11.23.24 Saturday

Current:

- Added 'assertf.h' for better assert statements
- Implemented temporary generators for pauli x, z and I.

Next:

- Goal is to get staging logic to work.
- Be able to stage new operators to list.
- Then start execution or render.

11.25.24 Monday

Completed:

- Update pauli module with better function names

Next:

- Add statevector computation
- Change the way pauli operator matrices are generated so they include dimension size
- I was working on Steeb and Hardy, and I started to formalize how one can derive a unitary operator given an operator specification. Specifically, I was trying an example of deriving U_not given the NOT operation. I need to finish number 4.

Crux: Deriving a matrix representation is easy given we have the unitary operator representation. The hard part is transitioning from input to output in the following

Input: NOT operator description:

$$NOT(|\psi\rangle) = \begin{cases} |0\rangle \mapsto |1\rangle \\ |1\rangle \mapsto |0\rangle \end{cases}$$

Output: Unitary operator of NOT

$$U = |0\rangle \langle 1| + |1\rangle \langle 0|$$

$$\{Q : |\psi\rangle = |\psi\rangle\}$$