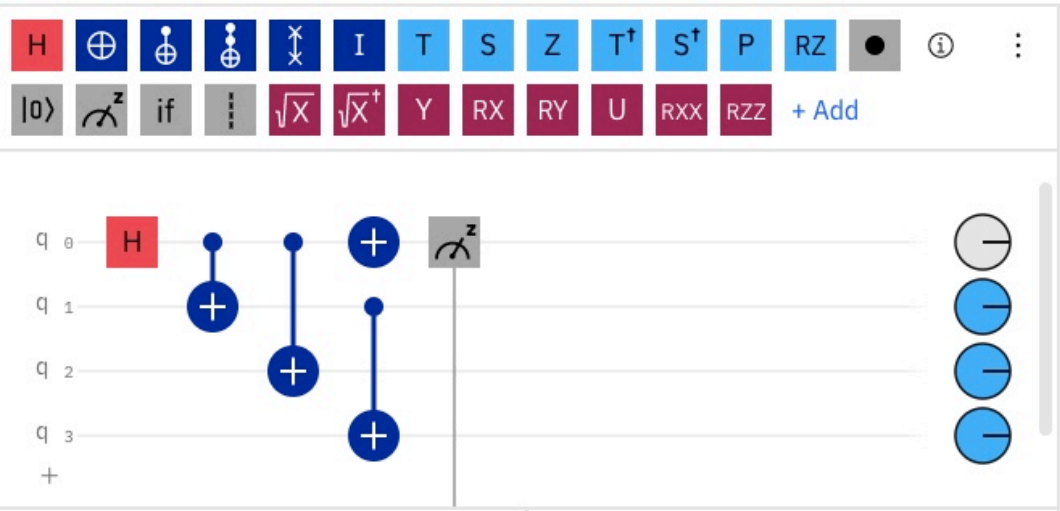
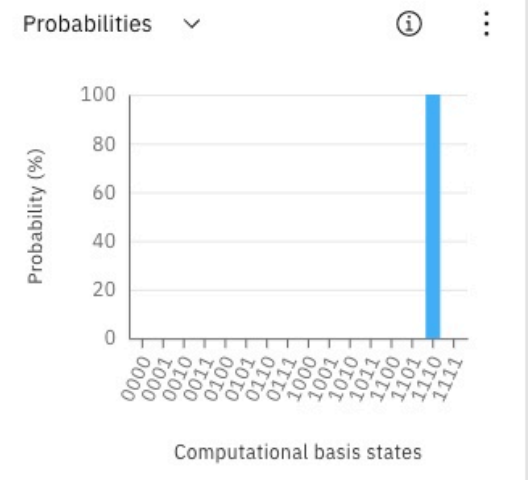
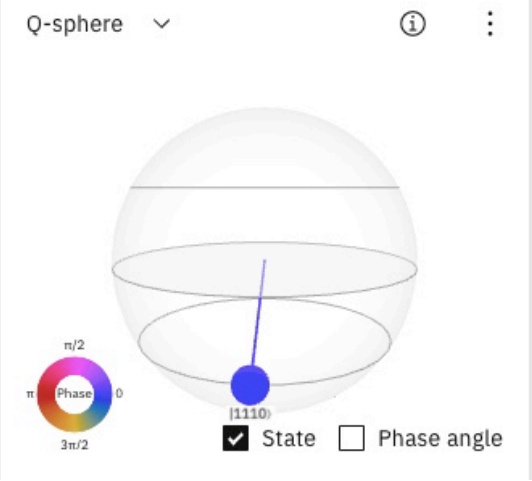


