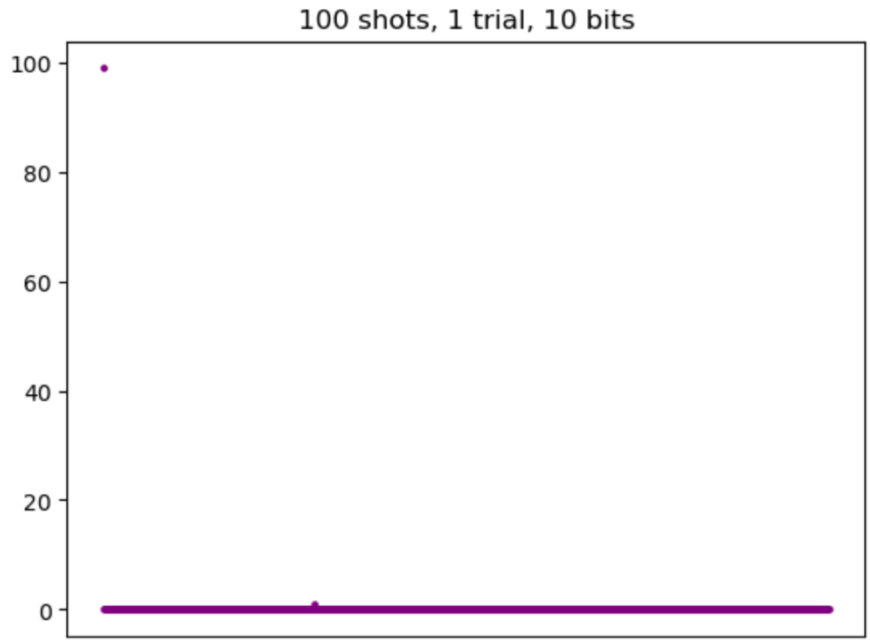
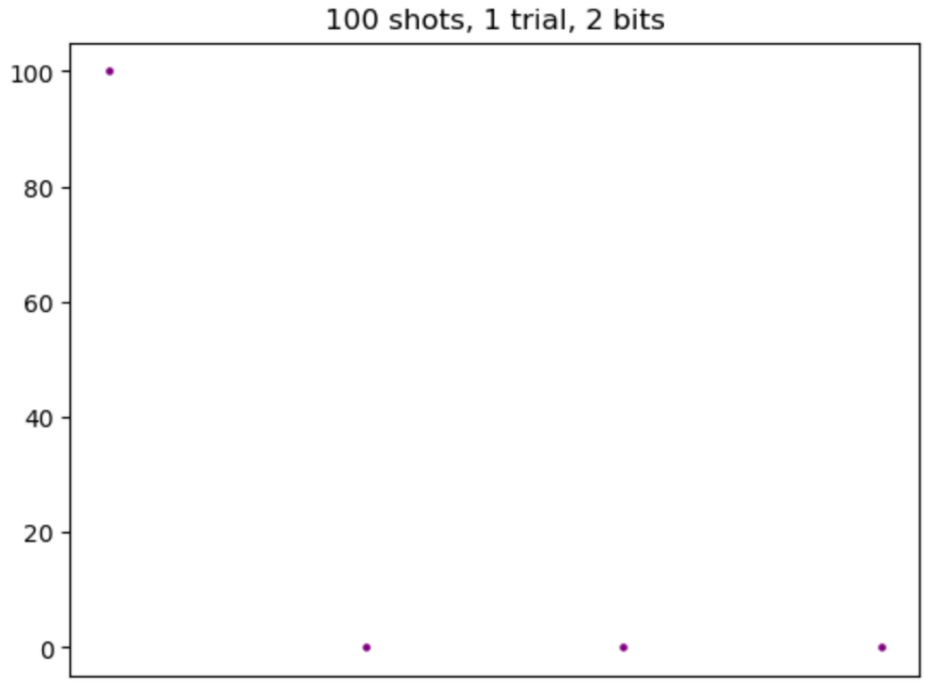
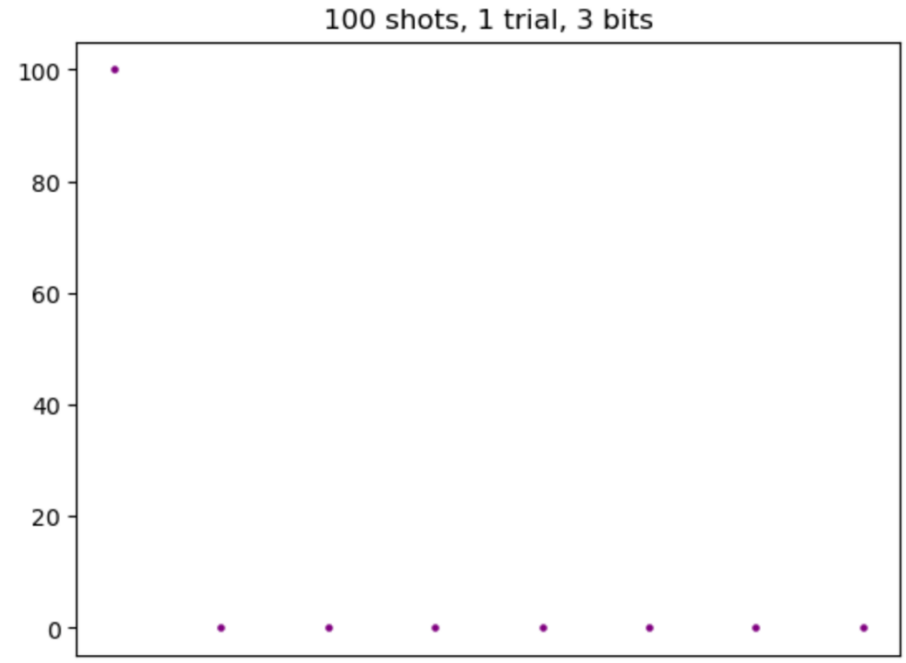
CODE ANALYSIS

