Quantum Computing Epiphany Assignment 1

1. List all possible single-bit functions of a two-bit input x (so $f(x_1x_0)$ is 0 or 1 for each input).

2. Give reversible circuit representations using the universal gate set $\{NOT, CNOT, CCNOT\}$ for all such functions with $f(00) = 0$.

3. State a *simple* modification of these circuits to produce circuits for all such functions with $f(00) = 1$.