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## 4-bit comparator

X75958\_en

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Design a circuit that compares two 4-bit numbers represented in binary code and indicates whether the first is greater than, equal to or smaller than the second.

### Specification

```
module cmp4(a, b, eq, gt, lt);  
    input [3:0] a, b;  
    output eq, gt, lt;
```

### Hint

Design a 1-bit comparator that receives the result of the comparison of the least-significant bits. Use four instances of this circuit.

### Input

- $a$  and  $b$  are the two 4-bit input numbers.

### Output

- $eq$  indicates that  $a=b$ .
- $gt$  indicates that  $a>b$ .
- $lt$  indicates that  $a<b$ .

### Problem information

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