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CS 880: Quantum Algorithm
Homework NUM: 3

The Hadamard gate and a variant of the Hadamard gate with a measure at the end

$$H' = \begin{bmatrix} \frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} \end{bmatrix} \tag{1}$$

Both the Hadamard gate and the H' gates will produce same distribution on any basic states, but as long as it is a pure state, the interference of the Hadamard gate will produce different result.