

Package ‘QCSimulator’

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Type Package

Title A 5-Qubit Quantum Computing Simulator

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Description Simulates a 5 qubit Quantum Computer and evaluates quantum circuits with 1,2 qubit quantum gates.

LazyData TRUE

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Depends R (>= 3.1.2)

Imports ggplot2

URL <https://github.com/tvganesh/QCSimulator>

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CHadamard	<i>controlled Hadamard Gate</i>
-----------	---------------------------------

Description

This function applies a controlled Hadamard gate om the input

Usage

CHadamard(q)

Arguments

q The input

Value

k

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- CNOT2_01

PauliX

Examples

```
# Initialize global variables
init()
CHadamard(q00_)
CHadamard(I4)
```

CNOT2_01

*2 qubit CNOT gate (control-0,target-1)***Description**

This function applies a CNOT gate to 2 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 1

Usage

```
CNOT2_01(a)
```

Arguments

a The input

Value

result The result of applying the CNOT2_01 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT2_01(q11_)
CNOT2_01(I4)
```

CNOT2_10	2 qubit CNOT gate (control-1,target-0)
----------	--

Description

This function applies a CNOT gate to 2 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 0

Usage

```
CNOT2_10(a)
```

Arguments

a The input

Value

result The result of applying the CNOT2_10 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT2_10(q10_)
CNOT2_10(I4)
```

CNOT3_01	<i>3 qubit CNOT gate (control-0,target-1)</i>
----------	---

Description

This function applies a CNOT gate to 3 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 1

Usage

```
CNOT3_01(a)
```

Arguments

a The input

Value

result The result of applying the CNOT3_01 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT3_01(q101_)
CNOT3_01(I8)
```

CNOT3_02	<i>3 qubit CNOT gate (control-0,target-2)</i>
----------	---

Description

This function applies a CNOT gate to 3 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 2

Usage

```
CNOT3_02(a)
```

Arguments

a The input

Value

result The result of applying the CNOT3_02 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT3_02(q111_)
CNOT3_02(I8)
```

CNOT3_10	<i>3 qubit CNOT gate (control-1,target-0)</i>
----------	---

Description

This function applies a CNOT gate to 3 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 0

Usage

```
CNOT3_10(a)
```

Arguments

a The input

Value

result The result of applying the CNOT3_10 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT3_10(q101_)
CNOT3_10(I8)
```

CNOT3_12	<i>3 qubit CNOT gate (control-1,target-2)</i>
----------	---

Description

This function applies a CNOT gate to 3 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 2

Usage

```
CNOT3_12(a)
```

Arguments

a The input

Value

result The result of applying the CNOT3_12 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT3_12(q101_)
CNOT3_12(I8)
```

CNOT3_20	<i>3 qubit CNOT gate (control-2,target-0)</i>
----------	---

Description

This function applies a CNOT gate to 3 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 0

Usage

```
CNOT3_20(a)
```

Arguments

a The input

Value

result The result of applying the CNOT3_20 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT3_20(q101_)
CNOT3_20(I8)
```

CNOT3_21	<i>3 qubit CNOT gate (control-2,target-1)</i>
----------	---

Description

This function applies a CNOT gate to 3 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 1

Usage

```
CNOT3_21(a)
```

Arguments

a The input

Value

result The result of applying the CNOT3_12 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT3_21(I8)
CNOT3_21(q101_)
```

CNOT4_01	<i>4 qubit CNOT gate (control-0,target-1)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 1

Usage

```
CNOT4_01(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_01 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

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References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_01(q1001_)
CNOT4_01(I16)
```

CNOT4_02	<i>4 qubit CNOT gate (control-0,target-2)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 2

Usage

```
CNOT4_02(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_02 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

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References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_02(q1001_)
CNOT4_02(I16)
```

CNOT4_03	<i>4 qubit CNOT gate (control-0,target-3)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 3

Usage

```
CNOT4_03(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_03 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_03(q1001_)
CNOT4_03(I16)
```

CNOT4_10	<i>4 qubit CNOT gate (control-1,target-0)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 0

Usage

```
CNOT4_10(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_10 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_10(q1001_)
CNOT4_10(I16)
```

CNOT4_12	<i>4 qubit CNOT gate (control-1,target-2)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 2

Usage

```
CNOT4_12(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_12 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_12(q1001_)
CNOT4_12(I16)
```

CNOT4_13	<i>4 qubit CNOT gate (control-1,target-3)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 3

Usage

```
CNOT4_13(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_13 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_13(q1001_)
CNOT4_13(I16)
```

CNOT4_20	<i>4 qubit CNOT gate (control-2,target-0)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 0

Usage

```
CNOT4_20(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_20 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_20(q1001_)
CNOT4_13(I16)
```

