

Decoders

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Introduction

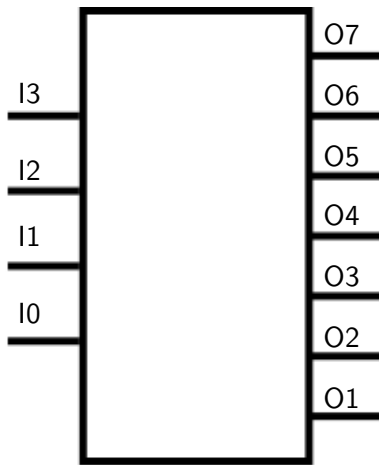
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In principle, virtually any combinational logic circuit could be thought of as some kind of “decoder”.



Here's a generic decoder.

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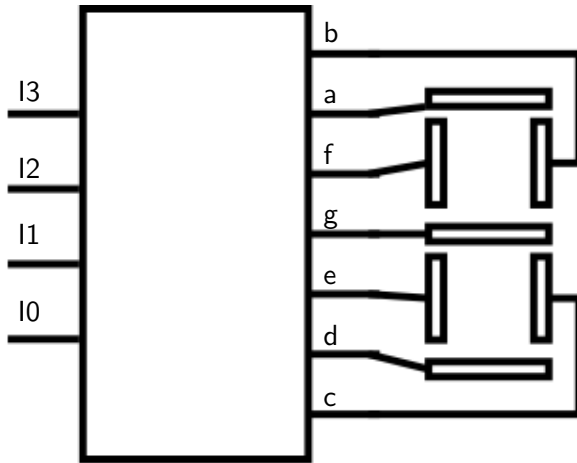
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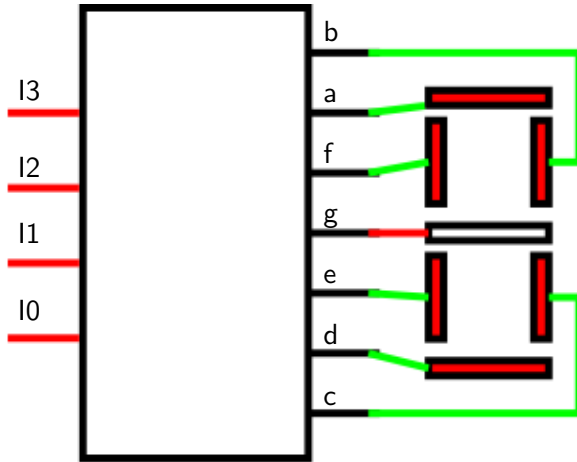
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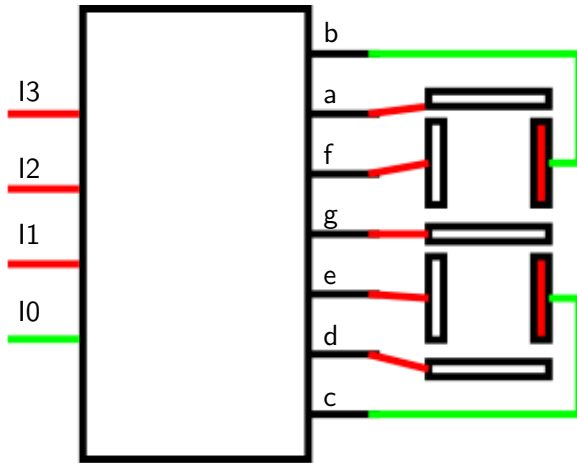
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BCD to 7 segment conversion is a good example of the use of a decoder.



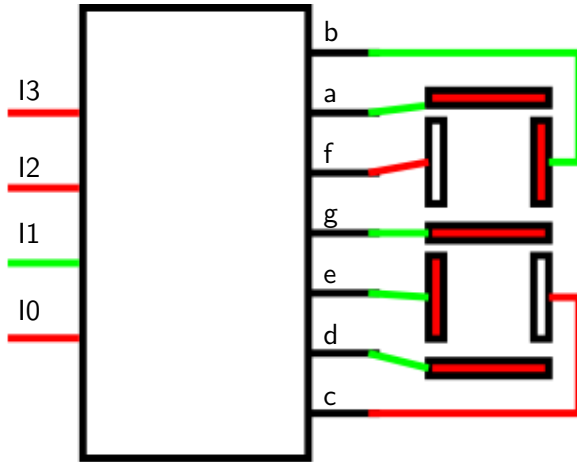
Here's a BCD to 7 segment decoder, shown with a 7 segment display.



