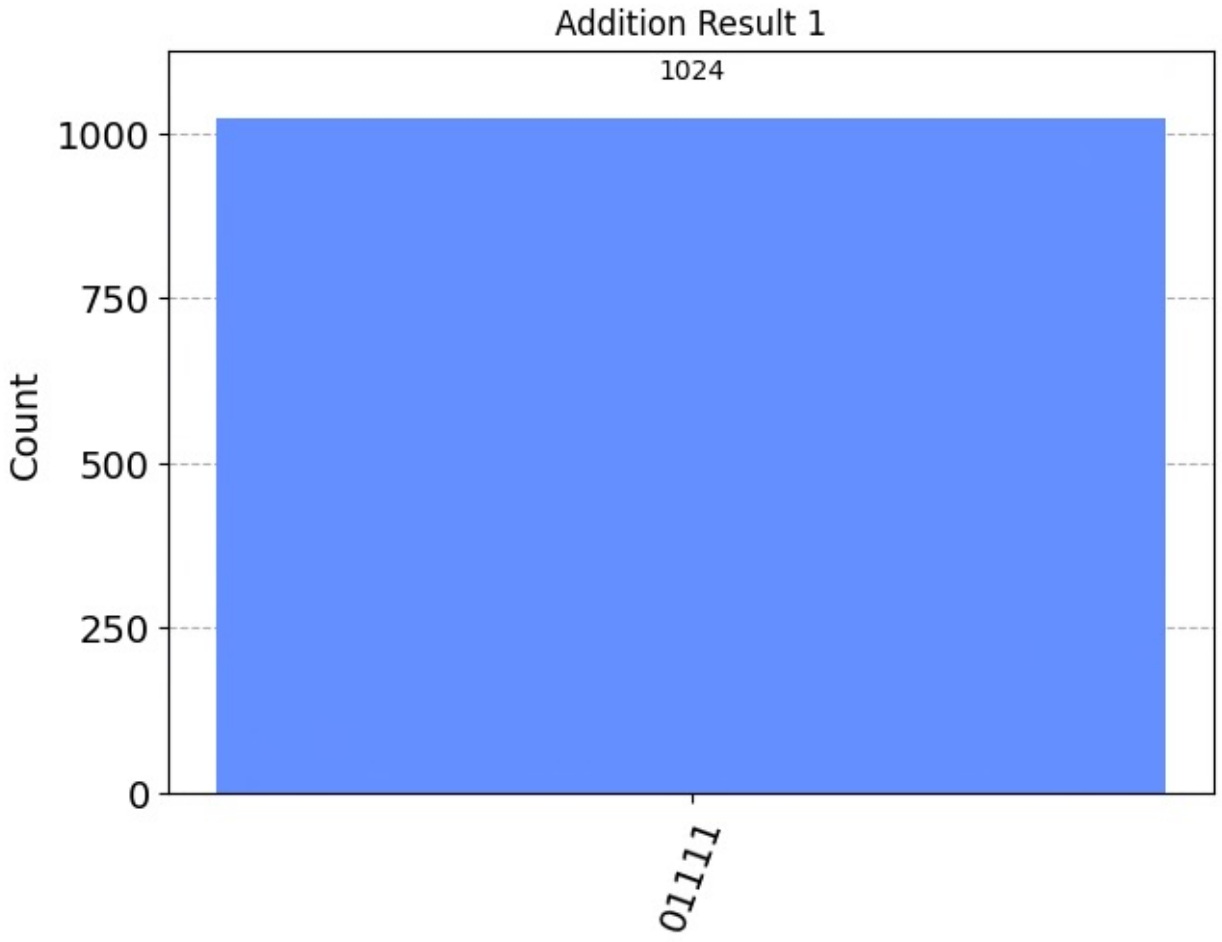
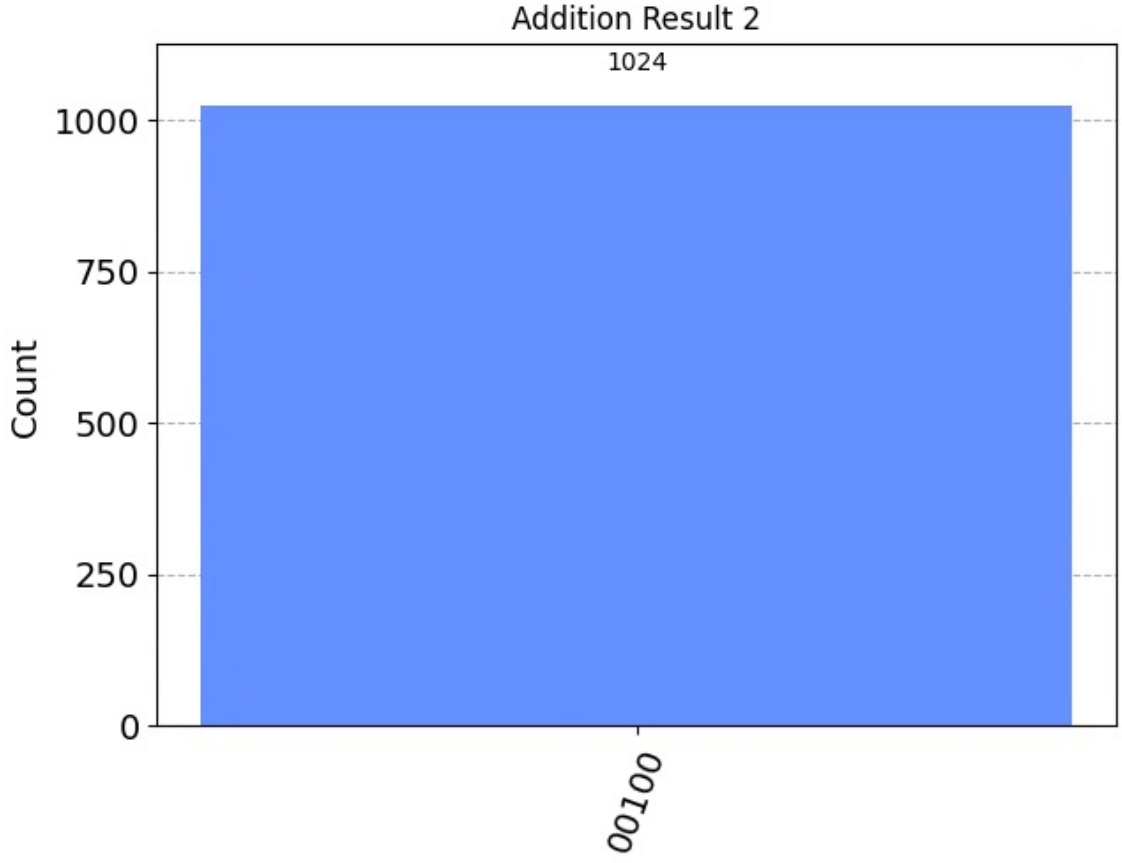
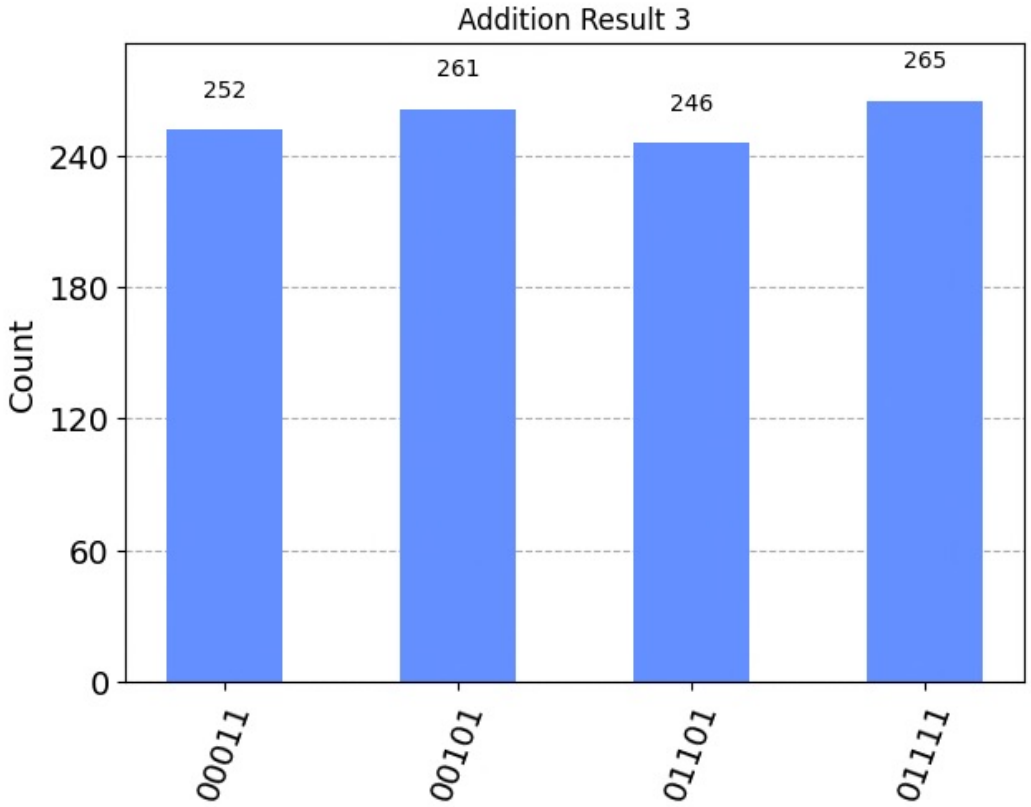
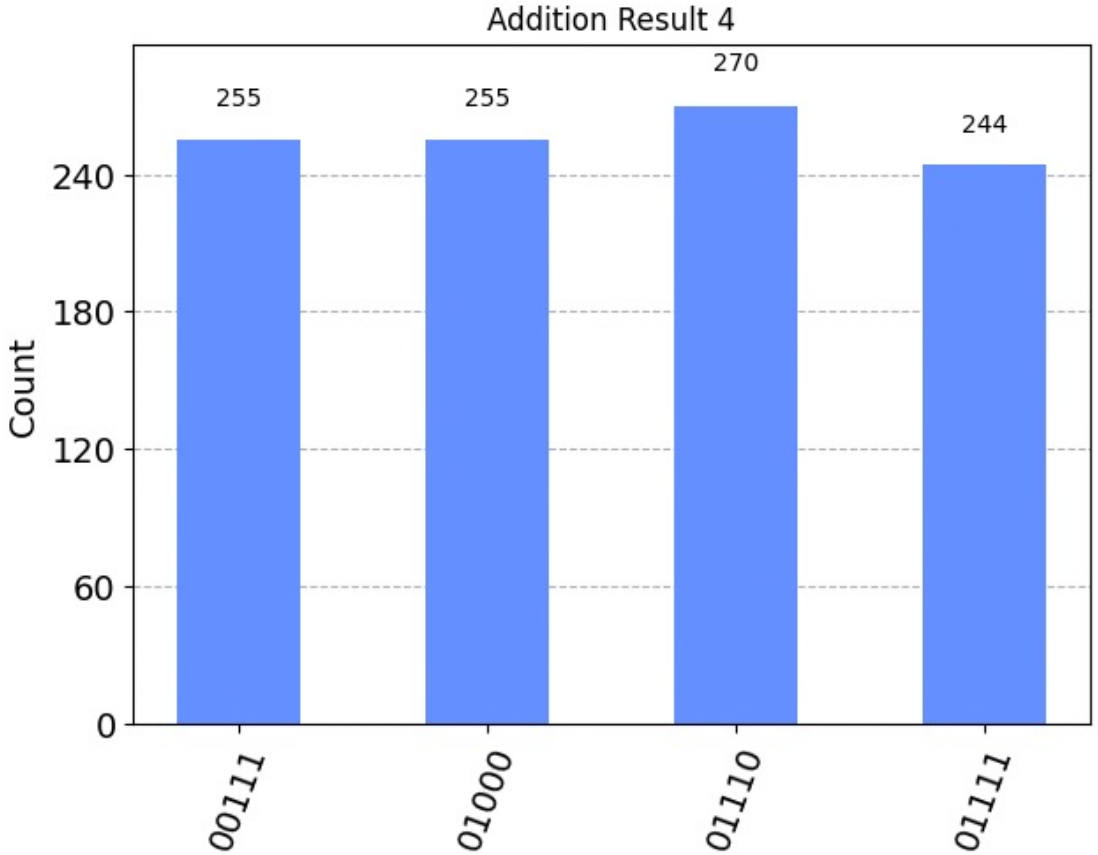
- $|a\rangle = |0010\rangle \quad , \quad |b\rangle = |1011\rangle$



- $|a\rangle = |0001\rangle \quad , \quad |b\rangle = |0011\rangle$



◦ $|a\rangle = \frac{|0010\rangle + |0100\rangle}{\sqrt{2}}$, $|b\rangle = \frac{|1011\rangle + |0001\rangle}{\sqrt{2}}$



◦ $|a\rangle = \frac{|0000\rangle + |0111\rangle}{\sqrt{2}}$, $|b\rangle = \frac{|0111\rangle + |1000\rangle}{\sqrt{2}}$