CNOT4_21	<i>4 qubit CNOT gate (control-2,target-1)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 1

Usage

```
CNOT4_21(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_21 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_21(q1001_)
CNOT4_21(I16)
```

CNOT4_23	<i>4 qubit CNOT gate (control-2,target-3)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 3

Usage

```
CNOT4_23(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_23 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_23(q1001_)
CNOT4_23(I16)
```

CNOT4_30	<i>4 qubit CNOT gate (control-3,target-0)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 0

Usage

```
CNOT4_30(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_23 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_30(q1001_)
CNOT4_30(I16)
```

CNOT4_31	<i>4 qubit CNOT gate (control-3,target-1)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 1

Usage

```
CNOT4_31(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_31 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_31(q1001_)
CNOT4_31(I16)
```

CNOT4_32	<i>4 qubit CNOT gate (control-3,target-2)</i>
----------	---

Description

This function applies a CNOT gate to 4 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 2

Usage

```
CNOT4_32(a)
```

Arguments

a The input

Value

result The result of applying the CNOT4_32 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT4_32(q1001_)
CNOT4_32(I16)
```

CNOT5_01	5 qubit CNOT gate (control-0,target-1)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 1

Usage

```
CNOT5_01(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_01 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_01(q10010_)
CNOT5_01(I32)
```

CNOT5_02	<i>5 qubit CNOT gate (control-0,target-2)</i>
----------	---

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 2

Usage

```
CNOT5_02(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_02 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_02(q10010_)
CNOT5_02(I32)
```

CNOT5_03	<i>5 qubit CNOT gate (control-0,target-3)</i>
----------	---

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 3

Usage

```
CNOT5_03(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_03 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_03(q10010_)
CNOT5_03(I32)
```

CNOT5_04	5 qubit CNOT gate (control-0,target-4)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 0 and target is qubit 3

Usage

```
CNOT5_04(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_04 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_04(q10010_)
CNOT5_04(I32)
```

CNOT5_10	5 qubit CNOT gate (control-1,target-0)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 0

Usage

```
CNOT5_10(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_10 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_10(q10010_)
CNOT5_10(I32)
```

CNOT5_12	5 qubit CNOT gate (control-1,target-2)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 2

Usage

```
CNOT5_12(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_12 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_12(q10010_)
CNOT5_12(I32)
```

CNOT5_13	<i>5 qubit CNOT gate (control-1,target-3)</i>
----------	---

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 3

Usage

```
CNOT5_13(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_13 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
CNOT5_13(q10010_)
CNOT5_13(I32)
```

CNOT5_14	5 qubit CNOT gate (control-1,target-4)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 1 and target is qubit 4

Usage

```
CNOT5_14(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_14 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT4_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_14(q10010_)
CNOT5_14(I32)
```

CNOT5_20	5 qubit CNOT gate (control-2,target-0)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 0

Usage

```
CNOT5_20(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_20 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT4_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_20(q10010_)
CNOT5_20(I32)
```

CNOT5_21	5 qubit CNOT gate (control-2,target-1)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 1

Usage

```
CNOT5_21(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_21 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_21(q10010_)
CNOT5_21(I32)
```

CNOT5_23	5 qubit CNOT gate (control-2,target-3)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 3

Usage

```
CNOT5_23(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_23 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_23(q10010_)
CNOT5_23(I32)
```

CNOT5_24	<i>5 qubit CNOT gate (control-2,target-4)</i>
----------	---

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 2 and target is qubit 4

Usage

```
CNOT5_24(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_24 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_24(q10010_)
CNOT5_24(I32)
```

CNOT5_30	5 qubit CNOT gate (control-3,target-0)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 0

Usage

```
CNOT5_30(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_30 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_30(q10010_)
CNOT5_30(I32)
```

CNOT5_31	5 qubit CNOT gate (control-3,target-1)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 1

Usage

```
CNOT5_31(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_31 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_31(q10010_)
CNOT5_31(I32)
```

CNOT5_32	5 qubit CNOT gate (control-3,target-2)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 2

Usage

```
CNOT5_32(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_32 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_32(q10010_)
CNOT5_32(I32)
```

CNOT5_34	5 qubit CNOT gate (control-3,target-4)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 3 and target is qubit 4

Usage

```
CNOT5_34(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_34 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_34(q10010_)
CNOT5_34(I32)
```

CNOT5_40	5 qubit CNOT gate (control-4,target-0)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 4 and target is qubit 0

Usage

```
CNOT5_40(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_40 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_40(q10010_)
CNOT5_40(I32)
```

CNOT5_41	5 qubit CNOT gate (control-4,target-1)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 4 and target is qubit 1

Usage

```
CNOT5_41(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_41 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_41(q10010_)
CNOT5_41(I32)
```

CNOT5_42	5 qubit CNOT gate (control-4,target-2)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 4 and target is qubit 2

Usage