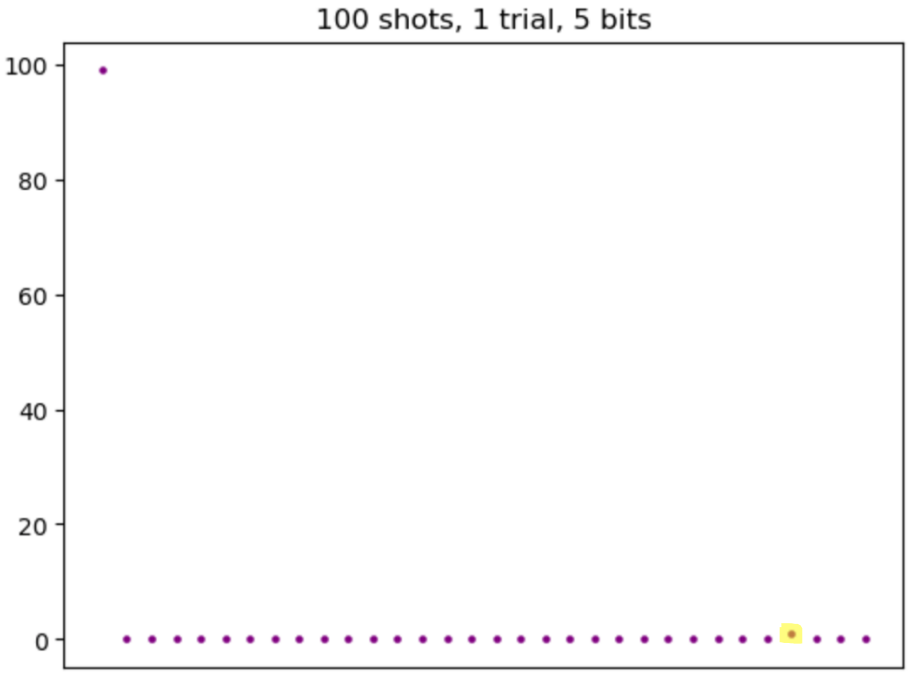
In order to do a code analysis changing the number of bits as well, the code had to be edited to not consult the database but to only select the target to be the 'first' qubit i.e 0, 00, 000… etc. The results were the following:



