Karnaugh Maps for Programming

```c
if (((S <6) && (L>10)) ||
    ((S>=6) && (N==G) && (L>10)) ||
    ((N==G) && (L<=10)) ||
    ((S>=6) && (N==G)) ||
    ((S>=6) && (N!=G) && (L>10)) ) {
    print "OK";
}
```

Fill Table with IF Clauses

<table>
<thead>
<tr>
<th>L</th>
<th>S</th>
<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

if (N==G) || (L>10)

Feedback

- Combinatorial circuits do not have feedback.

SR Flip Flops

- Can remember a bit
- A NOR gate implementation of SR latch

D Flip-Flop

- The D latch or flip flop avoids the SR = 11 state
- Consider the clock as an "enable" signal.

Register Organization

- Below is a 4 bit register made of D flip-flops.
- When the clock is true, the output of all flip-flops is set to the input value.
- The output is always the last input value.