    input [31:0] in,
    output [31:0] out );
```

Hint...

Part-select can be used on both the left side and right side of an assignment.

Write your solution here

```
module top_module(
    input [31:0] in,
    output [31:0] out );//

    // assign out[31:24] = ...;

endmodule

```

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Solution

Show solution

```
module top_module (
    input [31:0] in,
    output [31:0] out
);

    assign out[31:24] = in[ 7: 0];
    assign out[23:16] = in[15: 8];
    assign out[15: 8] = in[23:16];
    assign out[ 7: 0] = in[31:24];

endmodule

```

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