```
CNOT5_42(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_42 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_42(q10010_)
CNOT5_42(I32)
```

CNOT5_43	5 qubit CNOT gate (control-4,target-3)
----------	--

Description

This function applies a CNOT gate to 5 qubits. The qubits start from 0,1,2,3,4. Here control is qubit 4 and target is qubit 3

Usage

```
CNOT5_43(a)
```

Arguments

a The input

Value

result The result of applying the CNOT5_43 gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT4_13](#)

Examples

```
# Initialize global variables
init()
CNOT5_43(q10010_)
CNOT5_43(I32)
```

CPauliX

*Controlled Pauli X gate***Description**

This function applies a controlled Pauli X gate on its input

Usage

```
CPauliX(q)
```

Arguments

q The input

Value

2 The result of applying the CPauliX gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT5_13](#)

Examples

```
# Initialize global variables
init()
CPauliX(q11_)
CPauliX(I4)
```

CPauliY	<i>Controlled Pauli Y gate</i>
---------	--------------------------------

Description

This function applies a controlled Pauli Y gate on its input

Usage

```
CPauliY(q)
```

Arguments

q The input

Value

2 The result of applying the CPauliY gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- CNOT2_10
- PauliX
- measurement
- plotMeasurement
- CNOT5_03
- CNOT4_13

Examples

```
# Initialize global variables
init()
CPauliY(q11_)
CPauliY(I4)
```

CPauliZ	<i>Controlled Pauli Z gate</i>
---------	--------------------------------

Description

This function applies a controlled Pauli Z gate on its input

Usage

```
CPauliZ(q)
```

Arguments

q The input

Value

2 The result of applying the CPauliZ gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- CNOT2_10
- PauliX
- measurement
- plotMeasurement
- CNOT5_03
- CNOT4_13

Examples

```
# Initialize global variables
init()
CPauliZ(q11_)
CPauliZ(I4)
```

CSWAP	<i>Controlled SWAP gate</i>
-------	-----------------------------

Description

This function applies a controlled swap of qubits gate on its input

Usage

```
CSWAP(a)
```

Arguments

a The input

Value

result The result of applying the CSWAP gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- CNOT2_10
- PauliX
- measurement
- plotMeasurement
- CNOT5_03
- CNOT4_13

Examples

```
# Initialize global variables
init()
CSWAP(q11_)
CSWAP(I4)
```

DotProduct	<i>Dot product of 2 vectors</i>
------------	---------------------------------

Description

This function performs a dot product of 2 vectors

Usage

```
DotProduct(a,b)
```

Arguments

a	Vector 1
b	Vector 2

Value

result The result of dot product

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
DotProduct(Hadamard(I2),q1_)
DotProduct(CNOT2_01(I4),q01_)
```

GateDagger*Gate dagger of a vector*

Description

This function performs a gate dagger transformation. It performs the transpose of the complex conjugate of the unitary matrix

Usage

```
GateDagger(a)
```

Arguments

a Matrix a

Value

gateDagger The result of performing gate dagger function

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
GateDagger(TGate(I2))
```

Hadamard	<i>Hadamard gate</i>
----------	----------------------

Description

This function applies a Hadamard gate on its input

Usage

```
Hadamard(a)
```

Arguments

a	The input
---	-----------

Value

2 The result of applying the Hadamard gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simula>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
Hadamard(Hadamard(I2))
Hadamard(I2)
```

init	<i>Initialization</i>
------	-----------------------

Description

This function performs an initialization and sets variables in the global environment

Usage

```
init()
```

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simula>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT5_13](#)

Examples

```
# Initialize global variables
init()
# Display variables
ls()
q001_
I16
```

innerProduct*Inner product of 2 vectors and computes the angle between vectors*

Description

This function performs a inner product of 2 vectors and outputs the angle between vectors

Usage

```
innerProduct(a,b)
```

Arguments

a	Vector 1
b	Vector 2

Value

theta The angle between the vectors

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT5_13](#)

Examples

```
# Initialize global variables
init()
phi = matrix(c(1/2,sqrt(3)/2),nrow=2,ncol=1)
si = matrix(c(1/sqrt(2),1/sqrt(2)),nrow=2,ncol=1)
innerProduct(phi,si)
```

measurement	<i>Computes the square of the modulus</i>
-------------	---

Description

This function computes the square of the amplitude of the vectors

Usage

```
measurement(a)
```

Arguments

a	The vector
---	------------

Value

x The square of the modulus of the vector

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT5_13](#)

Examples

```
# Initialize global variables
init()
measurement(TGate(PauliX(I2)))
```

