# Classiq Challenge at Q-SITE 2023

**The Challenge:**

1) Design an optimized quantum circuit that solves (i.e., finds the missing values for) the sudoku puzzle copied below, using The Classiq Platform. The circuit must be optimized for an existing, publicly available, cloud-enabled, gate-based, quantum hardware.

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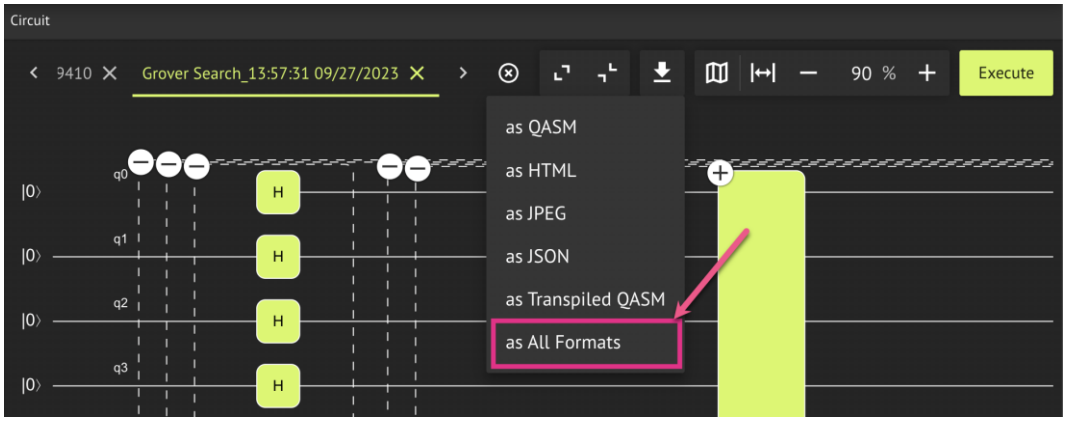
2) Submission: After modeling and synthesizing your quantum circuit using Classiq, upload the following to a GitHub repository:
   I. From the Classiq platform, download and submit the "All Formats" zip file, as shown below
   II. a text document stating a) the hardware you optimized your circuit for and b) the depth of your quantum circuit for that hardware, measured using the native gate set of the selected hardware.




**Accessing Classiq:**

Go to https://platform.classiq.io/ and create an account, Classiq is free for research and education

**Judging Criteria:**

The winning solution will be the submission that:

1) Provides a correct solution to the Sudoku puzzle when executed using a quantum simulator. Simulators used in judging will include the IBM – AER Simulator, and the Azure Quantum – IonQ Simulator.
2) Has the shortest depth circuit among all submissions.

**Notes:**

- Classiq User Guide - https://docs.classiq.io/latest/user-guide/
- This challenge simulates real-world quantum computing in that the combination of algorithm and hardware is what ultimately matters.
- For this challenge, when selecting your hardware - qubit connectivity and native gate set matter, but not qubit fidelity.