Princeton University
COS 217: Introduction to Programming Systems
A Two-Bit Counter Circuit

Description

The circuit should have one input and two flip flops. If the input is 1, then increment the two-digit binary number represented by the flip flops. If the input is 0, then decrement that binary number.

State Machine

```
00  01  10  11
00  0  0
01  0  0
10  1  1
11  1  1
```

Truth Table

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>x</th>
<th>next A</th>
<th>next B</th>
</tr>
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<tbody>
<tr>
<td>0</td>
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</table>

Boolean Expressions:


Circuit Description:

```
INPUT x ;
FLIPFLOP A B ;
```

Circuit

(See reverse)

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