AI Assignment 2 Report

The genetic algorithm has been implemented using python. Star is used as the example image for checking how the genetic algorithm works.

A population of 100 is created initially which consists of the genes that are randomly generated. A fitness for each gnome is calculated using the fitness function. The entire population is then sorted based on the fitness, the population which has the highest fitness about 10% of the population are taken as parents for mating. For the mating process, a randomly calculated number is used to determine if the child is going to take the parent1's gnome or parent2's gnome or a completely mutated gnome.

The children thus formed will become the new generation and the fitness of these children will be calculated and only the highest fit people will be taken for the next stage.

The program takes over 30 minutes to run.

The fitness started with about 26000 and after about 13000 iterations the fitness has come down to about 18000, the stopping condition used for the program is a fitness of less than 15000.

The images started with a completely white background and evolved to -

These after sometime.