Varying number of bits:



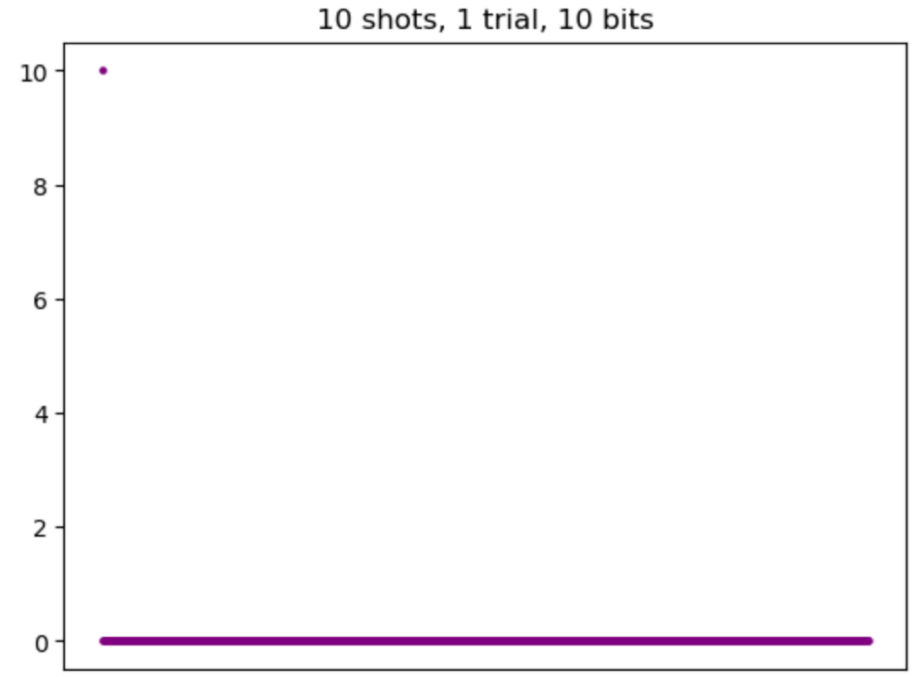


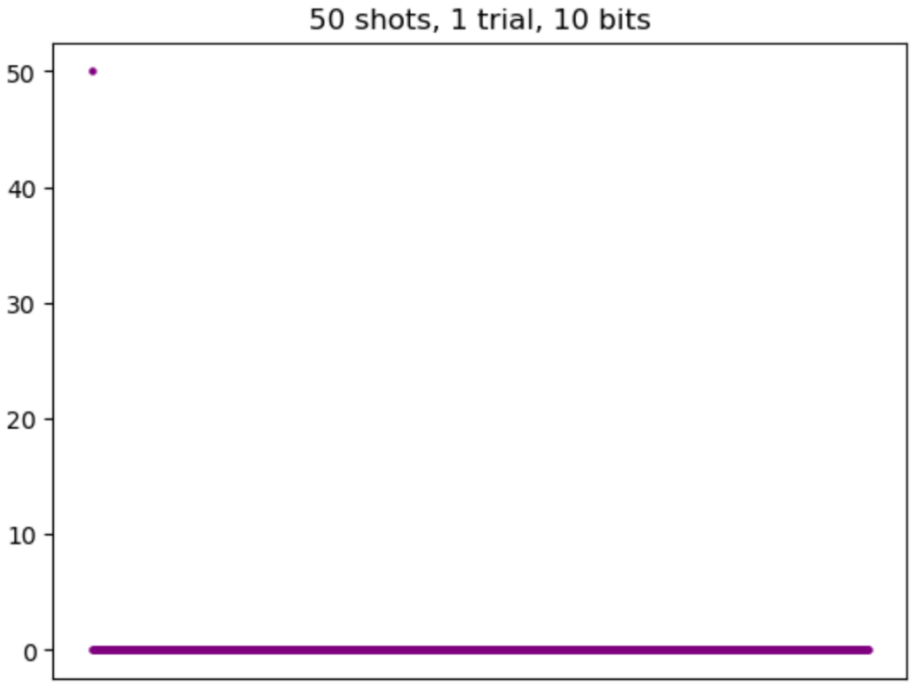


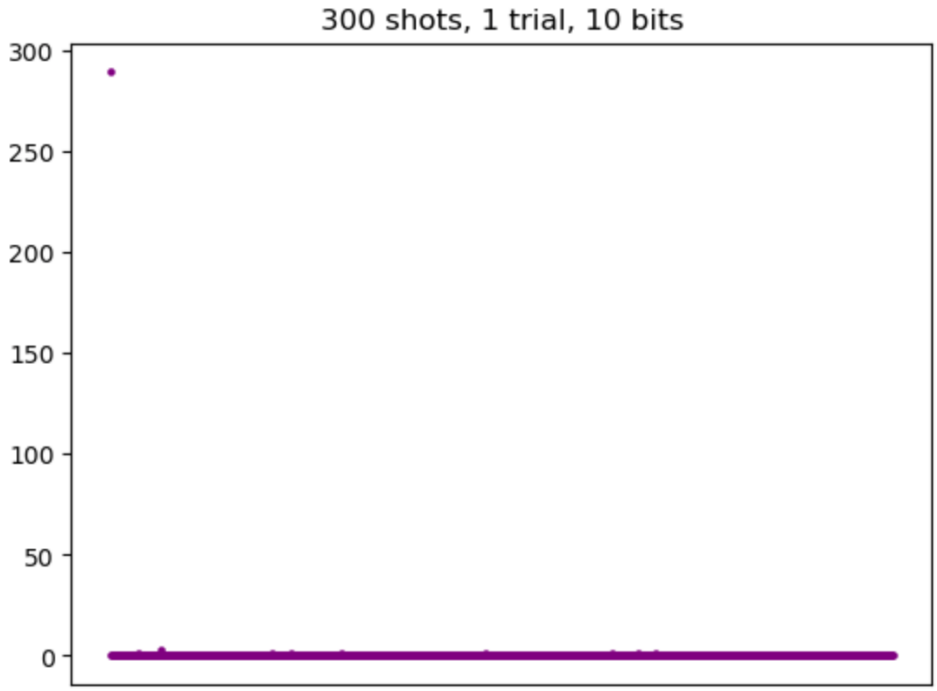
As we can see, when varying the number of qubits, we get perfect results for a small number. However, when the number of qubits increases is when we start noticing