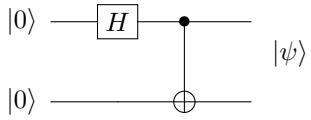
Assignment 03

In the course we learned about a circuit that creates entanglement between 2 qubits. The resultant



state of the circuit was

$$|\psi\rangle = \frac{1}{\sqrt{2}}(|00\rangle + |11\rangle) \tag{1}$$

We also implemented this circuit in Qiskit.
For this assignment design a circuit that entangles 3 qubits to produce the following state:

$$|\psi\rangle = \frac{1}{\sqrt{2}}(|000\rangle + |111\rangle) \tag{2}$$

Implement your designed circuit in Qiskit, and make sure that the input state is $|000\rangle$

Submission details

What to submit: A single .zip file of your code. This is because email clients in general do not accept .py files. Once you finish writing your code in a .py file, compress it to a zip file.
How to start: Your circuit should be called `ent_circ`, so your first line after the imports should be

```
from qiskit import QuantumCircuit

ent_circ = QuantumCircuit(3)
```

Where to submit: *assignment_03@qulearnlabs.com*
Submission email: Please follow the submission email guidelines to ensure your work is graded properly:

1. Email subject: "FULL_NAME:ASSIGNMENT_03_SUBMISSION_NUMBER" without the quotes. For example, JOHN_SMITH:ASSIGNMENT_03_1.
2. Send the email with the email ID you used to register for the course.
3. Don't forget to attach the .zip file with your code.

For resubmission, please send another email with the submission number incremented, for example the second submission for John Smith would have the subject JOHN_SMITH:ASSIGNMENT_03_2. Your latest submission is graded.