

superposition

October 18, 2024

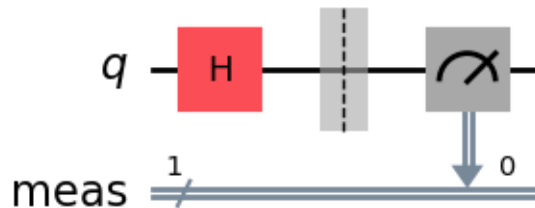
1 Superposition

```
[2]: from qiskit import QuantumCircuit, transpile
      from qiskit.quantum_info import Statevector
      from qiskit.visualization import plot_histogram, plot_bloch_multivector
      from qiskit_aer import AerSimulator
      import numpy as np
```

1.0.1 A circuit with 1 qubit and hadamard gate

```
[3]: qc = QuantumCircuit(1)
      simulator = AerSimulator()
      qc.h(0)
      qc.measure_all()
      qc.draw('mpl')
```

[3]:



1.0.2 Transpile (quantum program so-called compilation) and simulate

```
[4]: qc_transpiled = transpile(qc, simulator)
      job = simulator.run(qc_transpiled, shots=500)
      results = job.result()
```

```
[5]: counts = results.get_counts()
      plot_histogram(counts)
```

[5]:

