cc3.12/cis1.0 computing: nature, power and limits—robotics applications	iteration
lecture # V.1	<ul> <li>iteration means doing something more than once, perhaps doing something over and over and over and and over again</li> </ul>
iteration and branching <ul> <li>iteration</li> <li>jumps</li> </ul>	<ul> <li>as you encountered in the last unit, there are times when you tell your robot to do something once, and you'd like to be able to tell it to do that thing more than once—without having to repeat the code again</li> </ul>
• loops	• in RoboLab, there are several ways to do this: <i>jumps</i> and <i>loops</i>
• event-driven programming (review)	• jumps provide a way to construct an infinite loop
• conditional execution	• <i>loops</i> provide a way to construct a controlled, non-infinite loop
• conditional repetition	
resources:	
• reading: Reed chapter 13	
c3.12-fall2007-sklar-lecV.1 1	cc3.12-fall2007-sklar-lecV.1 2
jumps	loops
• a <b>jump</b> has two icons associated with it:	<ul> <li>controlled, non-infinite loops have an end (whereas jumps are a way of writing infinite, never-ending loops)</li> </ul>
— land is placed before the first icon in the group of icons you want to repeat	• loops end in two ways:
- <b>jump</b> is placed <i>after the last icon</i> in the group of icons you want to repeat	<ul> <li>because they have run for a certain number of times; these are called counter-controlled loops</li> </ul>
Example.	<ul> <li>because a condition has changed that causes them to stop running; these are called <i>condition-controlled</i> loops</li> </ul>
<ul> <li>RoboLab has 5 colors of jumps: black, blue, green, red and yellow. you can use any color you want, but the jump and land have to match (i.e., they have to be the same color!)</li> </ul>	



cc3.12-fall2007-sklar-lecV.1















in RoboLab, the following icons facilitate condition-controlled loops:
<ul> <li>for the light sensor loops, you have to hang a <i>loop counter</i> (numeric constant) from the "start of loop" icon indicating the number of times you want the loop to run</li> </ul>
• for all the sensor-based loops, you have to hang the <i>port number</i> from the "start of loop" icon indicating which port the sensor is connected to
• for all the loops, the icons above show the "start of loop" icon; to end the loops, you use the <i>end-of-loop</i> at the end of the loop
cc3.12.5/10007.cklay.lex// 1
CC.).1218//20175/06/19CV 1