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## Sequence 110

X10202\_en

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Design a sequential circuit with one binary input and one binary output. The output must be 1 at cycle  $i$  when the inputs at cycles  $i - 2$ ,  $i - 1$  and  $i$  are 110, otherwise the output must be 0.

### Specification

```
module find110(in, out, clk, rst);  
    input in, clk, rst;  
    output out;
```

### Hint

The state machine can be implemented with 3 states.

### Input

- $clk$  is the clock signal
- $rst$  is the synchronous reset signal.
- $in$  is the binary input.

### Output

- $out$  is the output that behaves according to the specification.

### Problem information

Author : Jordi Cortadella

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