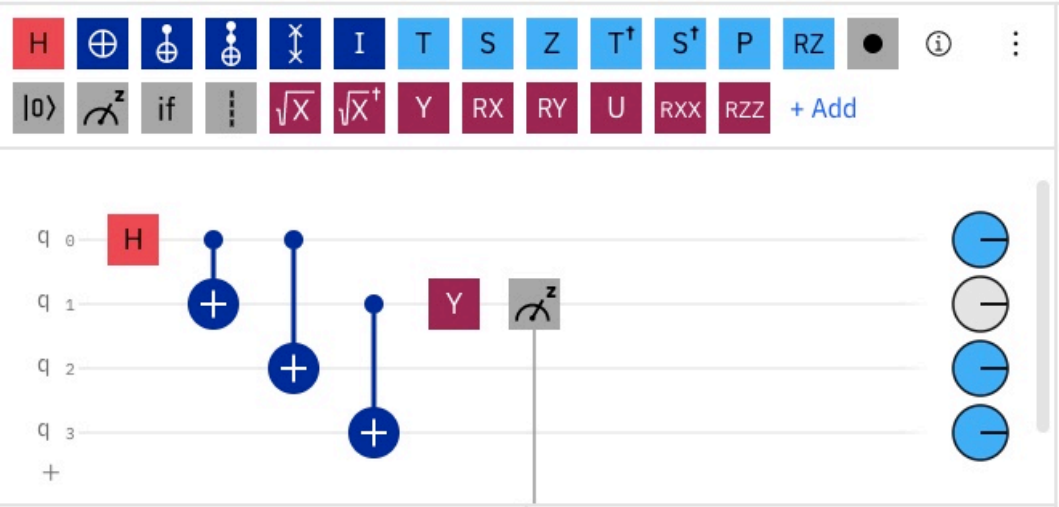


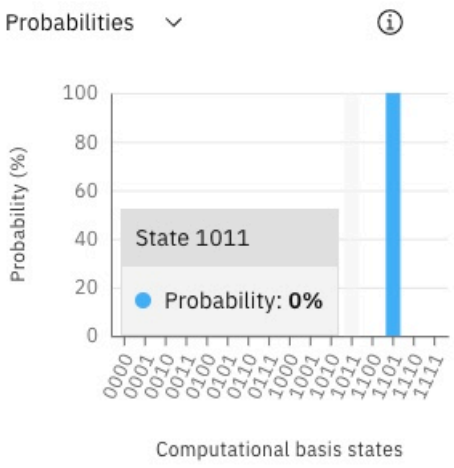


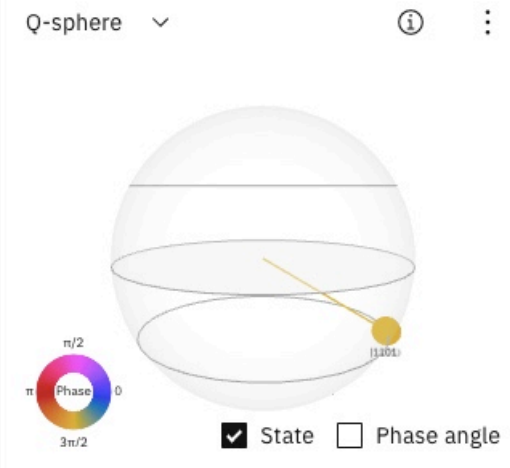
OpenQASM 2.0

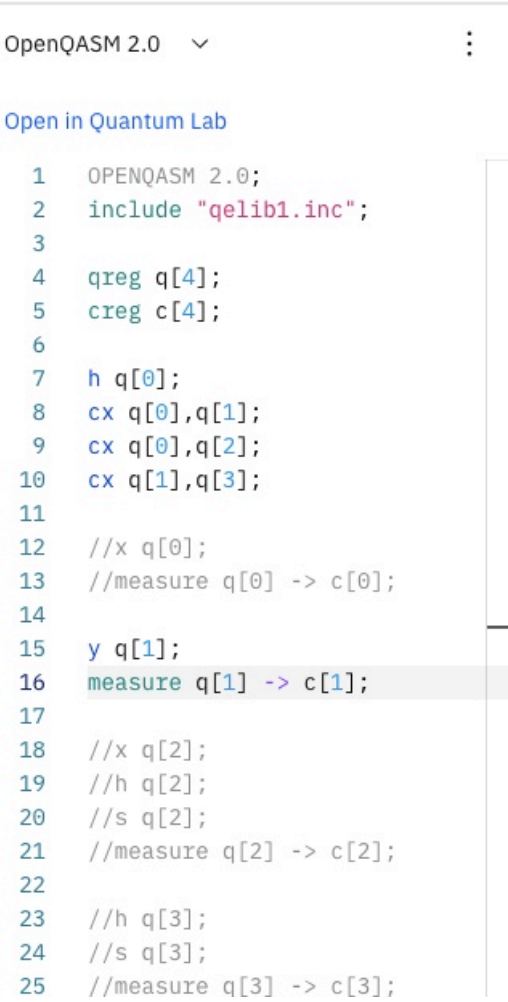
Open in Quantum Lab

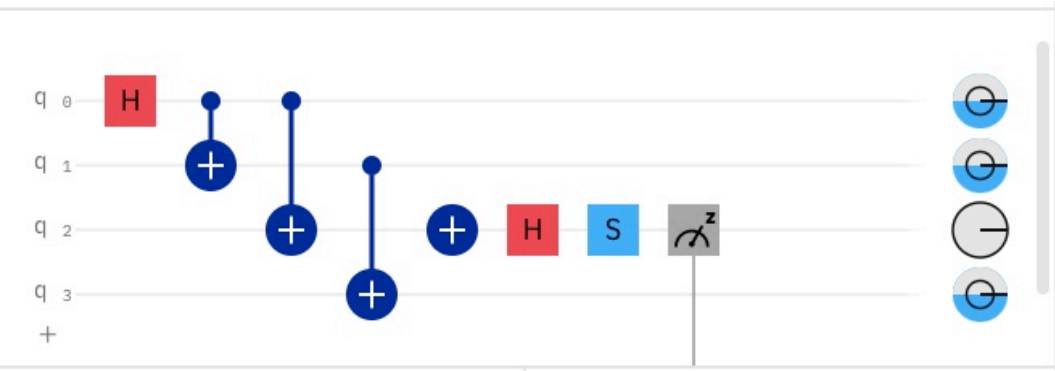
```
1   OPENQASM 2.0;
2   include "qelib1.inc";
3
4   qreg q[4];
5   creg c[4];
6
7   h q[0];
8   cx q[0],q[1];
9   cx q[0],q[2];
10  cx q[1],q[3];
11
12  x q[0];
13  measure q[0] -> c[0];
14
15  //y q[1];
16  //measure q[1] -> c[1];
17