small errors such as the one highlighted in the 100 shots, 1 trial, 5 qubits graph. This is opposite to the results we obtained using Qiskit, where the programme only started

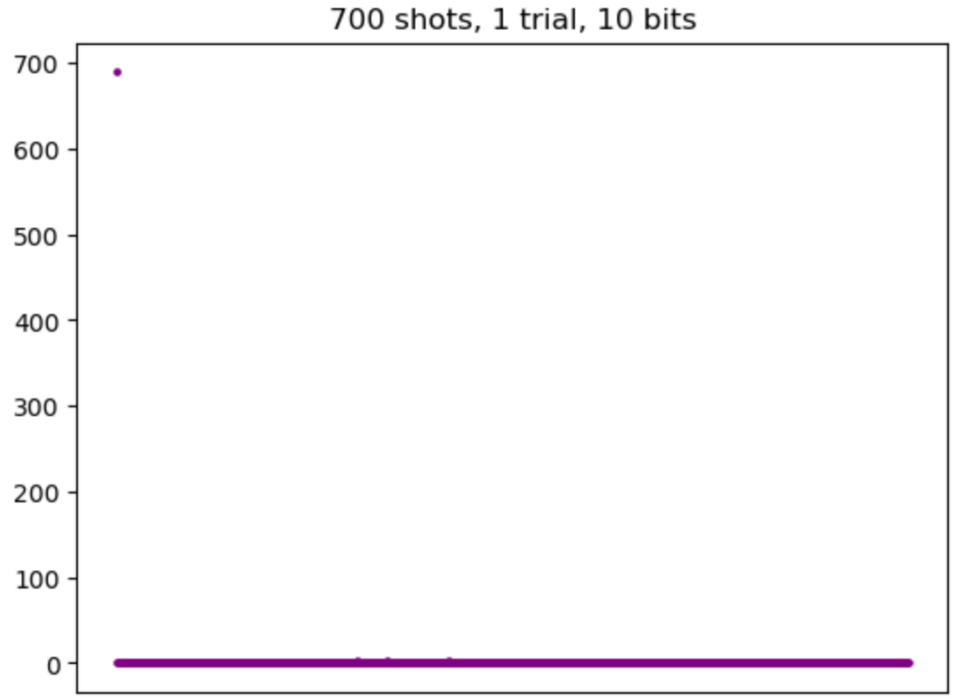
functioning when we had more than 3 qubits, and progressively got better when we increased the number.