PauliX

Controlled Pauli X gate

Description

This function applies a Pauli X gate on its input

Usage

```
PauliX(a)
```

Arguments

a The input

Value

result The result of applying the PauliX gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
PauliX(q1_)
Hadamard(PauliX(I2))
```

PauliY

Controlled Pauli Y gate

Description

This function applies a Pauli Y gate on its input

Usage

```
PauliY(a)
```

Arguments

a The input

Value

result The result of applying the PauliY gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
PauliY(q1_)
Hadamard(PauliY(I2))
```

PauliZ

Controlled Pauli Z gate

Description

This function applies a Pauli Z gate on its input

Usage

```
PauliZ(a)
```

Arguments

a The input

Value

result The result of applying the PauliZ gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
PauliZ(q1_)
Hadamard(PauliZ(I2))
```

plotMeasurement

This function plots the result of a measurement

Description

This function plots the output of a quantum circuit

Usage

```
plotMeasurement(a)
```

Arguments

a The vector

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
plotMeasurement(measurement(TensorProd(Hadamard(I2),Hadamard(I2))))
```

RotationGate

This function applies the rotation gate

Description

This function applies the rotation gate on its input through an angle 't'

Usage

```
RotationGate(t,a)
```

Arguments

t	The angle to rotate
a	The vector

Value

result The result of applying the Rotation gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
RotationGate(30,q0_)
```

S1Gate

Controlled S1Gate

Description

This function applies a S1Gate on its input

Usage

S1Gate(a)

Arguments

a The input

Value

result The result of applying the S1Gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
S1Gate(q1_)
S1Gate(PauliX(I2))
```

SGate	<i>Apply a SGate</i>
-------	----------------------

Description

This function applies a SGate on its input

Usage

```
SGate(a)
```

Arguments

a The input

Value

result The result of applying the SGate gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT4_13](#)

Examples

```
# Initialize global variables
init()
SGate(q1_)
SGate(Hadamard(I2))
```

SWAPQ0Q1	<i>SWAP Q0 Q1</i>
----------	-------------------

Description

This function swaps q0 and q1

Usage

```
SWAPQ0Q1(q)
```

Arguments

q The input

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- CNOT2_10
- PauliX
- measurement
- plotMeasurement
- CNOT5_03
- CNOT4_13

Examples

```
# Initialize global variables
init()
SWAPQ0Q1(q110_)
SWAPQ0Q1(q010_)
```

T1Gate	<i>Apply a T1Gate</i>
--------	-----------------------

Description

This function applies a T1Gate on its input

Usage

```
T1Gate(a)
```

Arguments

a The input

Value

result The result of applying the T1Gate gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

- <https://quantumexperience.ng.bluemix.net/>
- <https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

- [CNOT2_10](#)
- [PauliX](#)
- [measurement](#)
- [plotMeasurement](#)
- [CNOT5_03](#)
- [CNOT3_12](#)

Examples

```
# Initialize global variables
init()
T1Gate(q1_)
T1Gate(SGate(Hadamard(I2)))
```

TensorProd	<i>Tensor product of 2 vectors</i>
------------	------------------------------------

Description

This function performs a tensor product of 2 vectors

Usage

```
TensorProd(a,b)
```

Arguments

a	Vector 1
b	Vector 2

Value

result The tensor product of the vectors

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
TensorProd(Hadamard(I2),Hadamard(I2))
```

TGate

Apply a TGate

Description

This function applies a TGate on its input

Usage

```
TGate(a)
```

Arguments

a The input

Value

result The result of applying the TGate gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>
<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)
[PauliX](#)
[measurement](#)
[plotMeasurement](#)
[CNOT5_03](#)
[CNOT4_13](#)

Examples

```

# Initialize global variables
init()
TGate(q1_)
TGate(S1Gate(Hadamard(I2)))

```

Toffoli

Apply a Toffoli gate

Description

This function applies a Toffoli on its input

Usage

```
Toffoli(q)
```

Arguments

q The input

Value

c The result of applying the TGate gate

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
Toffoli(q100_)
Toffoli(q101_)
```

ToffoliState	<i>Apply a Toffoli state</i>
--------------	------------------------------

Description

This function applies a Toffoli state on its input

Usage

```
ToffoliState(a)
```

Arguments

a	The input
---	-----------

Note

Maintainer: Tinniam V Ganesh <tvganesh.85@gmail.com>

Author(s)

Tinniam V Ganesh

References

<https://quantumexperience.ng.bluemix.net/>

<https://gigadom.wordpress.com/2016/06/23/introducing-qcsimulator-a-5-qubit-quantum-computing-simulator/>

See Also

[CNOT2_10](#)

[PauliX](#)

[measurement](#)

[plotMeasurement](#)

[CNOT5_03](#)

[CNOT4_13](#)

Examples

```
# Initialize global variables
init()
ToffoliState(q100_)
```

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