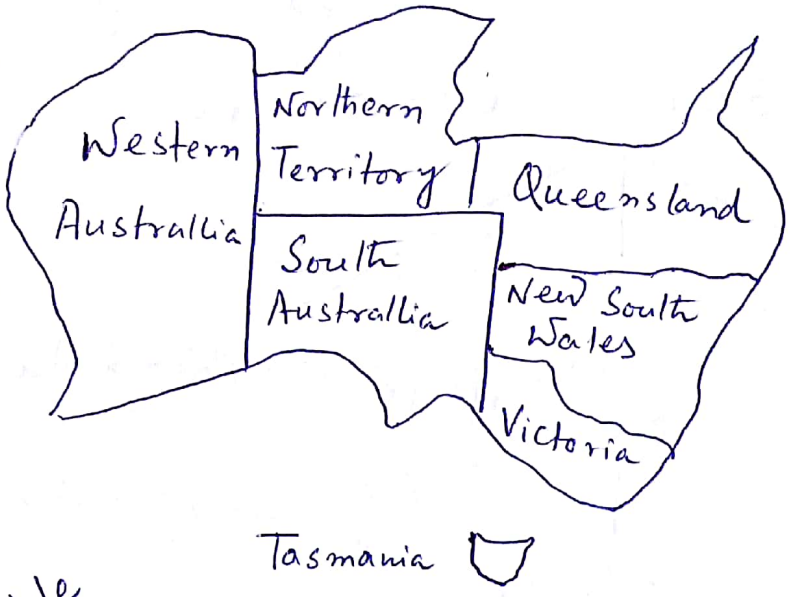
Map Colouring Problem



Map of Australia

Variable

$X = \{WA, NT, Q, NSW, V, SA, T\}$

$D_i = \{red, green, blue\}$

Domain

} Constraint Satisfaction

CSP ⟶ Constraint Graph.

Nodes → Variable of the problem

link → Connects any two variables that participates in a Constraint.

Constraint 1.: $\{SA = blue\}$

Outcome 1. ⇒ All the nebouring variables (five) can not take the colour blue.

$Di' = Di \cap \{blue\} = \{red, green\}$

Constraint 2 : $\{WA = red\}$ AND $\{SA = blue\}$

Outcome 2 $\Rightarrow \{NT = green\}$

Constraint 3 : $\{NT = green\}$ AND $\{SA = blue\}$

Outcome 3 $\Rightarrow \{Q = red\}$

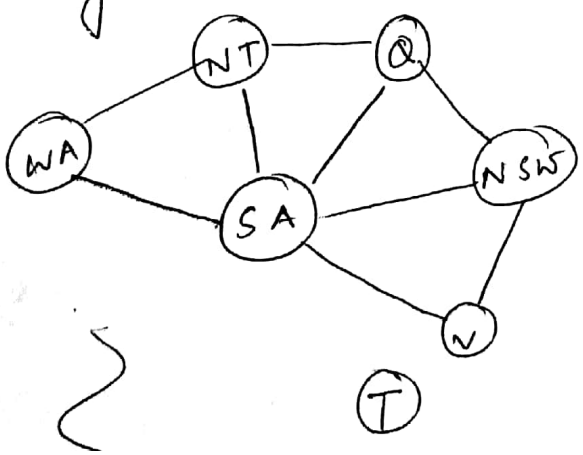
Constraint 4 : $\{Q = red\}$ AND $\{SA = blue\}$

Outcome 4 : $\Rightarrow \{NSW = green\}$

Constraint 5 : $\{NSW = green\}$ AND $\{SA = blue\}$

Outcome $\Rightarrow \{V = red\}$

Variable T is not adjacent neighbour of any other, therefore any colour can be chosen.



CSG

$\Rightarrow$ Solution of CSP Coloured Map.