Varying number of shots:



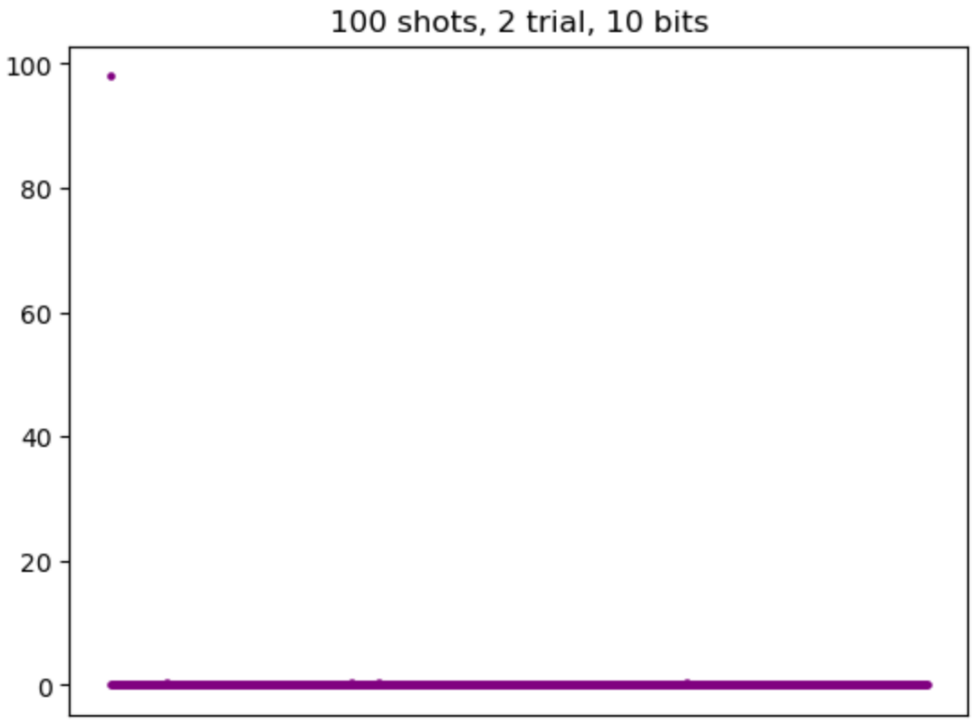


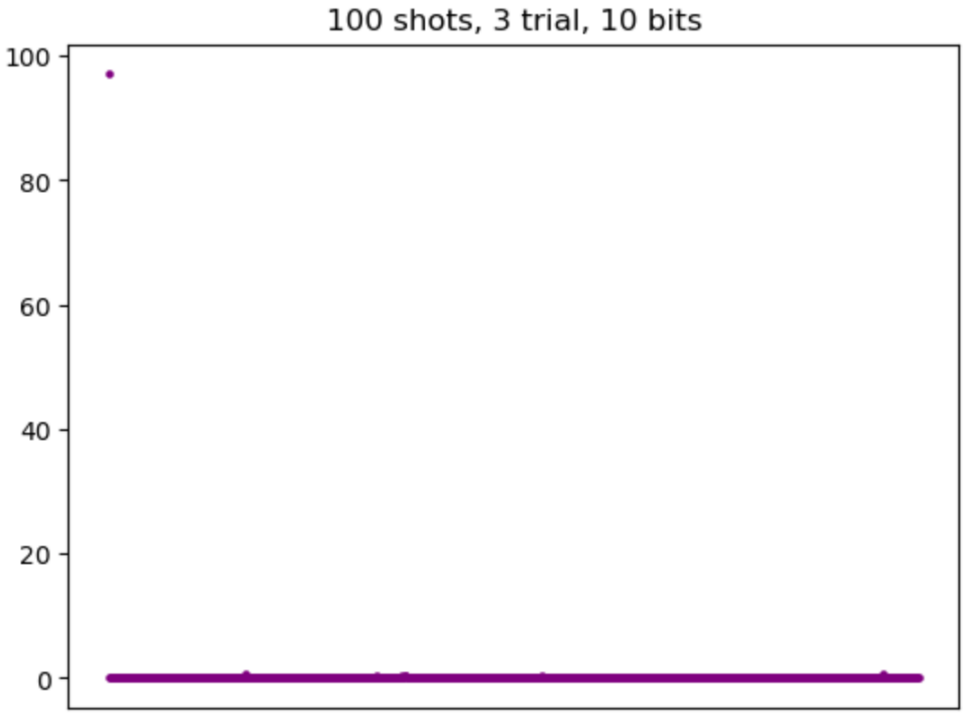


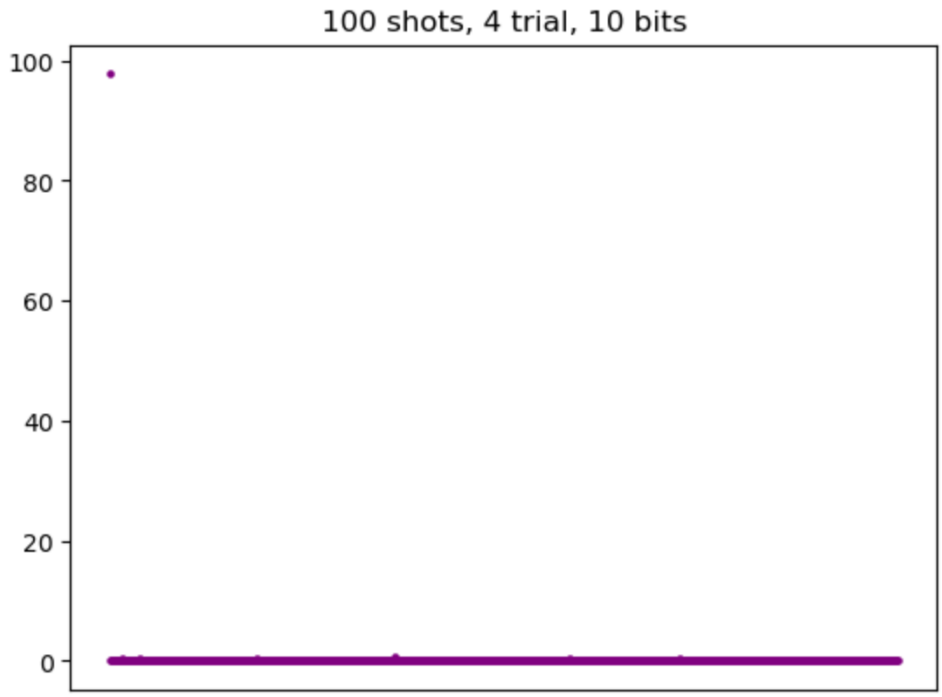


We could point out that increasing the number of shots also increases the chances of an error. However, the graph with 700 shots shows 3 errors, whereas the one with 300 shows 8. We would need more tests to verify this claim.

Varying number of trials:







As well as with the number of shots, there is no significant relation between varying the number of trials and an increase or decrease of the algorithm's accuracy.

I will do the testing of the code using the database on a different PDF.

Extra (?):