18  //x q[2];
19  //h q[2];
20  //s q[2];
21  //measure q[2] -> c[2];
22
23  //h q[3];
24  //s q[3];
25  //measure q[3] -> c[3];
```

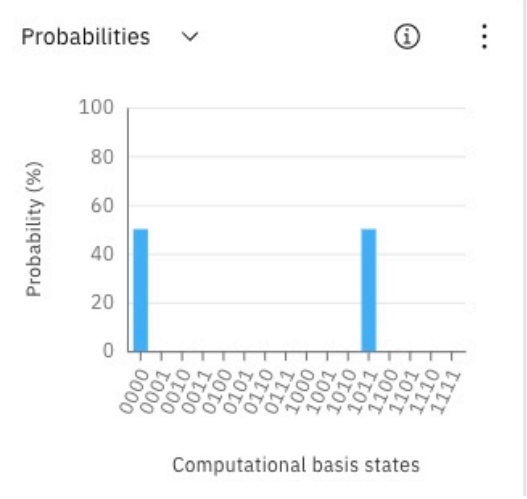

H
I
T
S
Z
T†
S†
P
RZ
|0⟩
if
√X
√X†
Y
RX
RY
U
RXX
RZZ
+ Add
q 0
q 1
q 2
q 3
H
Y

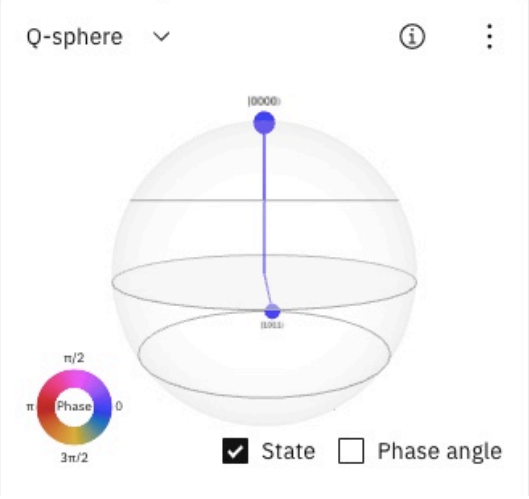

Probabilities
Probability (%)
100
80
60
40
20
0
State 1011
Probability: 0%
0000
0001
0010
0011
0100
0101
0110
0111
1000
1001
1010
1011
1100
1101
1110
1111
Computational basis states