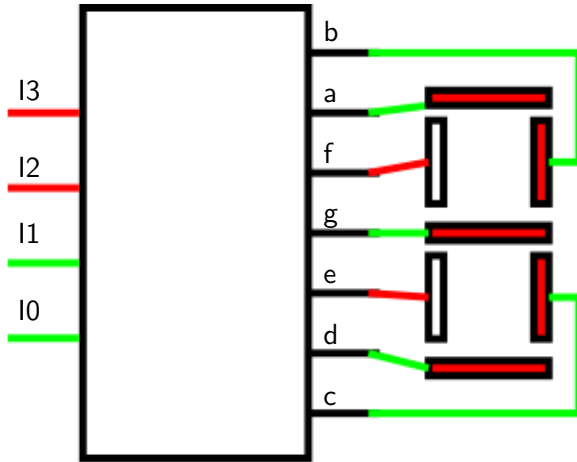
Operation for the input number 0



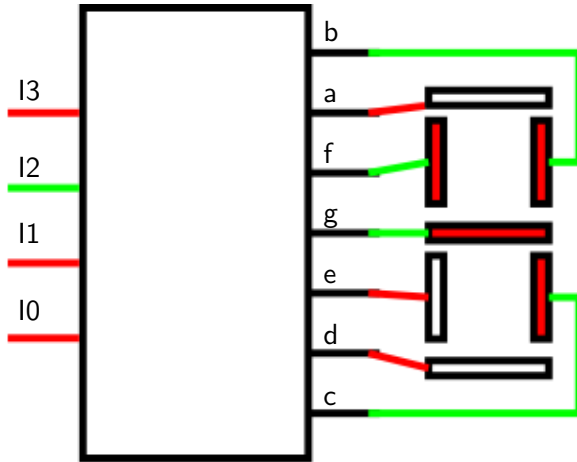
Operation for the input number 1



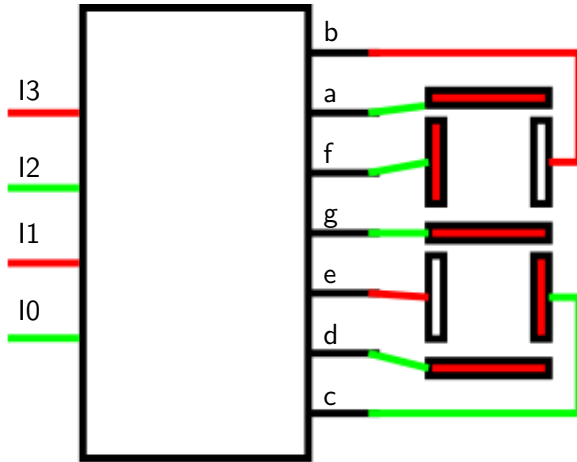
Operation for the input number 2



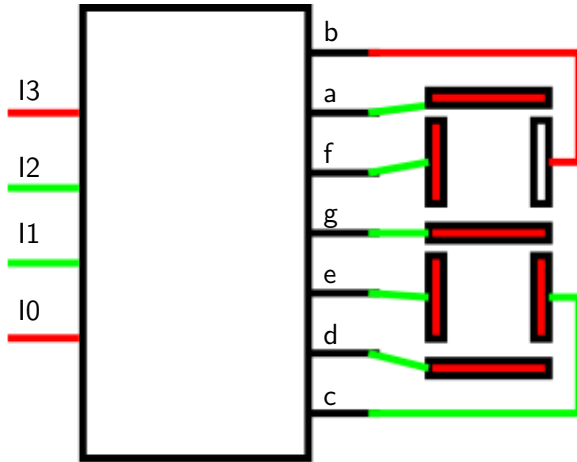
Operation for the input number 3



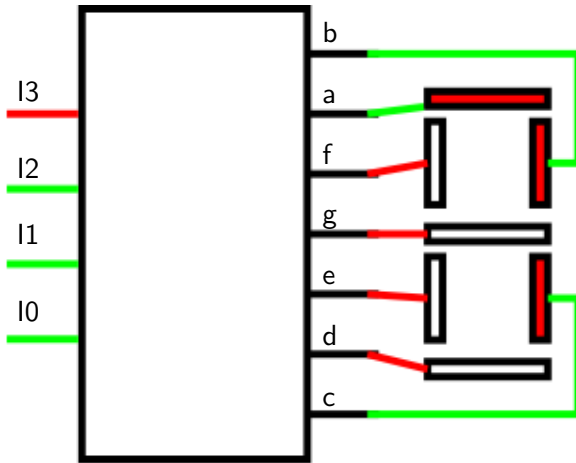
Operation for the input number 4



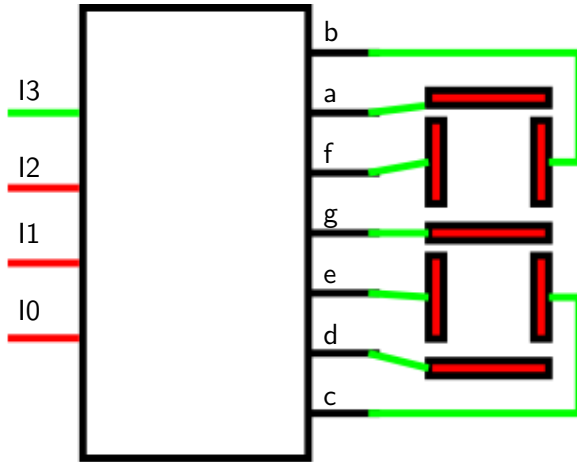
Operation for the input number 5



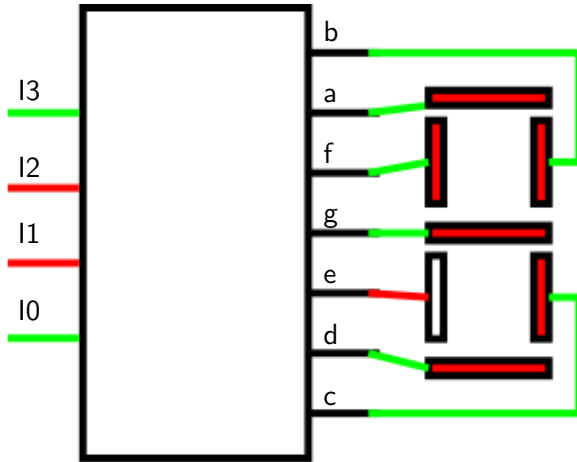
Operation for the input number 6



Operation for the input number 7



Operation for the input number 8



Operation for the input number 9

For a BCD to 7 segment decoder, hexadecimal inputs from A to F are not valid, so the behaviour in this example has not been specified.

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There may be additional inputs on a decoder such as this to do things like turn all of the segments on or off for testing purposes.