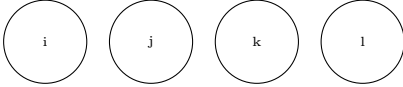
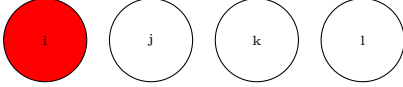
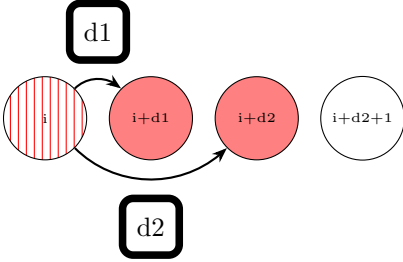
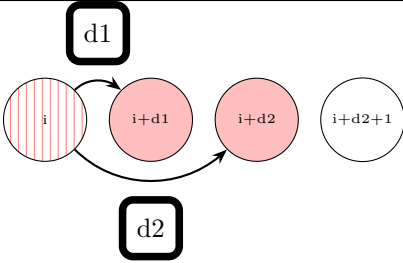
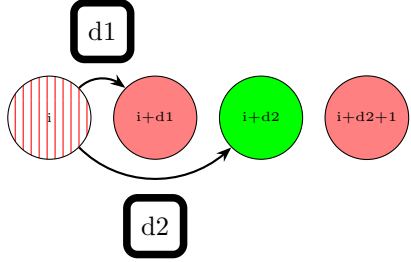
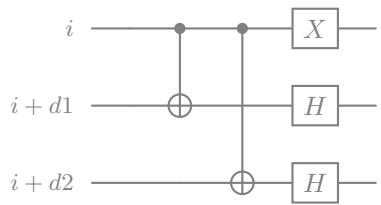




Move name	Move	Python list	Quantum array	Qiskit
Initialize		<code>board=[None] * 32</code>	$i$ $ 0\rangle$ ——— $j$ $ 0\rangle$ ——— $k$ $ 0\rangle$ ——— $l$ $ 0\rangle$ ———	<code>q = QuantumRegister(10, 'q')</code> <code>circuit = QuantumCircuit(q)</code>
New pawn		<code>board[i] = {</code> <code>  'color' : red,</code> <code>  'probability' : 1,</code> <code>  'pawn' : 1 }</code>	$i$ ——— $X$ ——— $j$ ——— $k$ ——— $l$ ———	<code>circuit.x[q[i]]</code>
First move		<code>board[i] = None</code> <code>board[i+d1, i+d2] = {</code> <code>  'color' : red,</code> <code>  'probability' : 0.5,</code> <code>  'pawn' : 1 }</code>	$i$ ——— $X$ ——— $i + d1$ ——— $\oplus$ ——— $H$ ——— $i + d2$ ——— $\oplus$ ——— $H$ ———	<code>circuit.cx(q[i], q[i+d1])</code> <code>circuit.cx(q[i], q[i+d1])</code> <code>circuit.h(q[i+d1])</code> <code>circuit.h(q[i+d2])</code> <code>circuit.x(q[i])</code>
nth move		<code>board[i] = None</code> <code>board[i+d1, i+d2] = {</code> <code>  'color' : red,</code> <code>  'probability' : (1/2)<sup>n</sup>,</code> <code>  'pawn' : 1 }</code>	$i$ ——— $H$ ——— $X$ ——— $i + d1$ ——— $\oplus$ ——— $H$ ——— $i + d2$ ——— $\oplus$ ——— $H$ ———	<code>circuit.h(q[i])</code> <code>circuit.cx(q[i], q[i+d1])</code> <code>circuit.cx(q[i], q[i+d1])</code> <code>circuit.h(q[i+d1])</code> <code>circuit.h(q[i+d2])</code> <code>circuit.x(q[i])</code>

Move name	Move	Python list	Quantum array	Qiskit
full-full capture		<pre>board[i] = None board[i+d1, i+d2+1] = {     'color': red,     'probability': (1/2)<sup>n</sup>,     'pawn': 1}</pre>		<pre>circuit.h(q[i]) circuit.cx(q[i], q[i+d1]) circuit.cx(q[i], q[i+d1]) circuit.h(q[i+d1]) circuit.h(q[i+d2]) circuit.x(q[i])</pre>