# TASK-1 PENNYLANE CODEBOOK

In the pennylane codebook, I completed three codebooks introduction to quantum computing, single qubits gates and circuit with many gates.

In that **introduction to quantum computing** was easy for as it thought about what qubits are its mathematical notation, basis state and orthonormality and some basics about quantum circuit like layers and wires and how to define a device QNODE and also about unitary matrices and ROT function. This codebook was easy as it was explained in the lecture in the program.

In the **Single-qubit gates** included many new information like phase gate (S) and variation of pauliZ gates like (S,T). I learnt deeply about RX, RY, RZ angle gates even though I has some understanding earlier going through this chapter cleared mu understanding. I didn't knew that RX, RY, RZ set of any two of these in the universal gate in quantum computing, so that was new. Learned about state preparation had some difficulties in solving the exercises but made through it.

In the **circuit with many gates,** I had gone through topics like CNOT , toffoli gate and other controlled, it had mathematical notation of all these gates and exercises like preparing bell state.

Overall, these codebooks really helped in understanding the quantum computing part of it and its implementation using pennylane that comes it handy for the projects.

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