

MAT 399 Homework 2 – Fall 2025

Due Date: Wednesday, Oct 8

Following the Deutsch-Jozsa Qiskit tutorial:

1. Modify the code for the oracle generating function so that you can specify the binary string that determines the oracle function f and print it out.
2. For $n = 3$ use the oracle function which has values in the binary string 11001100 assigned to input strings of length 3 in the usual order (of the computational basis). Give the circuit diagram of the oracle function in both compressed and uncompressed formats.
3. For $n = 4$ use the oracle function which has values in the binary string 1100110011001100 assigned to input strings of length 4 in the usual order (of the computational basis). Give the circuit diagram of the oracle function in both compressed and uncompressed formats.