Fisher Lyon

2 January 2025

Weeks 1-2:

- Reacquaint myself with propositional logic by completing truth tree exercises on various expressions.
- Be able to translate logical expressions into CNF (Conjunctive Normal Form) using the naive and Tseitin methods.
- Build a program that takes a logical expression and converts it to CNF.

Weeks 3-4:

- Build a brute force SAT solver for 2 boolean variables that includes the CNF converter.
- Extend the brute force SAT solver so that it can handle any number of boolean variables.

Weeks 5-6:

- Study, understand, and solve exercises on DP (Davis-Putnam) and DPLL (Davis-Putnam-Logemann-Loveland) algorithms.
- Build a DPLL-based SAT solver.

Weeks 7-8:

- Study, understand, and solve exercises on the CDCL (Conflict Driven Clause Learning) algorithm.
- Integrate CDCL into my existing SAT solver.

Weeks 9-10:

- Explore Locality Based Search Methods.
- Implement those methods into my existing SAT solver.
- Finalize my SAT solver.