Constraint Satisfaction Problems

Lab 06

Exercise

Use the following pseudocode to complete the program `constraints_template.py`. Remember to **incorporate the other methods** already present in the file.

function RECURSIVE-BACKTRACKING(*assignment, csp*)
    if *assignment* is complete **then return** *assignment*
    var ← SELECT-UNASSIGNED-VARIABLE(VARIABLES[*csp*], *assignment, csp*)
    for each *value* **in** ORDER-DOMAIN-VALUES(*var, assignment, csp*)
        if *value* is consistent with *assignment* given CONSTRAINTS[*csp*]
            add {*var* = *value*} to *assignment*
            result ← RECURSIVE-BACKTRACKING(*assignment, csp*)
            if *result* ≠ *failure* **then return** *result*
            remove {*var* = *value*} from *assignment*
    return *failure*

Homework

Modify the program from the exercise to use:

→ The map of South America (on the next slide)

→ 4 colors (red, green, blue and yellow

Challenge

Implement forward checking and arc consistency for the previous exercise.