Q-sphere
π/2
π
Phase
0
3π/2
|1101⟩
State
Phase angle

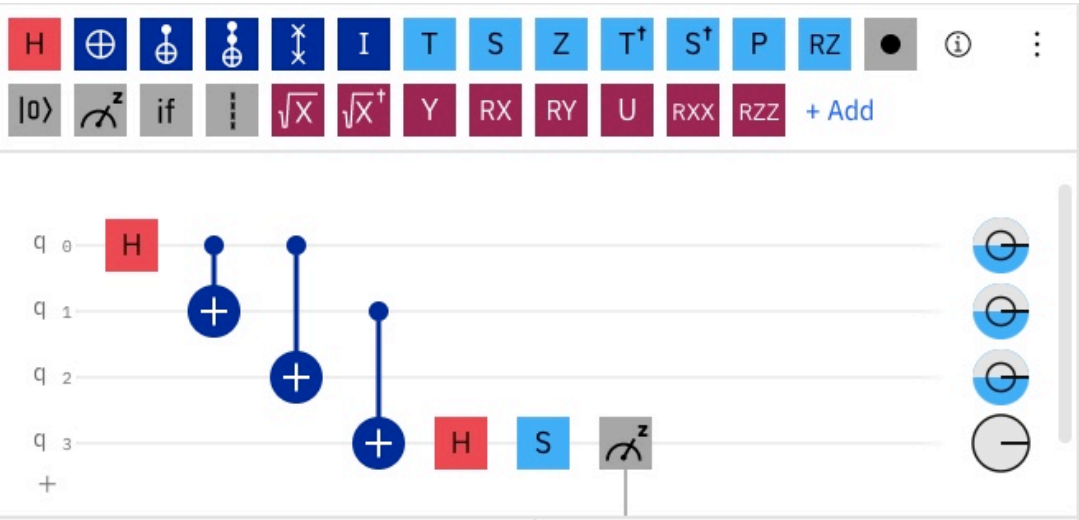

OpenQASM 2.0
Open in Quantum Lab
1 OPENQASM 2.0;
2 include "qelib1.inc";
3
4 qreg q[4];
5 creg c[4];
6
7 h q[0];
8 cx q[0],q[1];
9 cx q[0],q[2];
10 cx q[1],q[3];
11
12 //x q[0];
13 //measure q[0] -> c[0];
14
15 y q[1];
16 measure q[1] -> c[1];
17
18 //x q[2];
19 //h q[2];
20 //s q[2];
21 //measure q[2] -> c[2];
22
23 //h q[3];
24 //s q[3];
25 //measure q[3] -> c[3];

