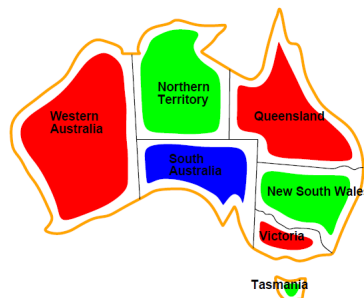


COMP 2019 Workbook Exercises Week 5 – Evolutionary Algorithms

Revisit the Australia Map Colouring problem that was introduced in Week 4 Constraint Satisfaction Search, where the objective is to assign one of three colours to each region on the map so that no adjacent regions share the same colour.



In this exercise, you will solve this problem using a Genetic Algorithm.

- Define an encoding of the problem as chromosomes.
- Define the fitness function.
- Define crossover and mutation operators.
- Suppose a population sized 5 is to be used for the genetic algorithm. Define the initial population.
- Calculate the fitness of each individual in the initial population.
- Calculate the offspring of individuals 1 and 2 in the initial population. Do not apply the mutation operator.