HW6 Group E: The Colors Project

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Introduction

Objective: Determine if a given undirected graph can be colored using k colors such that no two adjacent vertices share the same color.

Project Steps:

1. Encode Graph Input to Variables
2. Create Propositional Logic from Variables
3. Decode Solution from SAT Solver
4. Create a UI with Vue.js

Project Structure

Backend

- Implemented in Python
- Handles encoding of the graph coloring problem into SAT

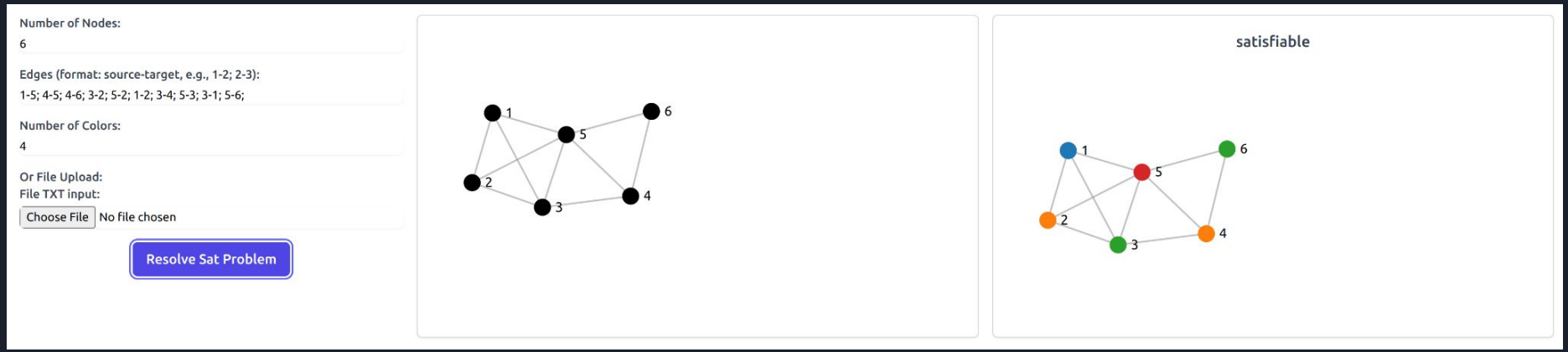
Frontend

- Developed using Vue.js
- Allows user interaction and visualization of the graphs' coloring

Main functions

- Function read_graph: Reads the graph structure from a file
- Function gen_vars: Generates variables for each node-color combination
- Function generate_constraint: Creates the clauses for the SAT solver
- Function decode_solution: Parses the SAT solver’s output

User Interface



DEMO TIME

THANK YOU!