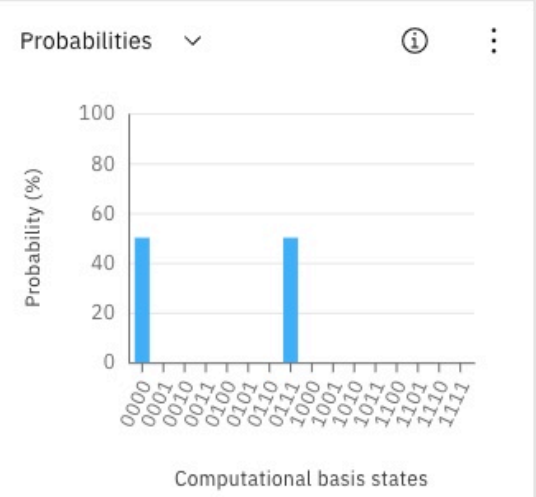


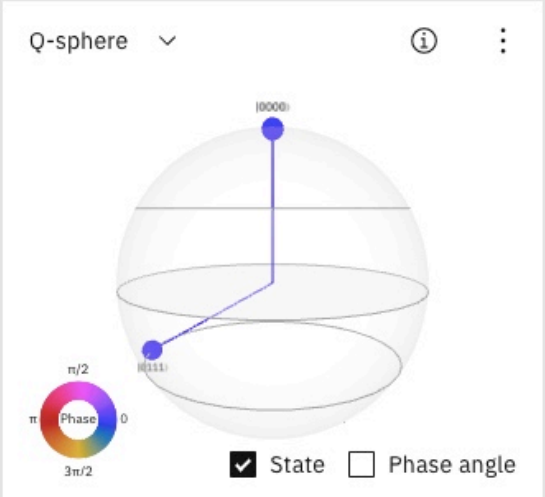





```
2  include "qelib1.inc";
3
4  qreg q[4];
5  creg c[4];
6
7  h q[0];
8  cx q[0],q[1];
9  cx q[0],q[2];
10 cx q[1],q[3];
11
12 //x q[0];
13 //measure q[0] -> c[0];
14
15 //y q[1];
16 //measure q[1] -> c[1];
17
18 x q[2];
19 h q[2];
20 s q[2];
21 measure q[2] -> c[2];
22
23 //h q[3];
24 //s q[3];
25 //measure q[3] -> c[3];
26
```



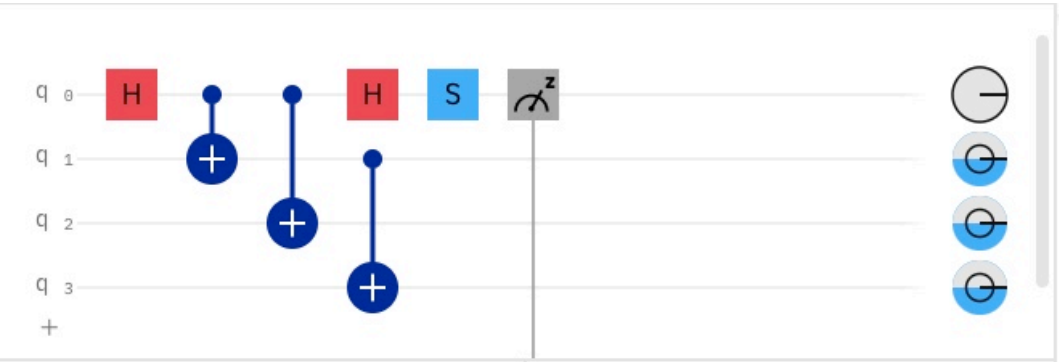


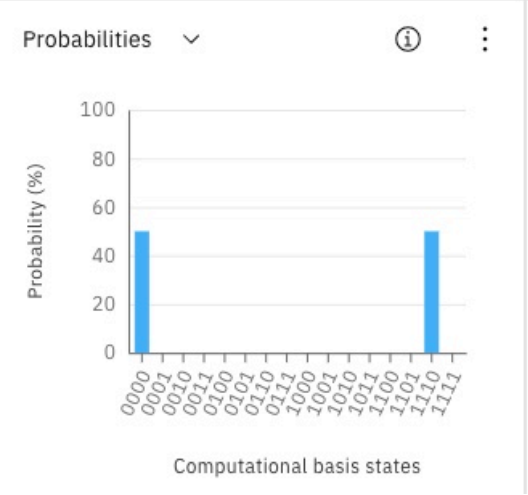


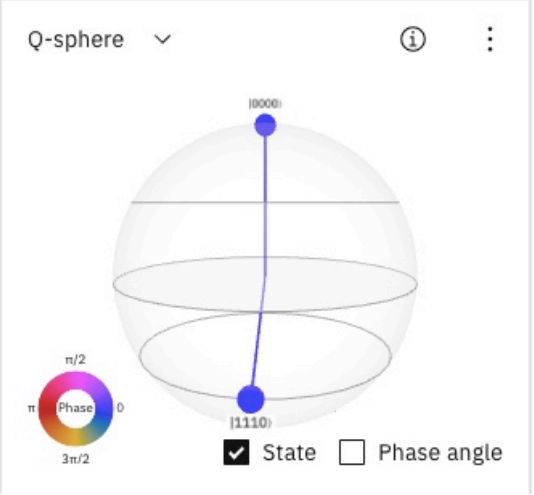
OpenQASM 2.0

Open in Quantum Lab

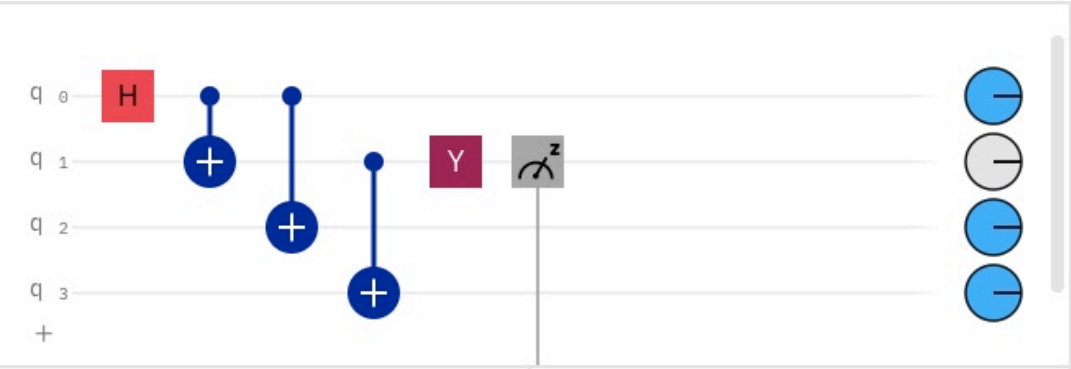
```
2   include "qelib1.inc";
3
4   qreg q[4];
5   creg c[4];
6
7   h q[0];
8   cx q[0],q[1];
9   cx q[0],q[2];
10  cx q[1],q[3];
11
12  //x q[0];
13  //measure q[0] -> c[0];
14
15  //y q[1];
16  //measure q[1] -> c[1];
17
18  //x q[2];
19  //h q[2];
20  //s q[2];
21  //measure q[2] -> c[2];
22
23  h q[3];
24  s q[3];
25  measure q[3] -> c[3];
26
```

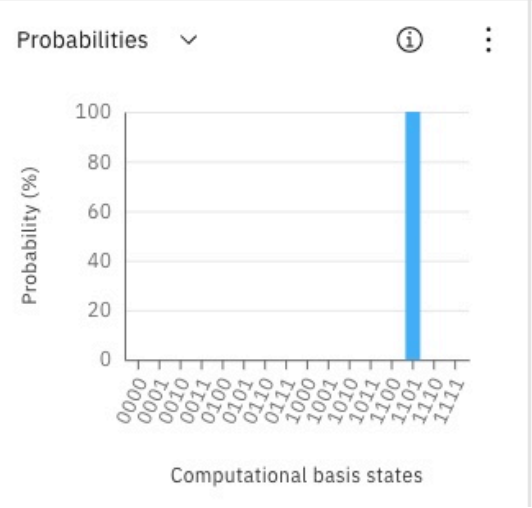


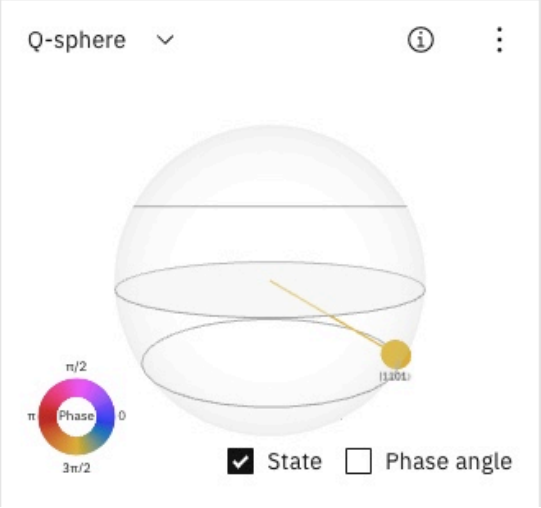




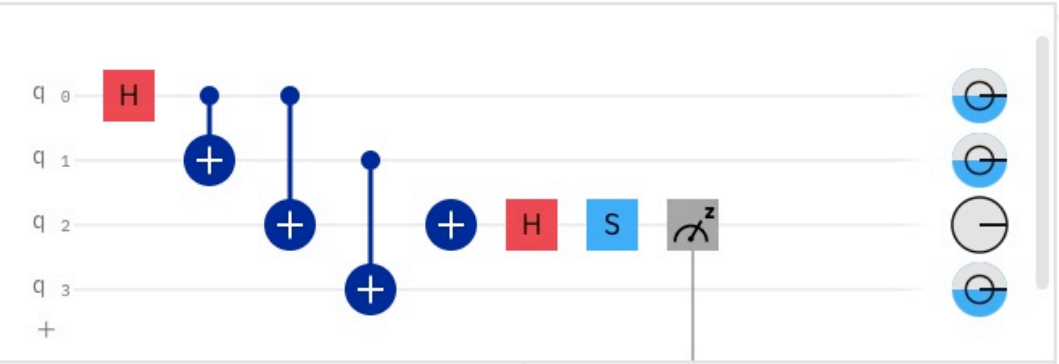

```
2   include "qelib1.inc";
3
4   qreg q[4];
5   creg c[4];
6
7   h q[0];
8   cx q[0],q[1];
9   cx q[0],q[2];
10  cx q[1],q[3];
11
12  h q[0];
13  s q[0];
14  measure q[0] -> c[0];
15
16  //y q[1];
17  //measure q[1] -> c[1];
18
19  //x q[2];
20  //h q[2];
21  //s q[2];
22  //measure q[2] -> c[2];
23
24  //x q[3];
25  //measure q[3] -> c[3];
26
```

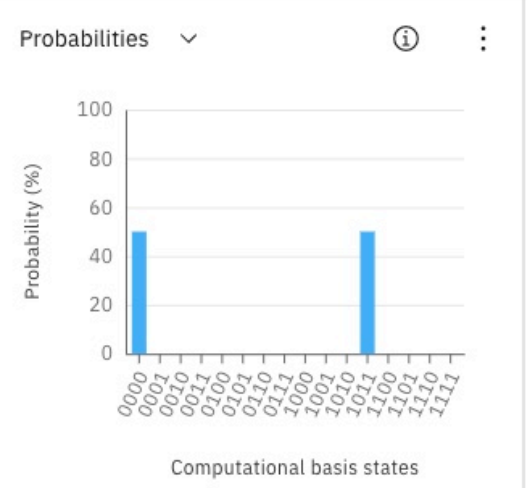


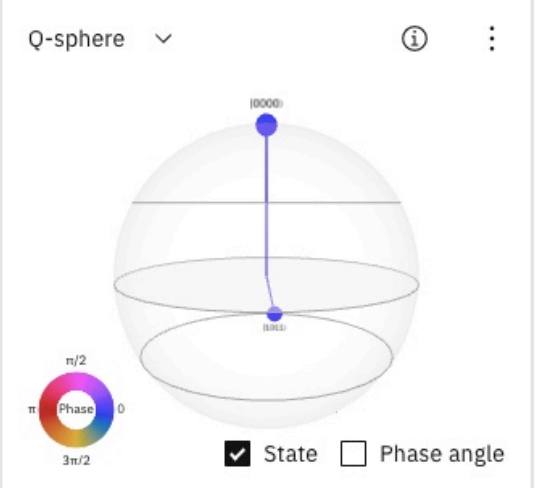





```
2   include "qelib1.inc";
3
4   qreg q[4];
5   creg c[4];
6
7   h q[0];
8   cx q[0],q[1];
9   cx q[0],q[2];
10  cx q[1],q[3];
11
12  //h q[0];
13  //s q[0];
14  //measure q[0] -> c[0];
15
16  y q[1];
17  measure q[1] -> c[1];
18
19  //x q[2];
20  //h q[2];
21  //s q[2];
22  //measure q[2] -> c[2];
23
24  //x q[3];
25  //measure q[3] -> c[3];
26
```





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2   include "qelib1.inc";
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5   creg c[4];
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7   h q[0];
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12  //h q[0];
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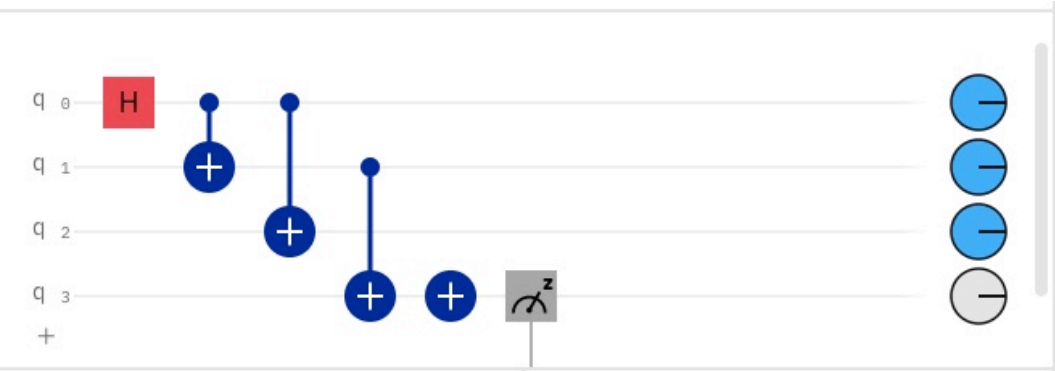
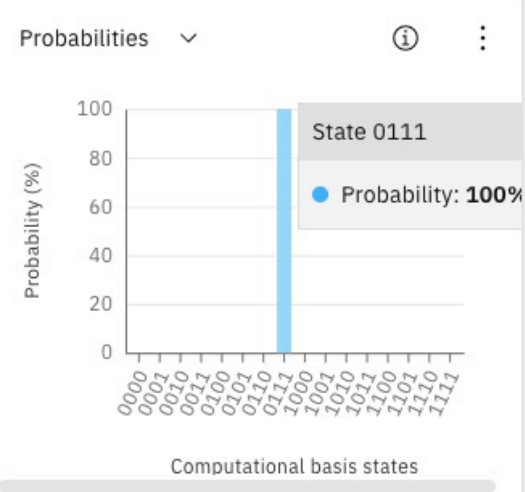
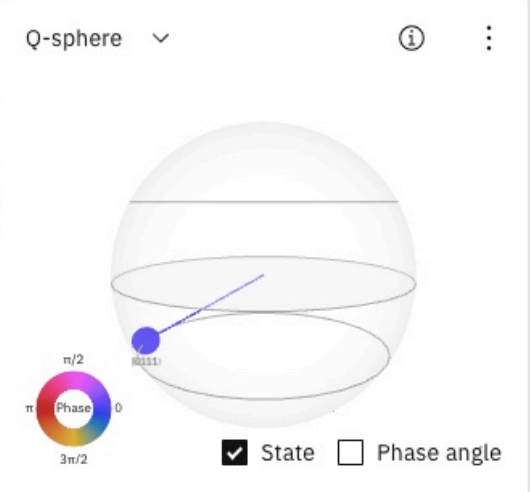
14  //measure q[0] -> c[0];
15
16  //y q[1];
17  //measure q[1] -> c[1];
18
19  x q[2];
20  h q[2];
21  s q[2];
22  measure q[2] -> c[2];
23
24  //x q[3];
25  //measure q[3] -> c[3];
26
```








```
2   include "qelib1.inc";
3
4   qreg q[4];
5   creg c[4];
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7   h q[0];
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12  //h q[0];
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14  //measure q[0] -> c[0];
15
16  //y q[1];
17  //measure q[1] -> c[1];
18
19  //x q[2];
20  //h q[2];
21  //s q[2];
22  //measure q[2] -> c[2];
23
24  x q[3];
25  measure q[3] -> c[3];
26
```